

TEXAS A&M UNIVERSITY

UNDERGRADUATE CATALOG

2025-2026

ED. 148



TABLE OF CONTENTS

Purpose/Accreditation	12
Catalog Publication Statement	14
University Academic Calendars	15
Board of Regents and Administrative Officers	23
General Information	25
History and Development	25
University Core Curriculum	26
Student Learning Outcomes	31
Degree and Program Information	32
Cultural Discourse Requirements	48
International and Cultural Diversity Requirements	49
Admission	52
Registration and Academic Status	79
Grading System	81
Housing	83
Orientation	84
Office for Student Success	86
Services for Students	86
Campus Life	93
Tuition, Fees and Other Financial Information	98
Scholarships & Financial Aid	106
University Policies	110
International Opportunities for Students	114
Honors, Undergraduate Research and National Fellowships	116
Transition Academic Programs	121
Interdisciplinary Programs	122
Entrepreneurship - Minor	122
Honors - Minor	124
Leadership - Minor	124
College of Agriculture and Life Sciences	126
Department of Agricultural Economics	131
Agribusiness - BS	134
Agricultural Economics - BS, Finance and Real Estate Option	135
Agricultural Economics - BS, Food Marketing Systems Option	137
Agricultural Economics - BS, Policy and Economic Analysis Option	138
Agricultural Economics - BS, Rural Entrepreneurship Option	139

Agricultural Economics - 5-Year Bachelor of Science and Master of Public Service Administration	141
Financial Planning - BS	143
Agribusiness Entrepreneurship - Minor	144
Agricultural Economics - Minor	145
AgriFood Sales - Minor	145
Financial Planning - Minor	146
International Trade and Agriculture - Certificate	146
Department of Agricultural Leadership, Education, and Communications	147
Agricultural Communications and Journalism - BS	149
Agricultural Education - BS	150
Agricultural Leadership and Development - BS	151
Agricultural Communications and Journalism - Minor	152
Extension Education - Minor	153
International Agricultural Development - Minor	153
Leadership - Minor	154
Youth Development - Minor	154
Department of Animal Science	155
Animal Science - BS, Production/Industry Option	157
Animal Science - BS, Science Option	158
Equine Science - Certificate	160
Meat Science - Certificate	160
Department of Biochemistry and Biophysics	160
Biochemistry - BS	162
Genetics - BS	163
Biochemistry - Minor	164
Genetics - Minor	165
Department of Biological and Agricultural Engineering	165
Agricultural Systems Management - BS	166
Biological and Agricultural Engineering - BS	167
Biological and Agricultural Engineering - BS, Agricultural Engineering Track	169
Biological and Agricultural Engineering - BS, Biological Engineering Track	170
Biological and Agricultural Engineering - BS, Natural Resources Engineering Track	172
Agricultural Systems Management - Minor	173
Food Engineering - Minor	173
Department of Ecology and Conservation Biology	174
Ecology and Conservation Biology - BS, Ecoinformatics Track	175
Ecology and Conservation Biology - BS, Ecology and Conservation Biology Track	177

Ecology and Conservation Biology - BS, Forest Resources Track	178	Sport Nutrition - Certificate	214
Ecology and Conservation Biology - BS, Teaching Track	180	Department of Plant Pathology and Microbiology	215
Ecology and Conservation Biology - BS, Vertebrate Zoology Track	181	Bioenvironmental Sciences - BS	215
Ecology and Conservation Biology - Minor	182	Environmental Studies - BS	217
Department of Entomology	183	Bioenvironmental Sciences - Minor	218
Entomology - BS	184	Department of Poultry Science	218
Forensic and Investigative Sciences - BS, Pre-Law Emphasis	187	Poultry Science - BS, Industry Emphasis	219
Forensic and Investigative Sciences - BS, Science Emphasis	189	Poultry Science - BS, Technical Emphasis	220
Entomology - Minor	190	Poultry Science - Minor	221
Public Health Entomology - Certificate	191	Department of Rangeland, Wildlife and Fisheries Management	221
Department of Food Science and Technology	192	Rangeland, Wildlife and Fisheries Management - BS, Aquaculture and Fisheries Management Track	222
Food Science and Technology - BS, Food Industry Option	192	Rangeland, Wildlife and Fisheries Management - BS, Natural Resources Management and Policy Track	223
Food Science and Technology - BS, Food Science Option	194	Rangeland, Wildlife and Fisheries Management - BS, Outdoor Enterprise Management Track	225
Coffee Processing and Quality - Certificate	196	Rangeland, Wildlife and Fisheries Management - BS, Rangeland Management Track	226
Food Diversity - Certificate	197	Rangeland, Wildlife and Fisheries Management - BS, Wildlife Management Track	227
Department of Horticultural Sciences	197	Rangeland, Wildlife and Fisheries Management- 5-year Bachelor of Science and Master of Public Service Administration	228
Horticulture - BA	198	Park and Natural Resource Management - Minor	229
Horticulture - BS	200	Rangeland Management - Minor	230
Horticulture - Minor	201	Wildlife and Fisheries Management - Minor	230
Floral Design - Certificate	201	Department of Soil and Crop Sciences	230
Viticulture and Enology - Certificate	202	Plant and Environmental Soil Science - BS, Crops Emphasis	232
Department of Hospitality, Hotel Management and Tourism	202	Plant and Environmental Soil Science - BS, Soil and Water Emphasis	233
Hospitality, Hotel Management and Tourism - BS, Business Hospitality Track	203	Turfgrass Science - BS	234
Hospitality, Hotel Management and Tourism - BS, Event, Tourism and Recreation Management Track	204	Agronomy - Minor	235
Hospitality, Hotel Management and Tourism - BS, Hotel and Resort Management Track	205	Environmental Soil Science - Minor	236
Recreation Management - Minor	207	Plant Breeding - Minor	236
Tourism Management - Minor	207	College of Architecture	237
Hospitality Management - Certificate	207	Department of Architecture	239
Professional Event Management - Certificate	208	Architecture - BS	241
Recreation and Park Management - Certificate	208	Architectural Fabrication and Product Design - Minor	242
Tourism Management - Certificate	209	Architectural Heritage Conservation - Minor	243
Youth Development - Certificate	209	Art and Architecture History - Minor	243
Department of Nutrition	210	Sustainable Architecture and Planning - Minor	244
Nutrition - BS, Didactic Program in Dietetics Track	211	Department of Construction Science	244
Nutrition - BS, Human Health Track	212	Construction Science - BS	248
Nutrition - Minor	214	Facility Management - Minor	249
Culinary Health - Certificate	214		

Leadership in the Design and Construction Professions - Minor	249	Neuroscience - BS, Molecular and Cellular Neuroscience	304
Department of Landscape Architecture and Urban Planning	250	Zoology - BS	305
Landscape Architecture - BLA	252	Bioinformatics - Minor	306
Urban and Regional Planning - BS, Urban Design Track	253	Biology - Minor	307
Urban and Regional Planning - BS, Urban Policy Track	254	Neuroscience - Minor	307
Urban and Regional Planning - 6-Year Bachelor of Science and Master of Landscape Architecture	255	Pre-Medicine - Minor	308
Urban and Regional Planning - 5-Year Bachelor of Science and Master of Land and Property Development	256	Department of Chemistry	308
Urban and Regional Planning - 5-Year Bachelor of Science and Master of Urban Planning	258	Chemistry - BA	311
Urban and Regional Planning - Minor	259	Chemistry - BA, Biological Chemistry or Medical, Dental, Pharmacy School Track	312
University Studies	260	Chemistry - BA, Chemical Education Track	314
University Studies - BS, Global Arts, Planning, Design and Construction Concentration	260	Chemistry - BA, Environmental Chemistry Track	315
College of Arts and Sciences	261	Chemistry - BS	316
Environmental Studies - BS	266	Chemistry - BS, Biological-Chemistry Track	318
Environmental Systems Science - BS	269	Chemistry - BS, Environmental Chemistry Track	319
Women's and Gender Studies - BA	271	Chemistry - BS, Materials Chemistry Track	320
Women's and Gender Studies - BS	272	Chemistry - 5-Year Bachelor of Science and Master of Science in Chemistry	321
Environmental Systems Science - Minor	274	Chemistry - Minor	323
Gender and Health - Minor	274	Department of Communication and Journalism	324
Women's and Gender Studies - Minor	275	Communication - BA	326
Department of Anthropology	275	Communication - 5-Year Bachelor of Arts and Master of Arts in Communication	327
Anthropology - BA	276	Communication - BS	329
Anthropology - BA, Archaeology Track	278	Communication - 5-Year Bachelor of Science and Master of Arts in Communication	330
Anthropology - BS	279	Journalism - BA	332
Anthropology - Minor	281	Journalism - 5-Year Bachelor of Arts and Master of Arts in Communication	333
Archaeology - Minor	281	Journalism - BS	335
Medical Anthropology - Minor	282	Journalism - 5-year Bachelor of Science and Master of Arts in Communication	336
Museum Studies - Minor	282	Telecommunication Media Studies - BA	338
Nautical Archaeology - Minor	283	Telecommunication Media Studies - 5-Year Bachelor of Arts and Master of Arts in Communication	339
Department of Atmospheric Sciences	283	Telecommunication Media Studies - BS	341
Meteorology - BS	284	Telecommunication Media Studies - 5-Year Bachelor of Science and Master of Arts in Communication	342
Meteorology - 5-Year Bachelor of Science and Master of Ocean Science and Technology	285	Communication - Minor	344
Climate Change - Minor	287	Journalism - Minor	344
Meteorology - Minor	287	Communication Leadership and Conflict Management - Certificate	344
Department of Biology	288	Health Communication - Certificate	345
Biology - BA	298	Social Media - Certificate	345
Biology - BS	299	Strategic Communication - Certificate	346
Microbiology - BS	301		
Molecular and Cell Biology - BS	302		

Department of Economics	346	Geology - Minor	388
Economics - BA	348	Department of Global Languages and Cultures	389
Economics - 5-Year Bachelor of Arts and Master of International Affairs	349	Classics - BA, Classical Civilization Track	390
Economics - 5-Year Bachelor of Arts and Master of Public Service Administration	350	Classics - BA, Language and Literature Track	392
Economics - 5-Year Bachelor of Arts and Master of Science in Economics	352	Modern Languages - BA, French Option	393
Economics - BS	353	Modern Languages - BA, German Option	394
Economics - 5-Year Bachelor of Science and Master of International Affairs	354	Modern Languages - BA, Russian Option	396
Economics - 5-Year Bachelor of Science and Master of Public Service Administration	355	Spanish - BA	397
Economics - 5-Year Bachelor of Science and Master of Science in Economics	356	University Studies - BA, Race, Gender, Ethnicity Concentration	399
Economics - Minor	358	University Studies - BS, Race, Gender, Ethnicity Concentration	400
Department of English	358	Africana Studies - Minor	402
English - BA	360	Arabic Studies - Minor	402
English - BA, Middle School Teacher Certification	362	Chinese - Minor	403
English - 5-Year Bachelor of Arts and Master of Arts in English	364	Classical Studies - Minor	403
English - Minor	366	Comparative Cultural Studies International - Minor	404
Health Humanities - Minor	366	French - Minor	405
Professional Writing - Minor	367	German - Minor	406
Science Fiction and Fantasy Studies- Minor	368	Hispanic Studies for Community Engagement - Minor	406
Department of Geography	368	Italian - Minor	407
Geographic Information Science and Technology - BS	369	Japanese - Minor	407
Geographic Information Science and Technology - 5-Year Bachelor of Science and Master of Science in Geography	371	Jewish Studies - Minor	408
Geography - BS	372	Religious Studies - Minor	408
Geography - 5-Year Bachelor of Science and Master of Geoscience	373	Russian - Minor	409
Geography - 5-Year Bachelor of Science and Master of Science in Geography	375	Spanish - Minor	409
Geographic Information Science and Technology - Minor	376	Spanish for the Health Professions - Minor	410
Geography - Minor	377	Proficiency in Modern Languages - Certificate	410
Department of Geology and Geophysics	377	Department of History	410
Geology - BA	379	History - BA	412
Geology - BS	382	History - 5-Year Bachelor of Arts and Master of Arts in History	414
Geology - 5-Year Bachelor of Science and Master of Ocean Science and Technology	383	History - BS	415
Geology - 5-Year Bachelor of Science and Master of Science in Geology	385	History - Minor	416
Geophysics - BS	386	Legal History - Certificate	417
Geophysics - 5-Year Bachelor of Science and Master of Science in Geophysics	387	Department of Mathematics	417
		Applied Mathematics - BS, Actuarial Science Emphasis	422
		Applied Mathematics - BS, Biological Science Emphasis	424
		Applied Mathematics - BS, Computational Science Emphasis	425
		Applied Mathematics - BS, Cryptography Emphasis	426
		Applied Mathematics - BS, Economics Emphasis	428
		Applied Mathematics - BS, Math Emphasis	429

Applied Mathematics - BS, Statistics Emphasis	431	Psychology - BS	477
Applied Mathematics - 5-Year Bachelor of Science and Master of Science in Economics	432	Psychology - Minor	479
Applied Mathematics - 5-Year Bachelor of Science and Master of Science in Mathematics	434	Behavioral Health - Certificate	479
Mathematics - BA	436	Healthy Development - Certificate	479
Mathematics - BA, Teaching Emphasis	437	Psychology of Diversity - Certificate	480
Mathematics - 5-Year Bachelor of Arts and Master of Science in Mathematics	439	Work and Organizations - Certificate	480
Mathematics - BS	440	Department of Sociology	481
Mathematics - 5-Year Bachelor of Science and Master of Science in Mathematics	442	Sociology - BA	482
University Studies - BS, Mathematics for Teaching Concentration	444	Sociology - 5-Year Bachelor of Arts and Master of Public Service Administration	483
Mathematics - Minor	444	Sociology - BS	485
Department of Oceanography	445	Sociology - 5-Year Bachelor of Science and Master of Public Service Administration	486
Oceanography - BS	446	Criminology - Minor	488
Oceanography - 5-Year Bachelor of Science and Master of Ocean and Science Technology	448	Latino/a and Mexican-American Studies - Minor	488
Ocean Studies - BA	451	Sociology - Minor	489
Oceanography - Minor	452	Department of Statistics	490
Department of Philosophy	452	Bioinformatics - BS	491
Philosophy - BA	453	Statistics - BS	493
Philosophy - 5-Year Bachelor of Arts and Master of Arts in Philosophy	455	Statistics - 5-Year Bachelor of Science and Master of Science in Statistical Data Science	494
Society, Ethics, and Law - BA	456	Statistics - Minor	496
Philosophy - Minor	457	Mays Business School	497
Philosophy Pre-Law - Certificate	458	Business - BS	501
Department of Physics and Astronomy	458	Business Honors - BBA	502
Physics - BA	461	Artificial Intelligence in Business - Minor	504
Physics - BS	462	Business - Minor	504
Physics - BS, Astrophysics Track	463	Business of Technology - Certificate	504
Physics - BS, Business Track	464	International Business Studies - Certificate	505
Physics - BS, Computational Science Track	465	Management Consulting - Certificate	507
Physics - BS, Physical Science Teaching Track	466	James Benjamin Department of Accounting	507
Physics - BS, Physics and Mathematics Teaching Track	468	Accounting - BBA	510
Physics - BS, Semiconductors and Modern Materials Track	469	Accounting - 5-Year Bachelor of Business Administration and Master of Financial Management	511
Astrophysics - Minor	470	Accounting- 5-Year Bachelor of Business Administration and Master of Science	513
Physics - Minor	471	Energy Accounting - Certificate	515
Department of Psychological and Brain Sciences	471	Internal Audit - Certificate	515
Behavioral and Cognitive Neuroscience - BS	473	Adam C. Sinn '00 Department of Finance	516
Neuroscience - BS, Behavioral and Cognitive Neuroscience ...	474	Finance - BBA	518
Psychology - BA	475	Commercial Banking - Certificate	519
		Corporate Finance - Certificate	519
		Trading, Risk and Investments - Certificate	520

Department of Information and Operations Management	520	Kinesiology - 5-Year Bachelor of Science and Master of Science in Athletic Training	568
Management Information Systems - BBA	522	Sport Management - BS	570
Supply Chain Management - BBA	524	Coaching - Minor	571
Department of Management	525	Sport Management - Minor	571
Management - BBA, Consulting/General Management Track	527	Department of Teaching, Learning and Culture	572
Management - BBA, Entrepreneurial Leadership Track	529	Early Childhood Development and Education - BS, Leadership Track	575
Management - BBA, Human Resource Management Track	530	Early Childhood Development and Education - BS, Teaching (Non- Licensure) Track	576
Management - BBA, Pre-Law Track	531	Education - BS, Early Childhood-3 Certification	577
Department of Marketing	533	Education - BS, English Language Arts/Social Studies, Middle Grades Certification	578
Marketing - BBA, Advertising Strategy Track	534	Education - BS, Math/Science, Middle Grades Certification	579
Marketing - BBA, Analytics and Consulting Track	536	Education - BS, Pre-K-6, Generalist Certification	580
Marketing - BBA, Healthcare Marketing Track	537	Secondary Education - Clinical Teaching Minor	581
Marketing - BBA, Professional Selling and Sales Management Track	538	Secondary Education - Minor	582
Marketing - BBA, Strategic Retailing Track	540	Secondary Graduate Certification Program	582
University Studies	541	College of Engineering	584
University Studies - BS, Business Concentration	541	Engineering Concept, Creation, and Commercialization - Certificate	591
College of Dentistry	543	Holistic Leadership in Engineering - Certificate	592
Caruth School of Dental Hygiene	543	International Engineering - Certificate	592
Dental Hygiene - BS	544	Department of Aerospace Engineering	593
College of Education and Human Development	546	Aerospace Engineering - BS	595
Department of Educational Administration and Human Resource Development	548	Department of Biomedical Engineering	597
Human Resource Development - BS	549	Biomedical Engineering - BS	599
Learning Technology and Performance Systems - BS	550	Biomedical Engineering - Minor	601
Human Resource Development - Minor	552	Artie McFerrin Department of Chemical Engineering	602
Learning Technology and Performance Systems - Minor	552	Chemical Engineering - BS	605
Department of Educational Psychology	552	Engineering Therapeutics Manufacturing - Certificate	606
Education - BS, Bilingual Education EC-6	555	Safety Engineering - Certificate	607
Education - BS, Special Education EC-12	556	Zachry Department of Civil and Environmental Engineering	607
Human Development and Family Sciences - BS	557	Civil Engineering - BS, Coastal Engineering Track	611
Creative Studies - Minor	558	Civil Engineering - BS, Construction Engineering and Management Track	614
Educational Supports for Individuals with Disabilities - Minor	559	Civil Engineering - BS, Environmental Engineering Track	616
Interdisciplinary Studies - Certificate	559	Civil Engineering - BS, General Civil Engineering Track	618
Department of Kinesiology and Sport Management	559	Civil Engineering - BS, Geotechnical Engineering Track	620
Kinesiology - BS, Exercise and Sport Science Track	563	Civil Engineering - BS, Structural Engineering Track	623
Kinesiology - BS, Exercise Science Track, Applied Exercise Physiology Concentration	564	Civil Engineering - BS, Transportation and Infrastructure Materials Engineering Track	625
Kinesiology - BS, Exercise Science Track, Basic Exercise Physiology Concentration	566	Civil Engineering - BS, Water Resources Engineering Track	627
Kinesiology - BS, Exercise Science Track, Motor Behavior Concentration	567	Environmental Engineering - BS	630

Department of Computer Science and Engineering	632	J. Mike Walker '66 Department of Mechanical Engineering	682
Computer Engineering - BS	635	Mechanical Engineering - BS	686
Computer Science - BA	637	Department of Multidisciplinary Engineering	688
Computer Science - BS	638	Architectural Engineering - BS, Mechanical Systems for Buildings Track	690
Computer Science - Minor	640	Architectural Engineering - BS, Structural Systems for Buildings Track	692
Cybersecurity - Minor	640	Interdisciplinary Engineering - BS	693
Game Design and Development - Minor	641	Interdisciplinary Engineering - 5-Year Bachelor of Science and Master of Public Health in Occupational Safety and Health ...	695
Cyber Operations - Certificate	641	Interdisciplinary Engineering - 6-Year Bachelor of Science and Juris Doctor	697
Department of Electrical and Computer Engineering	642	Engineering Entrepreneurship - Minor	699
Computer Engineering - BS	644	Engineering Project Management - Minor	700
Electrical Engineering - BS	646	Department of Nuclear Engineering	701
Electrical Engineering - Minor	648	Nuclear Engineering - BS	702
Department of Engineering Technology and Industrial Distribution	648	Nuclear Engineering - Minor	703
Electronic Systems Engineering Technology - BS	654	Radiological Health Engineering - Minor	704
Industrial Distribution - BS	655	Department of Ocean Engineering	704
Manufacturing and Mechanical Engineering Technology - BS	657	Ocean Engineering - BS	705
Multidisciplinary Engineering Technology - BS, Electro Marine Engineering Technology Track	659	Harold Vance Department of Petroleum Engineering	707
Multidisciplinary Engineering Technology - BS, Mechatronics Track	661	Petroleum Engineering - BS	709
Multidisciplinary Engineering Technology - BS, STEM Education Track	663	Data Analytics for Petroleum Industry - Certificate	711
Embedded Systems Integration - Minor	665	Petroleum Ventures - Certificate	711
Information Technology Service Management - Minor	665	Bush School of Government and Public Service	713
Technical Sales - Minor	666	Department of International Affairs	726
Wm Michael Barnes '64 Department of Industrial and Systems Engineering	666	International Affairs - BA	729
Data Engineering - BS	668	International Affairs - 5-Year Bachelor of Arts and Master of International Affairs	730
Industrial Engineering - BS	670	Department of Political Science	733
Industrial Engineering - 5-Year Bachelor of Science and Master of Public Health in Occupational Safety and Health	671	Political Science - BA	735
Industrial Engineering - 5-year Bachelor of Science and Master of Science in Finance	673	Political Science - 5-Year Bachelor of Arts and Master of Public Service Administration	737
Industrial Engineering - Minor	675	Political Science - BS	738
Data Center Operations Engineering - Certificate	675	Political Science - 5-Year Bachelor of Science and Master of Public Service Administration	739
Data Engineering - Certificate	676	American Politics and Policy - Minor	740
Engineering Systems Management - Certificate	676	Comparative Politics - Minor	741
Department of Materials Science and Engineering	677	International Relations - Minor	741
Materials Science and Engineering - BS	679	Legal Foundations - Minor	742
Materials Science and Engineering - Minor	680	Political Data and Research - Minor	742
Corrosion Science and Engineering - Certificate	681	Political Theory - Minor	742
Polymer Specialty - Certificate	682	Race, Ethnicity, and Gender Politics - Minor	743
		Department of Public Service and Administration	743

Public Service and Administration - BA	745	Occupational Safety and Health - Minor	799
Public Service and Administration - BS	746	Public Health Studies - Minor	799
Homeland Security and Emergency Management - Minor	747	College of Veterinary Medicine and Biomedical Sciences	800
Nonprofit Studies - Minor	747	Biomedical Sciences - BS	801
Public Management - Minor	748	Biomedical Sciences - Minor	804
Public Policy Analysis - Minor	748	University Studies	805
College of Nursing	749	University Studies - BS, Biomedical Sciences Concentration	805
Nursing - BSN, Honors	752	Department of Veterinary Integrative Biosciences	806
Nursing - BSN, RN to BSN Track	753	Department of Veterinary Pathobiology	808
Nursing - BSN, Second Degree BSN Track	755	Department of Veterinary Physiology and Pharmacology	810
Nursing - BSN, Traditional BSN	756	Biomedical Research - Certificate	811
College of Performance, Visualization and Fine Arts	759	School of Military Sciences	813
Dance Science - BS	763	Department of Aerospace Studies	813
Kinesiology - BS, Dance Science Track	764	Department of Military Science	813
Music Performance - BFA	765	Department of Naval Science	815
Performance and Visual Studies - BA	767	Military Studies - Minor	816
Theatre – BFA	768	Texas A&M University at Galveston	818
Visualization - BS	769	General Information	823
Art - Minor	770	College of Marine Sciences and Maritime Studies	849
Artificial Intelligence in the Arts - Minor	771	Department of Foundational Sciences	850
Choreography - Minor	771	Clinical Laboratory Sciences - Minor	851
Dance Performance - Minor	771	Department of Marine and Coastal Environmental Science	851
Devised Theatre - Minor	772	Coastal Environmental Science and Society - BS	852
Film and Media Studies - Minor	772	Coastal Environmental Science and Society - 5-Year Bachelor of Science and Master of Marine Resources Management	854
Game Design and Development - Minor	773	Marine Sciences - BS	855
Graphic Design - Minor	773	Marine Sciences - BS, License Option	856
Music - Minor	773	Coastal Environmental Science and Society - Minor	858
Music Technology - Minor	774	Department of Marine Biology	858
Performance Studies - Minor	774	Marine Biology - BS	859
Studio Art - Minor	775	Marine Biology - BS, License Option	861
Virtual Production - Minor	775	Marine Fisheries - BS	862
School of Public Health	776	Marine Biology - Minor	863
Public Health - BS, Internship Track	781	Marine Fisheries - Minor	864
Public Health - BS, Non-Internship Track	783	Department of Marine Engineering Technology	864
Public Health - 5-year Bachelor of Science and Master of Public Health in Epidemiology	786	Marine Engineering Technology - BS	865
Public Health - 5-Year Bachelor of Science and Master of Public Health in Health Policy and Management	789	Marine Engineering Technology - BS, License Option	866
Public Health - 5-Year Bachelor of Science and Master of Public Health in Health Behavior	792	Marine Electro-Technology - Minor	868
Public Health - 5-year Bachelor of Science and Master of Public Health in Occupational Safety and Health	795	Marine Engineering Technology - Minor	868
Health Behavior - Minor	798	Department of Maritime Business Administration	868
		Maritime Business Administration - BS	869

Maritime Business Administration - 5-Year Bachelor of Science and Master of Maritime Business Administration and Logistics	871	ATTR - Athletic Training (ATTR)	942
Maritime Business Administration - Minor	872	BAEN - Biological & Ag Engr (BAEN)	942
Maritime Cybersecurity - Minor	872	BEFB - Bilingual Ed Field Based (BEFB)	945
Department of Maritime Studies	873	BESC - Bioenvironmental Sci (BESC)	946
Maritime Studies - BA	874	BICH - Biochemistry (BICH)	947
Diving Technology and Methods - Minor	875	BIMS - Biomedical Science (BIMS)	949
Maritime Environmental Law and Policy - Minor	876	BIOL - Biology (BIOL)	951
Department of Maritime Transportation	876	BMEN - Biomedical Engineering (BMEN)	955
Marine Transportation - BS	877	BOTN - Botany (BOTN)	959
University Studies Programs	879	BUSH - Geo Bush School of Gov (BUSH)	959
University Studies - BS, Oceans and One Health Concentration	879	BUSN - Mays Business School (BUSN)	960
University Studies - BS, Tourism and Coastal Community Development Concentration	880	CARC - College of Architecture (CARC)	962
Texas A&M University at Qatar	882	CEHD - Coll of Ed & Human Dev (CEHD)	963
General Information	883	CHEM - Chemistry (CHEM)	964
Division of Arts and Sciences	893	CHEN - Chemical Engineering (CHEN)	967
Course Descriptions	895	CHIN - Chinese (CHIN)	971
AALO - Arabic & Asian Language (AALO)	895	CLAS - Classics (CLAS)	971
ACCT - Accounting (ACCT)	895	CLEN - College of Engineering (CLEN)	974
AERO - Aerospace Engineering (AERO)	897	COMM - Communication (COMM)	975
AERS - Aerospace Studies (AERS)	900	COSC - Construction Science (COSC)	980
AFST - Africana Studies (AFST)	901	CSCE - Computer Sci & Engr (CSCE)	985
AGCJ - Ag Comm & Journalism (AGCJ)	904	CULN - Culinology (CULN)	990
AGEC - Agricultural Economics (AGEC)	906	CVEN - Civil Engineering (CVEN)	990
AGLS - Ag & Life Sciences (AGLS)	910	CYBR - Cybersecurity (CYBR)	994
AGSC - Agricultural Science (AGSC)	911	DAEN - Data Engineering (DAEN)	995
AGSM - Agricultrl Systems Mgmt (AGSM)	912	DASC - Dairy Science (DASC)	997
ALEC - Ag Leadrshp, Ed & Comm (ALEC)	914	DCED - Dance Education (DCED)	997
ALED - Ag Leadership & Dev (ALED)	916	DDHS - Dental Hygiene (DDHS)	1001
ANSC - Animal Science (ANSC)	918	DIVE - Diving Tech and Methods (DIVE)	1003
ANTH - Anthropology (ANTH)	922	ECCB - Eco & Conservation Biol (ECCB)	1004
ARAB - Arabic (ARAB)	927	ECDE - Early Chldhd Devl & Educ (ECDE)	1009
ARCH - Architecture (ARCH)	928	ECEN - Electrical & Comp Engr (ECEN)	1009
AREN - Architectural Engr (AREN)	932	ECFB - Early Chldhd Ed Fld Based (ECFB)	1015
ARSC - Arts & Sciences (ARSC)	934	ECHE - Early Chldhd Ed Fld Based (ECHE)	1016
ARTS - Art (ARTS)	935	ECMT - Econometrics (ECMT)	1016
ASCC - Academic Success Center (ASCC)	937	ECON - Economics (ECON)	1016
ASIA - Asian Studies (ASIA)	938	EDCI - Educ Curriculum & Dev (EDCI)	1019
ASTR - Astronomy (ASTR)	939	EHRD - Ed Human Res Develop (EHRD)	1020
ATMO - Atmospheric Sciences (ATMO)	940	ENDG - Engr Design Graphics (ENDG)	1021
		ENDS - Environmental Design (ENDS)	1021
		ENGL - English (ENGL)	1021
		ENGR - Engineering (ENGR)	1029

ENST-Environmental Studies (ENST)	1031	JOUR - Journalism (JOUR)	1106
ENTC - Engineering Technology (ENTC)	1031	JWST - Jewish Studies (JWST)	1109
ENTO - Entomology (ENTO)	1031	KINE - Kinesiology (KINE)	1109
EPFB - Educ Psyc Field Based (EPFB)	1034	KNFB - Kinesiology Field Based (KNFB)	1112
EPSY - Educational Psychology (EPSY)	1034	LAND - Landscape Architecture (LAND)	1113
ESET - Electronic Sys Eng Tech (ESET)	1036	LING - Linguistics (LING)	1115
EURO - European Studies (EURO)	1038	LMAS - Latino/Mex Amer Studies (LMAS)	1115
EVEN - Environmental Engr (EVEN)	1039	LTPS - Learn Tech & Perf Sys (LTPS)	1116
FILM - Film Studies (FILM)	1041	MARA - Maritime Administration (MARA)	1117
FINC - Finance (FINC)	1043	MARB - Marine Biology (MARB)	1119
FINP - Financial Planning (FINP)	1046	MARE - Marine Engr Technology (MARE)	1122
FIVS - Forensic & Inv Science (FIVS)	1047	MARR - Marine Engr Technology (MARR)	1126
FREN - French (FREN)	1049	MARS - Marine Science (MARS)	1126
FSCI - Foundational Sciences (FSCI)	1050	MART - Marine Transportation (MART)	1129
FSTC - Food Science & Tech (FSTC)	1051	MASC - Integrated Math & Sci (MASC)	1132
FYEX - First Year Experience (FYEX)	1053	MASE - Maritime Systems Engr (MASE)	1133
GALV - TAMU-Galveston	1053	MAST - Maritime Studies (MAST)	1133
GENE - Genetics (GENE)	1053	MATH - Mathematics (MATH)	1135
GEOG - Geography (GEOG)	1055	MEEN - Mechanical Engineering (MEEN)	1140
GEOL - Geology (GEOL)	1059	MEFB - Mid Grds Ed Field Based (MEFB)	1145
GEOP - Geophysics (GEOP)	1062	MEPS - Molecular & Env Plant Sci (MEPS)	1145
GERM - German (GERM)	1063	MGMT - Management (MGMT)	1146
GLST - Global Studies (GLST)	1065	MICR - Microbiology (MICR)	1149
HBRW - Hebrew (HBRW)	1067	MKTG - Marketing (MKTG)	1149
HEFB - Health Ed Field Based (HEFB)	1067	MLSC - Military Science (MLSC)	1151
HHUM - Health Humanities (HHUM)	1067	MMET - Mfg & Mech Engr Tech (MMET)	1152
HISP - Hispanic Studies (HISP)	1068	MODL - Modern Languages (MODL)	1155
HIST - History (HIST)	1069	MSEN - Materials Science & Engr (MSEN)	1155
HLTH - Health (HLTH)	1079	MSTC - Music Technology (MSTC)	1158
HMGT - Hosp, Hotel Mgmt, Tour (HMGT)	1081	MTDE - Multidisciplinary Engr (MTDE)	1159
HORT - Horticultural Sciences (HORT)	1085	MUSC - Music (MUSC)	1161
HUMA - Humanities (HUMA)	1089	MUST - Museum Studies (MUST)	1166
IBUS - International Business (IBUS)	1089	MXET - Multidiscip Engr Tech (MXET)	1166
IDIS - Industrial Distribution (IDIS)	1091	NAUT - Nautical Science (NAUT)	1167
INST - Interdisciplinary Studies (INST)	1092	NRSC - Neuroscience (NRSC)	1167
INTA - International Affairs (INTA)	1093	NUEN - Nuclear Engineering (NUEN)	1168
ISEN - Indust & Systems Engr (ISEN)	1095	NURS - Nursing (NURS)	1170
ISTM - Mgmt Info Systems (ISTM)	1098	NUTR - Nutrition (NUTR)	1175
ITAL - Italian (ITAL)	1102	NVSC - Naval Science (NVSC)	1178
ITDE - Interdisciplinary Engr (ITDE)	1103	OCEN - Ocean Engineering (OCEN)	1179
ITSV - Info Tech Service Mgmt (ITSV)	1104	OCNG - Oceanography (OCNG)	1182
JAPN - Japanese (JAPN)	1105	PBSI - Psyc & Brain Sciences (PBSI)	1184

PERF - Performance Studies (PERF)	1192	Appendices	1411
PETE - Petroleum Engineering (PETE)	1195	Family Educational Rights and Privacy Act	1411
PHIL - Philosophy (PHIL)	1198	Hazing Law (Education Code)	1412
PHLT - Public Health (PHLT)	1201	International Agreements	1413
PHYS - Physics (PHYS)	1205	Jeanne Clery Campus Safety Act (Clery Act)	1416
PLPA - Plant Pathology (PLPA)	1208	Notification for Students Pursuing a License	1416
POLS - Political Science (POLS)	1209	Oak Ridge Associated Universities (ORAU)	1416
PORT - Portuguese (PORT)	1213	Rules and Regulations for Determining Residence Status	1417
POSC - Poultry Science (POSC)	1214	Scholastic Honor Societies	1417
PVFA - Perf Vis Fine Arts (PVFA)	1215	Texas Common Course Numbering System	1417
RDNG - Reading (RDNG)	1216	Index	1421
RELS - Religious Studies (RELS)	1217		
RPTS - Rec, Park & Tourism Sci (RPTS)	1220		
RUSS - Russian (RUSS)	1221		
RWFM - Rang Wild & Fish Mgmt (RWFM)	1222		
SCMT - Supply Chain Mgmt (SCMT)	1227		
SCSC - Soil and Crop Sciences (SCSC)	1229		
SEFB - Special Ed Field Based (SEFB)	1232		
SENG - Safety Engineering (SENG)	1232		
SOCI - Sociology (SOCI)	1233		
SOMS - Schl of Military Sciences (SOMS)	1237		
SPAN - Spanish (SPAN)	1238		
SPED - Special Education (SPED)	1242		
SPEN - Space Engineering (SPEN)	1244		
SPMT - Sport Management (SPMT)	1245		
STAT - Statistics (STAT)	1248		
TCMG - Technology Management (TCMG)	1250		
TEED - Teacher Education (TEED)	1250		
TEFB - Teacher Ed Field Based (TEFB)	1250		
THEA - Theatre (THEA)	1251		
UGST - Undergraduate Studies (UGST)	1253		
URPN - Urban & Reg Planning (URPN)	1254		
VIBS - Vet Integrative Biosci (VIBS)	1257		
VIST - Visual Studies (VIST)	1259		
VLCS - Vet Large Animal Clin Sc (VLCS)	1264		
VSCS - Vet Small Animal Clin Sc (VSCS)	1264		
VTPB - Veterinary Pathobiology (VTPB)	1264		
VTPP - Vet Physiology & Pharm (VTPP)	1266		
WFSC - Wildlife & Fisheries Sci (WFSC)	1268		
WGST - Women's & Gender Studies (WGST)	1268		
ZOOL - Zoology (ZOOL)	1271		
Faculty	1273		

PURPOSE/ACCREDITATION

Purpose of Catalogs

Purpose of Catalogs

The Undergraduate and Graduate and Professional catalogs provide information about the academic programs of Texas A&M University to students, prospective students, faculty and staff of the University. Included is information concerning admissions, academic regulations and requirements, services available to students, academic offerings and a list of the administrative officers and faculty of the University. While every effort has been made to make this catalog as complete and accurate as possible, changes may occur at any time in requirements, deadlines, fees, curricula and courses listed in these catalogs.

Students should refer to Howdy for course offerings in any given semester. For administrative reasons, because of insufficient enrollment or because of limited resources, any given course might not be offered in the announced semester.

This catalog was prepared in advance of its effective date; therefore, the course descriptions may vary from actual course content. The provisions of the catalogs do not constitute a contract, express or implied, between any applicant, student, faculty or staff member of Texas A&M University or The Texas A&M University System. These catalogs are for informational purposes only. The University reserves the right to change or alter any statement herein without prior notice. Neither catalog should be interpreted to allow a student who begins his or her education under either catalog to continue the program under the provisions in that catalog.

Accreditation

Accreditation

Texas A&M University is accredited by the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) to award baccalaureate, master's and doctoral degrees. Degree-granting institutions also may offer credentials such as certificates and diplomas at approved degree levels. Questions about the accreditation of Texas A&M University may be directed in writing to the Southern Association of Colleges and Schools Commission on Colleges at 1866 Southern Lane, Decatur, GA 30033-4097, by calling 404-679-4500, or by using information available on SACSCOC's website (<https://www.sacscoc.org/>).

College of Agriculture and Life Sciences

Agricultural Science is accredited by the State Board of Educator Certification and the Texas Education Agency. (<https://tea.texas.gov/about-tea/leadership/state-board-for-educator-certification/>)

Agricultural Systems Management curriculum is recognized by the American Society of Agricultural and Biological Engineers (ASABE) (<http://www.asabe.org/>).

Biological and Agricultural Engineering is accredited by the Engineering Accreditation Commission of ABET (<https://amspub.abet.org/aps/>), <http://www.abet.org> (<http://www.abet.org/>).¹

The undergraduate program in Biochemistry is accredited by the American Society for Biochemistry and Molecular Biology (ASBMB) (<http://www.asbmb.org/>).

The Didactic Program in Dietetics is accredited by the Accreditation Council for Education in Nutrition and Dietetics (ACEND) (<https://www.eatrightpro.org/acend/>).

Food Science and Technology curriculum is approved by the Institute of Food Technologists (IFT) (<https://www.ift.org/>).

Forensics and Investigative Sciences program is accredited by the Forensic Science Education Programs Accreditation Commission (FEPAC) (<http://fepac-edu.org/>).

College of Architecture

Architecture is accredited by the National Architectural Accrediting Board (NAAB) (<http://www.naab.org/>).

Construction Science curriculum is accredited by the American Council for Construction Education (ACCE) (<http://www.acce-hq.org/>).

Landscape Architecture curriculum is accredited by the Landscape Architectural Accreditation Board (LAAB) (<https://www.asla.org/accreditationlaab.aspx>).

The Master's curricular in *Urban and Regional Planning* curriculum is accredited by the Planning Accreditation Board (PAB) (<http://www.planningaccreditationboard.org/>).

Construction Management is accredited by the American Council for Construction Education (<https://www.acce-hq.org/>).

College of Arts and Sciences

Clinical Psychology is accredited by the American Psychological Association (APA) (<http://www.apa.org/>).

Mays Business School

The baccalaureate and master's curricula in *Mays Business School* are accredited by the Association to Advance Collegiate Schools of Business (AACSB) (<http://www.aacsb.edu/>).

College of Dentistry

Dentistry degree program is accredited by the Commission on Dental Accreditation (CODA) (<https://coda.ada.org/>).

College of Education and Human Development

Programs in professional education at Texas A&M University are approved and fully accredited by the State Board of Educator Certification and the Texas Education Agency (https://tea.texas.gov/About_TEA/Leadership/State_Board_for_Educator_Certification/).

Counseling Psychology and *School Psychology* are accredited by the American Psychological Association (APA) (<http://www.apa.org/>).

Athletic Training is accredited by the Commission on Accreditation of Athletic Training Education (CaATE) (<http://caate.net/>).

College of Engineering

Undergraduate programs in *Aerospace, Biomedical, Chemical, Civil, Computer, Electrical, Industrial, Mechanical, Nuclear, Ocean, and Petroleum Engineering* are accredited by the Engineering Accreditation Commission of ABET (<https://amspub.abet.org/aps/name-search/?searchType=institution>), <http://www.abet.org> (<http://www.abet.org/>).

Undergraduate programs in *Electronic Systems Engineering Technology, Industrial Distribution, Manufacturing and Mechanical Engineering Technology, and Multidisciplinary Engineering Technology*, are accredited by

the Engineering Technology Accreditation Commission of ABET (<https://amspub.abet.org/aps/name-search/?searchType=institution>), <http://www.abet.org> (<http://www.abet.org>).

The undergraduate program in *Computer Science* is accredited by the Computing Accreditation Commission of ABET (<https://amspub.abet.org/aps/name-search/?searchType=institution>), <http://www.abet.org> (<http://www.abet.org>).

Bush School of Government and Public Service

The *Master of Public Service and Administration* degree in the Bush School of Government and Public Service is accredited by the Network of Schools of Public Policy, Affairs, and Administration (NASPAA) (<https://www.naspaa.org/accreditation/>)

School of Law

The *School of Law* is accredited by the American Bar Association (ABA) (<http://www.americanbar.org/aba.html>).

Naresh K. Vashisht College of Medicine

Medical Education degree program is accredited by the Liaison Committee on Medical Education (LCME) (<http://lcme.org/>).

The *Post Graduate Residency Training for Physicians in Institution, Family Medicine, Sports Medicine, and Psychiatry* is accredited by the American Council for Graduate Medical Education (ACGME) (<https://www.acgme.org/>).

The *Continuing Medical Education for Physicians* is accredited by the Accreditation Council for Continuing Medical Education (ACCME) (<https://www.accme.org/>).

College of Nursing

The baccalaureate and master's degree programs in nursing at Texas A&M University College of Nursing are accredited by the Commission on Collegiate Nursing Education (<https://www.aacnnursing.org/ccne-accreditation/>), 655 K Street, NW, Suite 750, Washington, DC 20001, 202-887-6791.

Irma Lerma Rangel College of Pharmacology

The PharmD curriculum in the *Irma Lerma Rangel College of Pharmacy* is accredited by the Accreditation Council for Pharmacy Education (ACPE) (<https://www.acpe-accredit.org/>)

School of Public Health

Public Health degree program is accredited by the Council on Education for Public Health (CEPH) (<https://ceph.org/>). (This includes the undergraduate degree program)

The *Master of Health Administration* is accredited by the Commission on Accreditation of Healthcare Management Education (CAHME) (<https://cahme.org/>).

College of Veterinary Medicine and Biomedical Sciences

Veterinary Medicine degree program is accredited by the American Veterinary Medical Association Council on Education (AVMA) (<https://www.avma.org/>).

Texas A&M University at Galveston

The undergraduate program in *Marine Engineering Technology* is accredited by the Engineering Technology Accreditation

Commission of ABET (<https://amspub.abet.org/aps/name-search/?searchType=institution>), <http://www.abet.org> (<http://www.abet.org>).

The *Third Mate or Third Assistant Engineering Officer in the U.S. Merchant Marines* is accredited by the U.S. Coast Guard (<https://www.uscg.mil/>).

Texas A&M University at Qatar

Undergraduate programs in *Chemical, Electrical, Mechanical, and Petroleum* are accredited by the Engineering Accreditation Commission of ABET (<https://amspub.abet.org/aps/name-search/?searchType=institution>), <http://www.abet.org> (<http://www.abet.org>).

¹ The biological and agricultural engineering program is jointly administered by the College of Agriculture and Life Sciences and the College of Engineering.

CATALOG PUBLICATION STATEMENT

The Texas A&M University Undergraduate Catalog, published annually, provides information about the undergraduate programs of Texas A&M University to students, prospective students, and faculty and staff of the University. Included is information concerning requirements for admission, services available to students, course offerings and listings of the administrative officers.

Publication

Publication Statement

The Texas A&M University Undergraduate Catalog is published each spring and the provisions for this volume are applicable during the 2025-2026 academic year. A student who registers for the first time at the University during a summer session is subject to the degree requirements set forth in the catalog effective for the fall semester immediately following his or her initial enrollment.

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UNIVERSITY ACADEMIC CALENDARS

College Station and Galveston

Texas A&M University and Texas A&M University at Galveston Calendar

All dates and times are subject to change.

2025 Summer Term I

May 12	Monday. Graduation application opens for all students planning to graduate in August 2025.
May 23	Friday, 5 p.m. Last day to register for first term semester classes. Refer to Student Business Services for tuition and fee due dates.
May 26	Monday. Memorial Day - No classes. Faculty and Staff Holiday.
May 27	Tuesday. First day of first term classes. Refer to Student Business Services for the Refund Policy for Withdrawals and Dropped Courses.
May 30	Friday. Last day for adding/dropping first term classes. Official census date for first term classes.
June 16	Monday, 5 p.m. Last day for all students to drop courses with no penalty for the first term (Q-drop). Last day to change Kinesiology 198/199 grade type for the first term. Last day to officially withdraw from the University for the first term.
June 19	Thursday. Juneteenth Emancipation Day - No classes. Faculty and Staff Holiday.
June 24	Tuesday. Undergraduate deadline to submit a request for change of curriculum.
June 30	Monday. Last day of first term classes.
July 1	Tuesday. First term final examinations.
July 4	Friday. Independence Day - No classes. Faculty and Staff Holiday. Midsummer break at Bush School Washington, D.C. site.
July 7	Monday. First term final grades due at noon. Grades will be available for viewing in Howdy after 5 p.m.
July 11	Friday. Last day to apply online for all degrees to be awarded in August 2025 without a late fee.
July 23	Wednesday. Summer 2025 Degree Candidates: Degree Requirement Verification (DRV) deadline per Student Rule 14.2.
August 5	Tuesday. Last day to apply for all degrees to be awarded in August.
August 8	Friday. Noon. Grades due for degree candidates. Grades will be available for viewing in Howdy after 5 p.m. 5 p.m. Last day for August undergraduate degree candidates to apply for Tuition Rebate in Howdy.

August 9	Saturday. Commencement and Commissioning for degrees in College Station and Galveston. Additional details will be posted on graduation.tamu.edu as they become available.

August 13	Wednesday. Undergraduate change of curriculum period begins. See Student Rule 5.1.

All dates and times are subject to change.

2025 Summer Term II

May 12	Monday. Graduation application opens for all students planning to graduate in August 2025.
June 24	Tuesday. Undergraduate deadline to submit a request for change of curriculum.
July 1	Tuesday. Last day to register for second term classes. Refer to Student Business Services for tuition and fee due dates.
July 2	Wednesday. First day of second summer term classes.
July 4	Friday. Independence Day. Faculty and staff holiday. No classes.
July 8	Tuesday, 5 p.m. Last day for adding/dropping courses for the second term. Official census date for the second term.
July 11	Friday. Last day to apply online for all degrees to be awarded in August 2025 without a late fee.
July 23	Wednesday, 5 p.m. Last day for all students to drop courses with no penalty (Q-drop) for the second term. Last day to change Kinesiology 198/199 grade type for the second term. Last day to officially withdraw from the University for the second term.
	Summer 2025 Degree Candidates: Degree Requirement Verification (DRV) deadline per Student Rule 14.2.
August 5	Tuesday. Last day of second term classes. Last day to apply for all degrees to be awarded in August.
August 6	Wednesday. Second term final examinations for all students.
August 8	Friday. Noon. Grades due for degree candidates. Grades will be available for viewing in Howdy after 5 p.m. 5 p.m. Last day for August undergraduate degree candidates to apply for Tuition Rebate in Howdy.
August 8-9	Friday - Saturday. Commencement and Commissioning for degrees in College Station and Galveston. Additional details will be posted on graduation.tamu.edu as they become available.
August 12	Tuesday, noon. Final grades for second term classes due. Grades will be available for viewing in Howdy after 5 p.m.
August 13	Wednesday. Undergraduate change of curriculum period begins. See Student Rule 5.1.

All dates and times are subject to change.

2025 10-Week Summer Semester

May 12	Monday. Graduation application opens for all students planning to graduate in August 2025.
May 23	Friday, 5 p.m. Last day to register for 10-week semester classes. Refer to Student Business Services for tuition and fee due dates.
May 26	Monday. Memorial Day. Faculty and Staff holiday. No classes.
May 27	Tuesday. First day of 10-week classes. Refer to Student Business Services for the Refund Policy for Withdrawals and Dropped Courses.
May 30	Friday. Last day for adding/dropping 10-week classes. Official census date for 10-week classes.
June 2	Monday. First day of classes at the Bush School Washington, D.C. site.
June 19	Thursday. Juneteenth Emancipation Day. Faculty and Staff Holiday. No classes.
June 24	Tuesday. Undergraduate deadline to submit a request for change of curriculum.
June 30-July 4	Monday-Friday. Midsummer break at the Bush School Washington, D.C. site.
July 1	Tuesday. No 10-week classes.
July 4	Friday. Independence Day. Faculty and staff holiday. No classes.
July 11	Friday. Last day to apply online for all degrees to be awarded in August 2025 without a late fee.
July 17	Thursday, 5 p.m. Last day for all students to drop courses with no penalty (Q-drop) for 10-week classes. Last day to officially withdraw from the University for 10-week classes.
July 23	Wednesday. Summer 2025 Degree Candidates: Degree Requirement Verification (DRV) deadline per Student Rule 14.2.
July 28	Monday. No classes held at the Bush School Washington, D.C. site.
July 29	Tuesday. Last day of classes at the Bush School Washington, D.C. site.
July 30-31	Wednesday-Thursday. Bush School Washington, D.C. site final examinations.
August 5	Tuesday. Last day of 10-week classes. Last day to apply for all degrees to be awarded in August.
August 6-7	Wednesday - Thursday. 10-week final examinations for all students.
August 8	Friday. Noon. Grades due for degree candidates. Grades will be available for viewing in Howdy after 5 p.m. 5 p.m. Last day for August undergraduate degree candidates to apply for Tuition Rebate in Howdy.

August 8-9 Friday - Saturday. Commencement and Commissioning for degrees in College Station and Galveston. Additional details will be posted on graduation.tamu.edu as they become available.

August 12 Tuesday, noon. Final grades for 10-week classes due. Grades will be available for viewing in Howdy after 5 p.m.

August 13 Wednesday. Undergraduate change of curriculum period begins. See Student Rule 5.1.

All dates and times are subject to change.

2025 Fall Semester

August 11	Monday. Graduation application opens for all students planning to graduate in December 2025.
August 13	Wednesday. Undergraduate change of curriculum period begins. See Student Rule 5.1.
August 22	Friday, 5 p.m. Fall semester open registration ends. Late registration and course add/drop period begins.
August 25	Monday. First day of fall semester classes.
August 29	Friday. Last day for adding/dropping courses for the fall semester.
September 1	Monday. Labor Day. Faculty and Staff Holiday. No classes.
September 10	Wednesday. Fall official census date.
September 22	Monday. Undergraduate deadline to submit a request for change of curriculum.
September 26	Friday. Last day to apply for all degrees to be awarded in December without a late fee.
September 30	Tuesday. Undergraduate degree plan approval deadline. See Student Rule 1.9.
October 13	Monday, noon. Mid-semester grades due.
October 13-14	Monday-Tuesday. Fall break. No classes.
November 5	Wednesday. Last day to apply online for December 2025 graduation.
November 6-21	Thursday-Friday. Preregistration for 2026 spring semester.
November 11	Monday. Veterans Day. No classes held at the Bush School Washington, DC site.
November 18	Tuesday. Bonfire 1999 Remembrance Day.
November 19	Wednesday, 5 p.m. Last day for all students to drop courses with no penalty (Q-drop). Last day to change Kinesiology 198/199 grade type for fall 2025. Last day to officially withdraw from the University. Fall 2025 Degree Candidates: Degree Requirement Verification (DRV) deadline per Student Rule 14.2.
November 26	Wednesday. Reading day. No classes.
November 27-28	Thursday-Friday. Thanksgiving holiday. Faculty and Staff holiday. No classes.
December 8	Monday. Last day of fall semester classes. Last day to apply for all degrees to be awarded in December. No regular course examinations (except for laboratory and one-hour courses).

December 9	Tuesday. Redefined day for students at the Bush School Washington, DC site.
December 9-10	Tuesday - Wednesday. Reading days. No classes.
December 10	Wednesday. Reading Day for Bush School Washington, DC site.
December 11-12, 15-16	Thursday-Friday, Monday-Tuesday. Fall semester final examinations for all students.
December 17	Wednesday. 5 p.m. Last day for December undergraduate degree candidates to apply for Tuition Rebate (https://aggie.tamu.edu/graduation/tuition-rebate) in Howdy. 6 p.m. Grades due for degree candidates. Grades will be available for viewing in Howdy after 10 p.m. Commencement and Commissioning for all degrees in College Station (tentative). Additional details will be posted on https://registrar.tamu.edu/graduation (https://registrar.tamu.edu/graduation/) as they become available.
December 18	Thursday. Commencement and Commissioning for all degrees in College Station. Additional details will be posted on https://registrar.tamu.edu/graduation (https://registrar.tamu.edu/graduation/) as they become available.
December 19	Friday. Commencement and Commissioning for all degrees in College Station (tentative). Additional details will be posted on https://registrar.tamu.edu/graduation (https://registrar.tamu.edu/graduation/) as they become available. Commencement and Commissioning - All degrees in Galveston.
December 22	Monday, noon. Final grades for all students due. Grades will be available for viewing in Howdy after 5 p.m.
December 23	Tuesday. Undergraduate change of curriculum period begins. See Student Rule 5.1.
December 24-January 1	Wednesday-Thursday. Faculty and Staff holiday.

All dates and times are subject to change.

2026 Spring Semester

December 22	Monday. Graduation application opens for all students planning to graduate in May 2026.
January 9	Friday, 5 p.m. Spring semester open registration ends. Late registration and course add/drop period begins.
January 12	Monday. First day of spring semester classes.
January 16	Friday. Last day for adding/dropping courses for the spring semester.
January 19	Monday. Martin Luther King, Jr. Day. Faculty and Staff holiday. No classes.
January 28	Wednesday. Spring official census date.
February 9	Monday. Undergraduate deadline to submit a request for change of curriculum.
February 13	Friday. Last day to apply for all degrees to be awarded in May without a late fee.
February 16	President's Day observed. No classes. Bush School Washington, D.C. site.

March 2	Monday, noon. Mid-semester grades due.
March 9-13	Monday-Friday. Spring break. No classes.
March 12-13	Thursday-Friday. Faculty and Staff Holiday.
March 25	Wednesday. Last day to apply for spring 2026 graduation online.
March 26 - April 10	Thursday -Friday. Preregistration for the 2026 summer and fall semesters.
April 3	Friday. Reading day. No classes. Does not apply to clinical placements for the School of Nursing.
April 14	Tuesday, 5 p.m. Last day for all students to drop courses with no academic penalty (Q-drop). Last day to change KINE 198/199 Grade Type for spring 2026. Last day to officially withdraw from the University.
	Spring 2026 Degree Candidates: Degree Requirement Verification (DRV) deadline per Student Rule 14.2.
April 21	Tuesday. Muster. Campus ceremony.
April 27	Monday. No regular course examinations (except for laboratory and one-hour courses).
April 28	Tuesday. Redefined day. Students attend their Friday classes. Does not apply to programs offered by the College of Nursing. Redefined day. Students attend their Monday classes. Bush School Washington, D.C. site. Last day of spring semester classes. No regular course examinations (except for laboratory and one-hour courses).
	Last day to apply for all degrees to be awarded in May.
April 29	Wednesday. Reading day. No classes.
April 30-May 1, May 4-5	Thursday-Friday, Monday-Tuesday. Spring semester final examinations for all students.
May 6	Wednesday.

	5 p.m. Last day for May undergraduate degree candidates to apply for Tuition Rebate in Howdy. 6 p.m. Grades for degree candidates due. Grades will be available for viewing in Howdy after 10 p.m.
May 7-9	Thursday - Saturday. Commencement and Commissioning for all degrees in College Station – additional details will be posted on https://registrar.tamu.edu/graduation (https://registrar.tamu.edu/graduation/) as they become available.
May 11	Monday, noon. Final grades for all students due. Grades will be available for viewing in Howdy after 5 p.m.
May 12	Tuesday. Undergraduate change of curriculum period begins. See Student Rule 5.1.

All dates and times are subject to change.

2026 Summer Term I

May 11	Monday. Graduation application opens for all students planning to graduate in August 2026.
May 22	Friday, 5 p.m. Last day of open registration for first term semester classes.

May 25	Monday. Memorial Day. Faculty and Staff holiday. No classes.
May 26	Tuesday. First day of first term classes.
May 29	Friday. Last day for adding/dropping first term classes. Official census date for first term classes.
June 15	Monday, 5 p.m. Last day for all students to drop courses with no penalty for the first term (Q-drop). Last day to change Kinesiology 198/199 grade type for the first term. Last day to officially withdraw from the University for the first term.
June 19	Friday. Juneteenth Emancipation Day. Faculty and staff holiday. No classes.
June 23	Tuesday. Undergraduate deadline to submit a request for change of curriculum.
June 29	Monday. Last day of first term classes.
June 30	Tuesday. First term final examinations.
July 6	Monday. First term final grades due at noon. Grades will be available for viewing in Howdy after 5 p.m. Last day to apply online for all degrees to be awarded in August 2026 without a late fee. Last day to apply online for all certificates to be awarded in August 2026.
July 21	Tuesday. August 2026 Degree Candidates: Degree Requirement Verification (DRV) deadline (https://aggie.tamu.edu/graduation/degree-requirement-verification) (https://aggie.tamu.edu/graduation/degree-requirement-verification/) per Student Rule 14.2.
August 4	Tuesday. Last day to apply for all degrees to be awarded in August.
August 7	Friday. Commencement and Commissioning - All degrees in Galveston. Noon. Grades due for degree candidates. Grades will be available for viewing in Howdy after 5 p.m. 5 p.m. Last day for August undergraduate degree candidates to apply for Tuition Rebate in Howdy.
August 8	Saturday. Commencement and Commissioning for degrees in College Station. Additional details will be posted on https://registrar.tamu.edu/graduation (https://registrar.tamu.edu/graduation/) as they become available.
August 12	Wednesday. Undergraduate change of curriculum period begins. See Student Rule 5.1.

All dates and times are subject to change.

2026 Summer Term II

May 11	Monday. Graduation application opens for all students planning to graduate in August 2026.
June 23	Tuesday. Undergraduate deadline to submit a request for change of curriculum.
June 30	Tuesday. Last day to register for second term classes. Refer to Student Business Services for tuition and fee due dates.

July 1	Wednesday. First day of second summer term classes.
July 6	Monday. Last day to apply online for all degrees to be awarded in August 2026 without a late fee. Last day to apply online for all certificates to be awarded in August 2026.
July 8	Tuesday, 5 p.m. Last day for adding/dropping courses for the second term. Official census date for the second term.
July 21	Tuesday, 5 p.m. Last day for all students to drop courses with no penalty (Q-drop) for the second term. Last day to change Kinesiology 198/199 grade type for the second term. Last day to officially withdraw from the University for the second term. Summer 2026 Degree Candidates: Degree Requirement Verification (DRV) deadline per Student Rule 14.2.
August 4	Tuesday. Last day of second term classes. 5 p.m. Last day for August undergraduate degree candidates to apply for Tuition Rebate (https://aggie.tamu.edu/graduation/tuition-rebate) (https://aggie.tamu.edu/graduation/tuition-rebate/) in Howdy.
August 5	Wednesday. Second term final examinations for all students.
August 7	Friday. Commencement and Commissioning - All degrees in Galveston. Noon. Grades due for degree candidates. Grades will be available for viewing in Howdy after 5 p.m. 5 p.m. Last day for August undergraduate degree candidates to apply for Tuition Rebate in Howdy.
August 8	Saturday. Commencement and Commissioning for degrees in College Station. Additional details will be posted on https://registrar.tamu.edu/graduation (https://registrar.tamu.edu/graduation/) as they become available.
August 11	Tuesday, noon. Final grades for second term classes due. Grades will be available for viewing in Howdy after 5 p.m.
August 12	Wednesday. Undergraduate change of curriculum period begins. See Student Rule 5.1.

All dates and times are subject to change.

2026 10-Week Summer Semester

May 11	Monday. Graduation application opens for all students planning to graduate in August 2026.
May 22	Friday, 5 p.m. Last day to register for 10-week semester classes. Refer to Student Business Services for tuition and fee due dates.
May 25	Monday. Memorial Day. Faculty and Staff holiday. No classes.
May 26	Tuesday. First day of 10-week classes.
May 29	Friday. Last day for adding/dropping 10-week classes.

	Official census date for 10-week classes.
June 19	Thursday. Juneteenth Emancipation Day. Faculty and Staff Holiday. No classes.
June 23	Tuesday. Undergraduate deadline to submit a request for change of curriculum.
June 29-July 3	Monday-Friday. Midsummer break at the Bush School Washington, D.C. site.
June 30	Tuesday. No 10-week classes. Does not apply to undergraduate Nursing courses.
July 6	Monday. Last day to apply online for all degrees to be awarded in August 2026 without a late fee. Last day to apply online for all certificates to be awarded in August 2026.
July 15	Wednesday, 5 p.m. Last day for all students to drop courses with no penalty (Q-drop) for 10-week classes. Last day to officially withdraw from the University for 10-week classes.
July 21	Wednesday. Summer 2026 Degree Candidates: Degree Requirement Verification (DRV) deadline per Student Rule 14.2.
July 23	Thursday. Last day of classes for Bush School Washington, DC site.
July 29-30	Wednesday-Thursday. Bush School Washington, D.C. site final examinations.
August 4	Tuesday. Last day of 10-week classes. Last day to apply for all degrees to be awarded in August.
August 5-6	Wednesday - Thursday. 10-week final examinations for all students.
August 7	Friday. Commencement and Commissioning - All degrees in Galveston. Noon. Grades due for degree candidates. Grades will be available for viewing in Howdy after 5 p.m. 5 p.m. Last day for August undergraduate degree candidates to apply for Tuition Rebate in Howdy.
August 8	Saturday. Commencement and Commissioning for degrees in College Station. Additional details will be posted on https://registrar.tamu.edu/graduation (https://registrar.tamu.edu/graduation/) as they become available.
August 11	Tuesday, noon. Final grades for 10-week classes due. Grades will be available for viewing in Howdy after 5 p.m.
August 12	Wednesday. Undergraduate change of curriculum period begins. See Student Rule 5.1.

All dates and times are subject to change.

Dentistry

College of Dentistry (Dental Hygiene) Calendar

All dates and times are subject to change.

2025

June 9	Monday, SUMMER SESSION BEGINS (D2, D3, D4, DH Sr.) (7-week session)
June 10	Tuesday, QA/RM Program (D3-D4 & DH Sr.) - Clinics Closed From 1:00 PM - 4:00 PM
June 19	Thursday, Juneteenth Holiday
July 4	Thursday, Independence Day Holiday
July 25	Friday, SUMMER SESSION ENDS (D2, D3, D4, DH Sr.) (2-week break)
July 29	Tuesday, Summer Session Grades Due By 12:00 NOON - Dental and Dental Hygiene Courses
August 6-7	Wednesday-Thursday, Orientation - First-Year Dental and Dental Hygiene Students (ATTENDANCE MANDATORY)
August 8	Friday, Dental and Dental Hygiene White Coat Ceremony
August 11	Friday, 8:00 AM, FALL SEMESTER BEGINS (All students) (16-week fall semester)
August 22-23	Southwest Dental Conference - Clinics Closed
August	Award MS and PhD Degrees, visit https://graduation.tamu.edu/ for dates
September 1	Monday, Labor Day, Holiday
November 12	IPER Symposium – Half-day A.M. DH clinic closed all day. 2nd half-day to be scheduled in Spring 2026
November 24-28	Fall Semester Recess
November 27-28	Thursday and Friday, Thanksgiving Day, Holiday
December 5	Friday, FALL SEMESTER INSTRUCTION ENDS (D1, D2, D3, D4, DH Jr., DH Sr.)
December 8-12	Fall Semester Examination Period
December 12	Friday, 5:00 PM, Holiday Recess Begins (3-week break)
December	Award MS and PhD Degrees (visit https://graduation.tamu.edu for dates)
December 17	Faculty Retreat; Staff Development Event
December 23-31	Thursday, Christmas Day, Holiday

2026

January 1	Thursday, New Year's Day, Holiday
January 5	Monday, 8:00 AM, SPRING SEMESTER BEGINS (All Students) (17-week spring semester)
January 6	Tuesday, Fall Semester Grades Due by 12:00 NOON - Dental, Dental Hygiene, and Graduate Courses
January 19	Monday, Martin Luther King, Jr. Day, Holiday
February 2-4	Monday - Wednesday, Mock Boards— D4 Students
February 27	TAMU Health Disaster Day (College Station—details on travel assistance to be provided)
March 9-13	Spring Semester Recess
March 27-30	Clinical Licensure Exam - D4, DH Sr. Students
April 1	Wednesday, Scholars Day - Clinic closed for Dental and Dental Hygiene students
May 8	Friday, 5:00 PM, Spring Semester Instruction Ends (DDS, DH Students)
May 11-15	Spring Semester Examination Period (3-week break for returning students)
May 15	Friday, Spring Semester Grades Due by 12:00 NOON – D4, DH Sr., and Degree Candidate Graduate Students

May 19	Tuesday, Spring Semester Grades Due by 12:00 NOON – For All Other Students
May 21	Award Ceremony
May 22	Commencement
May 25	Monday, Memorial Day Holiday
June 8	Monday, SUMMER SESSION BEGINS (D2, D3, D4, DH Sr.) (7-week session)
June 9	Tuesday, QA/RM Program (D3-D4 & DH Sr.) – Clinics Closed From 1:00 PM – 4:00 PM
June 19	Friday, Juneteenth Holiday
July 3	Friday, Independence Day Holiday
July 24	Friday, SUMMER SESSION ENDS (D2, D3, D4, DH Sr.) (2-week break)
July 28	Tuesday, Summer Session Grades Due By 12:00 NOON - Dental and Dental Hygiene Courses
August 5-6	Wednesday-Thursday, Orientation – D1 and DH Jr. Students (ATTENDANCE MANDATORY)
August 7	Friday, Dental and Dental Hygiene White Coat Ceremony

Qatar

Texas A&M University at Qatar Calendar Fall Semester 2025*

August 24	Sunday. First day of fall classes First day to apply for fall graduation Undergraduate change of curriculum period begins. See Student Rule 5.1, https://student-rules.tamu.edu/rule05 (https://student-rules.tamu.edu/rule05/)
August 28	Thursday. Last day to add/drop courses with no record for the fall term, 4:30 PM
September 8	Monday. Official census date (12th class day)
September 18	Thursday. Undergraduate change of curriculum period ends, 4:30 PM
September 25	Thursday. Last day to apply for December graduation, 4:30 PM
September 30	Tuesday. Undergraduate degree plan approval deadline
October 12-16	Sunday-Thursday. Fall Break (No classes. Offices remain open)
October 23	Thursday. Mid-term grades due by noon to the Office of Records
November 18	Tuesday. Bonfire 1999 Remembrance Day
November 20	Thursday. Last day to drop courses with no academic penalty (Q-drop), 4:30 PM Last day to officially withdraw from the university, 4:30 PM
December 7	Sunday. Last day of fall term classes Pursuant to Student Rule 8.3 (https://student-rules.tamu.edu/rule08 (https://student-rules.tamu.edu/rule08/)), no regular course examinations (except for laboratory and one-hour courses) shall be given after the 14th week of classes
December 8	Monday. Reading day (No classes; offices remain open)
December 9-11	Tuesday-Thursday. Fall term final examinations

December 14	Sunday. Fall term final examinations
December 17	Wednesday. Final grades due by 6:00 PM to the Office of Records
December 18	Thursday. Qatar National Day (Offices closed)
December 21-29	Sunday-Monday. Winter break (Offices closed)

Spring Semester 2026*

December 30	Tuesday. Offices reopen after winter break
January 4	Sunday. First day of spring classes First day to apply for spring graduation Undergraduate change of curriculum period begins. See Student Rule 5.1, https://student-rules.tamu.edu/rule05 (https://student-rules.tamu.edu/rule05/)
January 8	Thursday. Last day to add/drop courses with no record for the spring term, 4:30 PM
January 19	Monday. Official census date (12th class day)
January 29	Thursday. Undergraduate change of curriculum period ends, 4:30 PM
February 5	Thursday. Last day to apply for spring graduation, 4:30 PM
February 10	Tuesday. Qatar National Sports Day (No classes; Offices closed)
February 18	Wednesday. Projected first day of Ramadan
February 22-26	Sunday-Thursday. Spring break (No classes; Offices remain open)
March 5	Thursday. Mid-semester grades due by noon, Office of Records
March 22-24	Sunday-Tuesday. Eid Al-Fitr** (No classes; Offices expected to be closed)
April 8	Wednesday. Last day to drop courses with no academic penalty (Q-drop), 4:30 PM Last day to officially withdraw from the university, 4:30 PM
April 21	Tuesday. Aggie Muster
April 22	Wednesday. Last day of spring term classes Redefined Day - Students attend their Tuesday classes Pursuant to Student Rule 8.3 (https://student-rules.tamu.edu/rule08 (https://student-rules.tamu.edu/rule08/)), no regular course examinations (except for laboratory and one-hour courses) shall be given after the 14th week of classes
April 23	Thursday. Reading Day (No classes: Offices remain open)
April 26-29	Sunday-Wednesday. Spring term final examinations
April 30	Thursday. Final grades due by 6:00 PM to the Office of Records
May 2	Friday. Commencement Ceremony
May 5	Tuesday. Qatar Foundation Convocation* Final grades due for all students by 6:00 PM to the Office of Records

Summer Semester 2026*

May 17	Sunday. First day of summer classes First day to apply for summer graduation
May 20	Wednesday. Official census date (4th class day)

	Last day to add/drop courses with no record for the summer term, 4:30 PM
May 27-31	Wednesday-Sunday. Eid Al-Adha [^] * (Offices expected to be closed)
June 9	Tuesday. Last day to apply for summer graduation, 4:30 PM
June 23	Tuesday. Last day to drop courses with no academic penalty (Q-drop), 4:30 PM
	Last day to officially withdraw from the University, 4:30 PM
July 6	Monday. Redefined Day – Students attend their Wednesday classes
July 7	Tuesday. Last day of summer term classes
	Redefined Day – Students attend their Thursday classes
July 8-9	Wednesday-Thursday. Summer term final examinations
July 15	Wednesday. Final grades due by noon to the Office of Records

*Dates are subject to change without notice.

[^]Dates for the Eid holidays are subject to change; however, the University will be closed for a three-day period during Eid.

BOARD OF REGENTS AND ADMINISTRATIVE OFFICERS

Board of Regents (<https://www.tamus.edu/regents/bios/>)

The responsibilities of The A&M System Board of Regents are to oversee the administration and set policy direction for the System's 11 universities, a comprehensive health science center, eight state agencies, and the RELIS Campus.

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- Office of the Provost Leadership (<https://provost.tamu.edu/directory/>)

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Dean and Chief Operating Officer, Texas A&M University at Qatar - Dr. César O. Malavé

Texas A&M University at Galveston (<https://www.tamug.edu/>)

- Executive Leadership (<https://www.tamug.edu/administration/ExecutiveTeam.html>)

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GENERAL INFORMATION

The following types of information can be found within the General Information section of the catalog:

History and Development (p. 25)

Mission Statement; History and Development

University Core Curriculum (p. 26)

Student Learning Outcomes (p. 31)

Degree and Program Information (p. 32)

Which Catalog to Follow; Degrees Offered; Tuition Charged for Excess Credit Hours; Supplementary Fee for Courses Attempted More than Twice; Requirements for a Baccalaureate Degree; Undergraduate Minor Programs; Two Degrees; Baccalaureate Degree Option for Students Granted Early Admission to Professional Programs; Graduation with Honors; Graduation Application, Diploma and Commencement; Requirements for a Certificate; Graduation Application, Certificate and Commencement; Combination Programs; Degree Program Tables; Programs offered via Distance Education; State Authorization; State Authorization Reciprocity Agreements (SARA); Undergraduate Minor Programs; Undergraduate Certificate Programs; International and Cultural Diversity Requirements; and Cultural Discourse Requirements.

Admission (p. 52)

Application Information; Items Necessary to Complete an Application File; Notification of Application Status; Required Coursework; State of Texas Uniform Admission Policy; Additional Information for Freshman Applicants; Freshman Admissions; Information for all Freshman Applicants; Notice of Admission Decision; Suspected Fraudulent Admission Applications; Transfer Admissions; College Specific Information; Notification of Admission Decisions; Transfer Course Credit Policies; International Admission Criteria; Admission Criteria for Other Application Types; Academic Fresh Start Policy; Entry to a Major – College of Engineering; Upper-Level Entry into Colleges; Texas Success Initiative (TSI); Entry into Dentistry and Nursing; Course Credit; and Graduate Admission

Registration and Academic Status (p. 79)

Full-Time Student; Undergraduates Registering for Graduate Courses; VA Benefits; Maximum Schedule; Classification; and Academic Status

Grading System (p. 81)

Repetition of a Course to Improve Grades; I and X Grades; Q-Drop, Add and Drop; Satisfactory/Unsatisfactory; Grade Point Average (GPA), Classification; Grade Reports; and Semester Credit Hour

Housing (p. 83)

Off Campus Student Services; Pay By Semester Housing: Residence Halls and White Creek Apartments; and University Apartments (The Gardens)

Orientation (p. 84)

New Student Conferences; Extended Orientation–ExCEL Programs, Fish Camp, Howdy Camp, T-Camp, Venture Camps; Aggie Honor Code; and Aggie Honor System Office

Student Success (p. 86)

Student Services (p. 86)

Academic Advising; Academic Success Center; The Association of Former Students; Career Center; Disability Resources; George Bush Presidential Library and Museum; International Student and Scholar Services; Math Learning Center; MSC Programs; Military Education Benefits (Scholarships & Financial Aid); Department of Multicultural Services; Ombuds Services; Professional School Advising; Recreational Sports; Department of Residence Life; Student Activities; Student Assistance Services; Student Conduct Office; Student Legal Services; Student Life; Student Media; Pregnant and Parenting Student Services; Technology Resources; Transportation Resources; University Center and Special Events; University Health Services; University Libraries; University Police; University Writing Center; and Veteran and Military Students at Texas A&M

Campus Life (p. 93)

The Corps Experience; Department of Multicultural Services; Fraternity and Sorority Life; Intercollegiate Athletics; MSC Programs; Musical Activities; Recreational Sports; Speech and Debate Team; Student Activities; Student Government Association (SGA); Student Life; Student Affairs Planning, Assessment and Research; Student Media; University Art Galleries; University Center and Special Events (UCEN); Vice President for Student Affairs

History and Development

Mission Statement

Texas A&M University is dedicated to the discovery, development, communication, and application of knowledge in a wide range of academic and professional fields. Its mission of providing the highest quality undergraduate and graduate programs is inseparable from its mission of developing new understandings through research and creativity. It prepares students to assume roles in leadership, responsibility and service to society. Texas A&M assumes as its historic trust the maintenance of freedom of inquiry and an intellectual environment nurturing the human mind and spirit. It welcomes and seeks to serve persons of all racial, ethnic and geographic groups as it addresses the needs of an increasingly diverse population and a global economy. In the 21st century, Texas A&M University seeks to assume a place of preeminence among public universities while respecting its history and traditions.

History and Development

Texas A&M is the state's first public institution of higher education. With a student body of more than 79,000 and more than 5,200 acres on the College Station campus alone, Texas A&M is also among the nation's largest universities.

Our origins, however, are much humbler. We owe our existence to the Morrill Act, approved by the U.S. Congress on July 2, 1862, which provided for the donation of public land to the states. The land was to be sold at auction, with the proceeds set aside in a perpetual fund, and

the interest generated supporting a college “to teach such branches of learning as are related to agriculture and mechanical arts . . . in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life.”

In November 1866, the Texas Legislature agreed to provide for the state’s land-grant college. Five years later, the Agricultural and Mechanical College of Texas was established through an act that appropriated \$75,000 for the construction of buildings and that bound the state to defray all expenses of the college exceeding the annual interest from the endowment. Proceeds from the sale of the 180,000 acres of land scrip received under the Land Grant College Act were invested in \$174,000 of Texas gold frontier defense bonds, forming a perpetual endowment for the institution. A commission created to identify a location for the college accepted the offer of 2,416 acres of land from the citizens of Brazos County in 1871, and the college opened its doors five years later.

In 1888, the faculty initiated programs of instruction at the graduate level, and in 1890, two Master of Science degrees were conferred. Initially, the Agricultural and Mechanical College of Texas emphasized graduate programs in agriculture and engineering, which were administered by a faculty committee for graduate studies. In 1898, a single Master of Science degree in horticulture was awarded, followed by a scattering of Master of Science degrees in agriculture over the next 22 years. The acceleration in the awarding of Master of Science degrees after 1920 prompted the college to establish the graduate school in 1924, with the dean of the college serving as graduate dean.

In 1936, the Board of Directors approved “certain programs of study and research leading to the doctorate.” That same year, the Academic Council established the graduate faculty, and in 1940, the first Ph.D. was awarded. In the 1960s, the Board of Regents created programs of graduate instruction in each of the academic colleges.

In 1963, the Texas state legislature officially changed the college’s name to Texas A&M University, with the “A” and “M” being a symbolic link to the school’s past but no longer officially standing for “Agricultural and Mechanical.”

Texas A&M underwent many other significant changes in the 1960s, as well. Under Gen. Earl Rudder’s administration, Texas A&M opened its doors to African American students and formally admitted women. Participation in the Corps of Cadets was made voluntary.

Since then, Texas A&M has become an academic powerhouse. It is one of only three Tier 1 universities in the state (along with Rice University and The University of Texas at Austin). Texas A&M was designated a sea-grant institution in 1971 and a space-grant institution in 1989, making it among the first four universities to hold this triple distinction, and one of only 24 nationwide.

In 2001, Texas A&M became a member of the Association of American Universities, which is restricted to the 71 top public and private institutions of higher learning in the United States and Canada. In 1949, the Texas A&M Chapter of Phi Kappa Phi was established and in 2004, the Kappa of Texas Chapter of Phi Beta Kappa was installed at Texas A&M.

As the state of Texas has grown, so has the university. In fall 2024, the university enrolled over 79,000 students across its various locations, and membership in the Corps of Cadets was more than 2,300. Historically, the Corps of Cadets has produced more officers than any other institution outside the military academies. The George H.W. Bush Presidential

Library and Museum opened on West Campus in 1997, making Texas A&M one of only a few universities to host a presidential library.

Texas A&M has a presence in all 254 Texas counties through its extension agencies, teaching sites in Washington, D.C., and McAllen, Texas, and has two branch campuses: a marine campus in Galveston and an engineering campus in the Middle Eastern country of Qatar (fully funded by the Qatar Foundation and planned to close in 2028). Research conducted at Texas A&M generated annual expenditures of more than \$1.278 billion in fiscal year 2023.

Classified by the Carnegie Foundation as a Research Intensive University, Texas A&M embraces its mission of advancing knowledge and human achievement, helping to drive the economic engine of the state and nation, and preparing students to be lifelong learners and leaders in today’s knowledge-based, global society.

Texas A&M’s focus on excellence and innovation in teaching, research and service has led to rankings among the nation’s top universities. Today, Texas A&M seeks even greater preeminence among the nation’s top universities, while continuing to respect the history and traditions that define us.

University Core Curriculum

The Texas A&M Core Curriculum, in compliance with the Texas Core Curriculum, provides students with a foundation of knowledge of human cultures and the physical and natural world, develops principles of personal and social responsibility for living in a diverse world, and advances intellectual and practical skills that are essential for all learning. The Core Curriculum enhances the individual degree program and university graduation requirements, and all three areas must be met by every student.

Given the rapid evolution of necessary knowledge and skills and the need to take into account global, national, state, and local cultures, the core curriculum ensures that students will develop the essential knowledge and skills they need to be successful in college, in a career, in their communities, and in life. The core curriculum acts to enrich and broaden the University’s tradition of providing thorough preparation in each student’s academic major and preparing students for a lifetime of learning.

The University Core Curriculum requirements are described in the section that follows. These requirements must be met by every student entering Texas A&M University on or after the 2014 fall semester. Students entering earlier will be guided by the core curriculum in the catalog upon which they entered the university. Individual degree programs may require that specific courses from the core curriculum be used to satisfy core curriculum requirements. Please check with individual program advisors for details. Students transferring course credit to satisfy the Core Curriculum requirements should refer to the Texas Common Course Numbering System (p. 1417).

Texas A&M University branch campuses in Galveston and Qatar do not offer all of the courses included in the Texas A&M core curriculum. All campuses offer courses in each Foundational Component Area so that students can complete the core curriculum at their home campus.

However, the Galveston and Qatar campuses have a limited number of courses in each Foundational Component Area. Students should consult their academic advisors for information on core curriculum courses available at their specific campus.

The core curriculum focuses on the development of six skills that have been shown to be effective in preparing students for the job market and their role in a diverse world and democratic society.

- *Critical Thinking Skills* – to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.
- *Communication Skills* – to include effective development, interpretation and expression of ideas through written, oral and visual communication.
- *Empirical and Quantitative Skills* – to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.
- *Teamwork* – to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal.
- *Personal Responsibility* – to include the ability to connect choices, actions and consequences to ethical decision-making.
- *Social Responsibility* – to include intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities.

Students develop and practice these skills in the context of 42 semester credit hours assigned to eight Foundational Component Areas, each made up of a selection of courses that meet the definition provided by the Texas Core Curriculum. For additional information, please reference <http://core.tamu.edu>.

Communication - 6 SCH

Code	Title	Semester Credit Hours
COMM 203	Public Speaking	3
COMM 205	Communication for Technical Professions	3
COMM 243	Argumentation and Debate	3
ENGL 103	Introduction to Rhetoric and Composition	3
ENGL 104	Composition and Rhetoric	3
ENGL 203	Writing about Literature	3
ENGL 210	Technical and Professional Writing	3

Courses in this category focus on developing ideas and expressing them clearly, considering the effective of the message, fostering understanding, and building the skills needed to communicate persuasively. Courses involve the command of oral, aural, written, and visual literacy skills that enable people to exchange messages appropriate to the subject, occasion, and audience. The following skills will be addressed in the courses that comprise this area: critical thinking, communication, team work, and personal responsibility.

Mathematics – 6 SCH¹

Code	Title	Semester Credit Hours
MATH 135	Mathematics for Teachers I	3
MATH 136	Mathematics for Teachers II	3
MATH 140	Mathematics for Business and Social Sciences	3
MATH 142	Business Calculus	3
MATH 147	Calculus I for Biological Sciences	4

MATH 148	Calculus II for Biological Sciences	4
MATH 150	Functions, Trigonometry and Linear Systems	4
MATH 151	Engineering Mathematics I	4
MATH 152	Engineering Mathematics II	4
MATH 167	Explorations in Mathematics	3
MATH 168	Finite Mathematics	3
MATH 171	Calculus I	4
MATH 172	Calculus II	4
PHIL 240	Introduction to Logic	3
STAT 201	Elementary Statistical Inference	3

Courses in this category focus on quantitative literacy in logic, patterns, and relationships. Courses involve the understanding of key mathematical concepts and the application of appropriate quantitative tools to everyday experiences. The following skills will be addressed in the courses that comprise this area: critical thinking, communication, and empirical and quantitative.

Life and Physical Sciences – 9 SCH²

Code	Title	Semester Credit Hours
AGSM 105	The World Has a Drinking Problem - Global Water Scarcity	3
ANSC 107	General Animal Science	3
ANTH 225	Introduction to Biological Anthropology	3
ANTH 226	Introduction to Biological Anthropology Laboratory	1
ARSC 104	Contemporary Issues in Science - Cosmos, Earth and Humanity	3
ARSC 105/ CHEM 105	Contemporary Issues in Science - The Environment	3
ASTR 101	Basic Astronomy	3
ASTR 102	Observational Astronomy	1
ASTR 103	Introduction to Stars and Exoplanets	3
ASTR 104	Introduction to Galaxies and Cosmology	3
ASTR 109/ PHYS 109	Big Bang and Black Holes	3
ASTR 111	Overview of Modern Astronomy	4
ATMO 110/ GEOL 110	Disasters and Society	3
ATMO 201	Weather and Climate	3
ATMO 202	Weather and Climate Laboratory	1
ATMO 210	Climate Change	3
BESC 201	Introduction to Bioenvironmental Sciences	3
BESC 204	Molds and Mushrooms: The Impact of Fungi on Society and the Environment	3
BIOL 101	Botany	4
BIOL 104	Contemporary Issues in Science - Cosmos, Earth and Humanity	3
BIOL 107	Zoology	4

BIOL 111	Introductory Biology I	4
BIOL 112	Introductory Biology II	4
BIOL 113	Essentials in Biology	3
CHEM 105/ ARSC 105	Contemporary Issues in Science - The Environment	3
CHEM 106	Molecular Science for Citizens	3
CHEM 107	General Chemistry for Engineering Students	3
CHEM 116	Molecular Science for Citizens Laboratory	1
CHEM 117	General Chemistry for Engineering Students Laboratory	1
CHEM 119	Fundamentals of Chemistry I	4
CHEM 120	Fundamentals of Chemistry II	4
ECCB 205	Fundamentals of Ecology	3
ECCB 215	Fundamentals of Ecology-- Laboratory	1
ECCB 309	Forest Ecology	3
ENTO 322	Insects and Human Society	3
FIVS 205	Introduction to Forensic and Investigative Sciences	3
GEOG 203	Planet Earth	3
GEOG 205	Environmental Change	3
GEOG 213	Planet Earth Lab	1
GEOL 101	Principles of Geology	3
GEOL 102	Principles of Geology Laboratory	1
GEOL 106	Historical Geology	4
GEOL 110/ ATMO 110	Disasters and Society	3
GEOL 207	Dinosaur World	3
GEOL 208	Life on a Dynamic Planet	3
HORT 201	Horticultural Science and Practices	3
HORT 202	Horticultural Science and Practices Laboratory	1
KINE 120	The Science of Basic Health and Fitness	1
KINE 223	Introduction to the Science of Health and Fitness	3
MARS 102	Earth and Ocean Science	4
NUTR 222	Nutrition for Health and Health Care	3
OCNG 251	The Blue Planet - Our Oceans	3
OCNG 252	The Blue Planet - Our Oceans Laboratory	1
PHYS 104	Contemporary Issues in Science - Cosmos, Earth and Humanity	3
PHYS 109/ ASTR 109	Big Bang and Black Holes	3
PHYS 123	Physics for Future Presidents	3
PHYS 201	College Physics	4
PHYS 202	College Physics	4
PHYS 206	Newtonian Mechanics for Engineering and Science	3
PHYS 207	Electricity and Magnetism for Engineering and Science	3

PHYS 226	Physics of Motion Laboratory for the Sciences	1
PHYS 227	Electricity and Magnetism Laboratory for the Sciences	1
POSC 201	General Avian Science	3
SCSC 105	World Food and Fiber Crops	3
SCSC 301	Soil Science	4

Courses in this category focus on describing, explaining, and predicting natural phenomena using the scientific method. Courses involve the understanding of interactions among natural phenomena and the implications of scientific principles on the physical world and on human experiences. The following skills will be addressed in the courses that comprise this area: critical thinking, communication, empirical and quantitative, and team work.

Language, Philosophy and Culture – 3 SCH

Code	Title	Semester Credit Hours
AFST 201	Introduction to Africana Studies	3
AFST 204/ ENGL 204	Introduction to African-American Literature	3
AFST 225	Reframing Public Memory - Texas and the African American	3
ANTH 204	The Prehistoric World	3
ANTH 205	Peoples and Cultures of the World	3
ANTH 210	Social and Cultural Anthropology	3
ANTH 316	Nautical Archaeology	3
ARAB 201	Intermediate Arabic I	3
ARAB 202	Intermediate Arabic II	3
ARAB 258	Global Middle Eastern Cultures	3
ARCH 213	Sustainable Architecture	3
CHIN 201	Intermediate Chinese I	3
CHIN 202	Intermediate Chinese II	3
CHIN 250	Popular Culture in Modern China	3
CLAS 220	History of Christianity: Origins to the Reformation	3
CLAS 221	Intermediate Latin I	3
CLAS 250	Greek and Roman Civilization	3
CLAS 251/ RELS 251	Classical Mythology	3
CLAS 261	Great Books of the Classical Tradition	3
CLAS 262	Great Books of Christian Antiquity and the Latin Middle Ages	3
COSC 222	Social Issues in the History of the Construction Environment	3
DCED 201	Dance History	3
ENGL 202	Environmental Literature	3
ENGL 204/ AFST 204	Introduction to African-American Literature	3
ENGL 206	Twenty-first Century Literature and Culture	3
ENGL 207	Human Thinking and Digital Culture	3

ENGL 211/ GLST 211	Foundations in Cultural Studies	3	HIST 103	World History to 1500	3
ENGL 221/ MODL 221	World Literature	3	HIST 104	World History Since 1500	3
ENGL 222/ MODL 222	World Literature	3	HIST 210	Introduction to Russian History	3
ENGL 227	American Literature: The Beginnings to Civil War	3	HIST 213	History of England	3
ENGL 228	American Literature: Civil War to Present	3	HIST 214	History of England	3
ENGL 231	Survey of English Literature I	3	HIST 220	History of Christianity: Origins to the Reformation	3
ENGL 232	Survey of English Literature II	3	HIST 222/ RELS 222	History of Christianity, Reformation to Present	3
ENGL 253	Introduction to Cultural Studies and Popular Culture	3	HIST 234	European Military History	3
ENGL 262/ HISP 262	Introduction to Latinx Literary Studies	3	HIST 240	Empires of Food	3
ENGL 292	Introduction To Literature And Medicine	3	HIST 242	United States Maritime History	3
ENGL 306	Transnational Literature and Culture	3	INTA 251	Contemporary Issues in the Middle East	3
ENGL 330	Arthurian Literature	3	ITAL 201	Intermediate Italian I	3
ENGL 333/ WGST 333	Lesbian, Gay, Bisexual, Transgender and Queer Literatures	3	ITAL 202	Intermediate Italian II	3
ENGL 334	Science Fiction Present and Past	3	ITAL 251	Global Italy	3
ENGL 335	Literature of the Sea	3	JAPN 201	Intermediate Japanese I	4
ENGL 338	American Ethnic Literature	3	JAPN 202	Intermediate Japanese II	4
ENGL 352	Literature, World War II to Present.	3	JWST 201/ RELS 201	Introduction to Jewish Studies	3
ENGL 360	Literature for Children	3	LAND 240	History of Landscape Architecture	3
ENGL 362/ HISP 362	Latino/a Literature	3	MAST 270	Historic Seafaring and Maritime Heritage	3
ENGL 365/ RELS 360	The Bible as Literature	3	MODL 221/ ENGL 221	World Literature	3
ENGL 374/ WGST 374	Women Writers	3	MODL 222/ ENGL 222	World Literature	3
ENGL 376	The American Novel Since 1900	3	NUTR 300/ FSTC 300	Religious and Ethnic Foods	3
FREN 201	Intermediate French I	3	PERF 156	Dress in World Cultures	3
FREN 202	Intermediate French II	3	PERF 325	Dance in World Cultures	3
FSTC 300/ NUTR 300	Religious and Ethnic Foods	3	PHIL 111	Contemporary Moral Issues	3
GEOG 202	Geography of the Global Village	3	PHIL 251	Introduction to Philosophy	3
GEOG 301	Geography of the United States	3	PHIL 282	Ethics in a Digital Age	3
GEOG 305	Geography of Texas	3	PHIL 482	Ethics and Engineering	3
GERM 201	Intermediate German I	3	PSAA 210	Integrated Solutions to Public Service Problems	3
GERM 202	Intermediate German II	3	RELS 200	Religions of the World	3
GLST 201	Introduction to Global Studies	3	RELS 201/ JWST 201	Introduction to Jewish Studies	3
GLST 209	Languages in the United States	3	RELS 202	Religion in America	3
GLST 211/ ENGL 211	Foundations in Cultural Studies	3	RELS 209	Religions of the Ancient World	3
GLST 220/ WGST 220	Feminist Approaches to Science, Technology, and Medicine	3	RELS 220	History of Christianity: Origins to the Reformation	3
HISP 262/ ENGL 262	Introduction to Latinx Literary Studies	3	RELS 222/ HIST 222	History of Christianity, Reformation to Present	3
HISP 362/ ENGL 362	Latino/a Literature	3	RELS 251/ CLAS 251	Classical Mythology	3
HIST 101	Western Civilization to 1660	3	RELS 360/ ENGL 365	The Bible as Literature	3
HIST 102	Western Civilization Since 1660	3	RUSS 201	Intermediate Russian I	3
			RUSS 202	Intermediate Russian II	3
			SPAN 201	Intermediate Spanish I	3

SPAN 202	Intermediate Spanish II	3
SPMT 220	Olympic Studies	3
WGST 200	Introduction to Women's and Gender Studies	3
WGST 220/ GLST 220	Feminist Approaches to Science, Technology, and Medicine	3
WGST 333/ ENGL 333	Lesbian, Gay, Bisexual, Transgender and Queer Literatures	3
WGST 374/ ENGL 374	Women Writers	3

Courses in this category focus on how ideas, values, beliefs, and other aspects of culture express and affect human experience. Courses involve the exploration of ideas that foster aesthetic and intellectual creation in order to understand the human condition across cultures. The following skills will be addressed in the courses that comprise this area: critical thinking, communication, social responsibility, and personal responsibility.

Creative Arts – 3 SCH

Code	Title	Semester Credit Hours
AFST 327/ MUSC 327	Popular Musics in the African Diaspora	3
ANTH 324/ MUSC 324	Music in World Cultures	3
ARCH 249	Survey of World Architecture History I	3
ARCH 250	Survey of World Architecture History II	3
ARCH 350	History and Theory of Modern and Contemporary Architecture	3
ARTS 149	Art History Survey I	3
ARTS 150	Art History Survey II	3
COMM 257/ RELS 257	Communication, Religion and the Arts	3
COMM 340	Communication and Popular Culture	3
DCED 202	Dance Appreciation	3
ENDS 101	Design Process	3
ENGL 212	Shakespeare	3
ENGL 219	Literature and the Other Arts	3
ENGL 251/ FILM 251	Introduction to Film Analysis	3
FILM 215/ GLST 215	Global Cinema	3
FILM 251/ ENGL 251	Introduction to Film Analysis	3
FILM 299	History of Film	3
FILM 425/ FREN 425	French Film	3
FREN 425/ FILM 425	French Film	3
GLST 215/ FILM 215	Global Cinema	3
HISP 204	Spanish and Spanish American Literature in Translation	3

HORT 203	Floral Design	3
INTA 216	World Cinema and International Politics	3
KINE 210	The Art of Movement	3
MSTC 150	History of Electronic Music	3
MUSC 201	Music and the Human Experience	3
MUSC 221	Guitar Heroes	3
MUSC 222	Music of the Americas	3
MUSC 224	History of Country and Western Music	3
MUSC 225	History of Jazz	3
MUSC 226	History of Rock	3
MUSC 324/ ANTH 324	Music in World Cultures	3
MUSC 327/ AFST 327	Popular Musics in the African Diaspora	3
MUSC 386/ THEA 386	Evolution of the American Musical	3
PERF 223	Aesthetics of Activism	3
PERF 301	Performance in World Cultures	3
PERF 328	Japanese Traditional Performing Arts	3
PHIL 330	Philosophy of Art	3
RELS 257/ COMM 257	Communication, Religion and the Arts	3
THEA 103	Introduction to Devised Theatre	3
THEA 200	Introduction to World Theatre	3
THEA 281	History of the Theatre II	3
THEA 386/ MUSC 386	Evolution of the American Musical	3

Courses in this category focus on the appreciation and analysis of creative artifacts and works of the human imagination. Courses involve the synthesis and interpretation of artistic expression and enable critical, creative, and innovative communication about works of art. The following skills will be addressed in the courses that comprise this area: critical thinking, communication, team work, and social responsibility.

American History – 6 SCH

Code	Title	Semester Credit Hours
AFST 300/ HIST 300	Blacks in the United States, 1607-1877	3
AFST 301/ HIST 301	Blacks in the United States Since 1877	3
HIST 105	History of the United States	3
HIST 106	History of the United States	3
HIST 225	Revolutionary America	3
HIST 226	History of Texas	3
HIST 230	American Military History, 1609 to Present	3
HIST 232	History of American Sea Power	3
HIST 258	American Indian History	3
HIST 300/ AFST 300	Blacks in the United States, 1607-1877	3

HIST 301/	Blacks in the United States Since	3
AFST 301	1877	
HIST 304	Southwest Borderlands	3

Courses in this category focus on the consideration of past events and ideas relative to the United States, with the option of including Texas History for a portion of this component area. Courses involve the interaction among individuals, communities, states, the nation, and the world, considering how these interactions have contributed to the development of the United States and its global role. The following skills will be addressed in the courses that comprise this area: critical thinking, communication, social responsibility, and personal responsibility.

Government/Political Science – 6 SCH

Code	Title	Semester Credit Hours
POLS 206	American National Government	3
POLS 207	State and Local Government	3

Courses in this category focus on consideration of the Constitution of the United States and the constitutions of the states, with special emphasis on that of Texas. Courses involve the analysis of governmental institutions, political behavior, civic engagement, and their political and philosophical foundations. The following skills will be addressed in the courses that comprise this area: critical thinking, communication, social responsibility, and personal responsibility.

Social and Behavioral Sciences – 3 SCH

Code	Title	Semester Credit Hours
AGEC 105	Introduction to Agricultural Economics	3
ANTH 201	Introduction to Anthropology	3
ANTH 202	Introduction to Archaeology	3
ARCH 212	Social and Behavioral Factors in Design	3
COMM 335	Intercultural Communication	3
COMM 365/ JOUR 365	International Communication	3
ECON 202	Principles of Economics	3
ECON 203	Principles of Economics	3
EPSY 320	Child Development	3
EPSY 321	Adolescent Development	3
ESST 201	Socio-Environmental Systems and Sustainability	3
FINP 235	Foundations of Money Education	3
GEOG 201	Introduction to Human Geography	3
HLTH 236	Introduction to Health Disparities and Diversity	3
HORT 335	Sociohorticulture	3
INST 210	Understanding Special Populations	3
INST 222	Foundations of Education in a Multicultural Society	3
INST 301	Educational Psychology	3
JOUR 102	American Mass Media	3
JOUR 365/ COMM 365	International Communication	3

KINE 282	Culture of Wellness	3
MARS 210	Marine Geography	3
PBSI 107	Introduction to Psychology	3
SOCI 205	Introduction to Sociology	3
SOCI 206	Global Social Trends	3
SOCI 207/ WGST 207	Introduction to Gender and Society	3
SOCI 211	Sociology of Deviance	3
SOCI 213/ WGST 213	Gender and Health	3
SOCI 214	Social Problems	3
SOCI 217	Introduction to Race and Ethnicity	3
SOCI 304	Criminology	3
SOCI 312	Population and Society	3
SOCI 319/ SPMT 319	Sociology of Sport	3
SPMT 304	Sport Psychology Management and Practice	3
SPMT 319/ SOCI 319	Sociology of Sport	3
SPMT 336	Diversity in Sport Organizations	3
SPMT 337	International Sport Business	3
URPN 201	The Evolving City	3
URPN 202	Building Better Cities	3
URPN 361	Urban Issues	3
WGST 207/ SOCI 207	Introduction to Gender and Society	3
WGST 213/ SOCI 213	Gender and Health	3

Courses in this category focus on the application of empirical and scientific methods that contribute to the understanding of what makes us human. Courses involve the exploration of behavior and interactions among individuals, groups, institutions, and events, examining their impact on the individual, society, and culture. The following skills will be addressed in the courses that comprise this area: critical thinking, communication, empirical and quantitative, and social responsibility.

¹ Applicable courses are listed in the Texas Higher Education Coordinating Board course inventory as meeting either the Mathematics or the Component Area Option Foundational Component Area.

² Applicable courses are listed in the Texas Higher Education Coordinating Board course inventory as meeting either the Life and Physical Sciences or the Component Area Option Foundational Component Area.

Undergraduate Studies' units have modified services available to students enrolled via distance education, at branch campuses, or at other instructional locations.

Student Learning Outcomes

Student learning outcomes articulate the knowledge and skills we expect students to gain during their educational experience. These learning outcomes require students connect their course- and degree-

level learning to overall goals determined to be critically important as graduates progress in their career and engage in learning for a lifetime.

We expect students to have learned the material presented in their individual courses; from entry-level general education courses required of all undergraduates to capstone courses restricted to seniors in a major to specialized graduate seminars. By the time they graduate, students are expected to have learned the material assigned in all of their courses. Not only must graduates know facts and understand basic concepts, they must also demonstrate an ability to apply and explain those facts and concepts creatively in new situations. Students gain the skills and knowledge that allows them to thrive in a complex world.

Baccalaureate

A student who graduates from Texas A&M with a baccalaureate degree will have acquired the knowledge and skills necessary to:

Master the depth of knowledge required for a degree, including the ability to:

- Articulate disciplinary and interdisciplinary theories, concepts, principles, skills, and practices;
- Synthesize knowledge across courses and other experiences; and
- Apply knowledge from core curriculum courses, discipline-based courses, and other experiences in a range of contexts to solve problems and make decisions.

Demonstrate critical thinking, including the ability to:

- Evaluate, analyze, and integrate information from a variety of sources;
- Use appropriate strategies and tools to represent, analyze, and integrate information; and
- Develop critical, reasoned positions.

Communicate effectively, including the ability to:

- Demonstrate effective oral communication skills (which could include the use of languages such as American Sign language for those who do not communicate orally);
- Demonstrate effective writing skills;
- Demonstrate effective nonverbal communication skills (which could include appropriate use of performance, design, or representations such as maps, tables, and graphs);
- Listen actively and critically;
- Present work effectively to a range of audiences; and
- Effectively communicate original and creative ideas.

Practice personal and social responsibility, including the ability to:

- Practice ethical leadership;
- Recognize an ethical dilemma and apply rational decision-making in order to address it;
- Choose ethical courses of action in research and practice;
- Acknowledge and address the consequences of one's own actions; and
- Engage in local and global civic activities.

Demonstrate social, cultural, and global competence, including the ability to:

- Live and work effectively in a diverse and global society;
- Articulate the value of a diverse and global perspective; and
- Recognize diverse economic, political, cultural, and religious opinions and practices.

Prepare to engage in lifelong learning, including the ability to:

- Exhibit the skills necessary to acquire, organize, reorganize, and interpret new knowledge;
- Show proficiency in current technologies and the ability to adapt to emerging technologies;
- Recognize and participate in activities that enhance wellness of body, mind, and spirit;
- Formulate a plan of personal goals for continued professional growth; and
- Demonstrate intellectual curiosity.

Work collaboratively, including the ability to:

- Participate effectively in teams;
- Consider different points of view; and
- Work with others to support a shared purpose or goal.

Degree and Program Information

Which Catalog to Follow

In meeting the requirements for a baccalaureate degree, a student is expected to complete the course and hour requirements as outlined in the catalog in effect at the time they first enroll at Texas A&M. A student will not be granted a degree based upon completion of the requirements set forth in a catalog more than seven years old. Before changing catalogs, the student must consult their academic advisor. A student changes catalogs by filing a written notification with their dean, or designee. It is incumbent on the student to verify that the change has been made. Texas A&M University Student Rules (including periodic revisions) is the governing document in case of conflict between this catalog and Texas A&M University Student Rules. It is the responsibility of the individual student to read this information carefully and to use it as a reference. Please refer to the Student Rules for this information.

Whereas each college must retain the flexibility to improve its curriculum, course offerings may be changed during the student's education. If a course required under a previous catalog is no longer offered, a student eligible to graduate according to that catalog should consult their academic advisor or dean to identify another course that may be used to fulfill the requirement. Course adjustments in the degree program are permitted only with the approval of the dean through the department head or program director. Furthermore, the University reserves the right to make any changes in requirements it may consider necessary and desirable by due notice in the catalog.

Students are required to take the courses listed in a curriculum. This display is intended as a guide to indicate the preferred order for completion of degree requirements. Exceptions to certain requirements may be petitioned through the department head to the dean of the college.

Degrees Offered

The following degrees are offered for the satisfactory completion of resident study in the appropriate curriculum:

- Bachelor of Arts (BA)
- Bachelor of Business Administration (BBA)
- Bachelor of Fine Arts (BFA)
- Bachelor of Landscape Architecture (BLA)
- Bachelor of Science (BS)
- Bachelor of Science in Nursing (BSN)
- Master of Agribusiness (MAB)
- Master of Agriculture (MAGR)
- Master of Applied Youth Development (MAY)
- Master of Architecture (MARCH)
- Master of Arts (MA)
- Master of Biotechnology (MBIOT)
- Master of Business Administration (MBA)
- Master of Clinical Nutrition (MCN)
- Master of Computer Science (MCS)
- Master of Education (MED)
- Master of Engineering (MENGR)
- Master of Engineering Technical Management (METM)
- Master of Equine Industry Management (MEIM)
- Master of Financial Management (MFM)
- Master of Fine Arts (MFA)
- Master of Geoscience (MGSC)
- Master of Health Administration (MHA)
- Master of Industrial Distribution (MID)
- Master of International Affairs (MIA)
- Master of International Policy (MIP)
- Master of Land and Property Development (MLPD)
- Master of Landscape Architecture (MLA)
- Master of Laws (ML)
- Master of Legal Studies (MLG)
- Master of Marine Resources Management (MMRM)
- Master of Maritime Business Administration and Logistics (MMB)
- Master of National Security and Intelligence (MNSI)
- Master of Natural Resources (MNA)
- Master of Ocean Science and Technology (MOST)
- Master of Public Health (MPH)
- Master of Public Service and Administration (MPSA)
- Master of Real Estate (MRE)
- Master of Science (MS)
- Master of Science in Nursing (MSN)
- Master of Science in Public Health (MSPH)
- Master of Urban Planning (MUP)
- Master of Water Management and Hydrological Science (MWM)
- Doctor of Dental Surgery (DDS)
- Doctor of Education (EdD)
- Doctor of Engineering (DEng)
- Doctor of Medicine (MD)
- Doctor of Nursing Practice (DNP)
- Doctor of Pharmacy (PharmD)
- Doctor of Philosophy (PhD)
- Doctor of Public Health (DrPH)

- Doctor of Veterinary Medicine (DVM)
- Juris Doctor (JD)

The buying, selling, creating, duplicating, altering, giving or obtaining the Texas A&M diploma or other academic record is prohibited by state law. A person who violates this statute or who aids another person in violation is guilty of a misdemeanor and is subject to a fine and/or confinement if convicted.

The University has the right to rescind a previously granted degree if the University becomes aware of information indicating that the degree never should have been granted.

Tuition Charged for Excess Credit Hours

The State of Texas will not provide funds to state institutions of higher education for excess semester credit hours earned by a resident student. Because funding will not be provided by the State, and as permitted by State law, Texas A&M will charge tuition at the non-resident rate to all students who exceed the semester credit hour limit for their program. Excess semester credit hours are those which accrue after the student attempts more than 30 hours beyond the number of semester credit hours required for the completion of the degree program in which the student is enrolled. Thus, the student may accumulate up to 30 hours beyond those required for the chosen degree program and not exceed the limitation. The limitation on excess credit hours applies only to those undergraduate students who first enter higher education in the fall 1999 and thereafter. The semester credit hours counted toward the limitation include all hours attempted by the student except:

- Semester credit hours earned by the student before receiving an associate's or baccalaureate degree that has been previously awarded. (Effective February 2024)
- Semester credit hours earned by the student by examination or other procedure by which credit is earned without registering for a course for which tuition is charged.
- Credit for remedial education courses, technical courses, workforce education courses funded according to contact hours, or other courses that would not generate academic credit that could be applied toward a degree program at Texas A&M.
- Semester credit hours earned by the student at a private or an out-of-state institution.
- Semester credit hours earned by the student before graduating from high school and used to satisfy high school graduation requirements (Effective June 2009).
- Hours not eligible for formula funding.
- The first 15 hours upon return to an institution of higher education after a 24-month break in enrollment, so long as 50 hours of non-exempt coursework was completed before the break in enrollment. (Effective June 2017)
- Semester credit hours earned 10 or more years before the student began his or her degree program that have been excluded from the student record due to an election of admission under the Academic Fresh Start program.

Supplementary Fee for Courses Attempted More than Twice

Certain courses that are attempted by a student more than twice at a public institution of higher education in Texas may not be reported for state funding. As a result, the institution must either pass the non-funded portion to all students, or charge a supplementary fee to the

student who is repeating the course. Texas A&M has chosen to assess a supplementary fee to those students attempting a course more than twice.

A student attempting certain courses more than twice at Texas A&M will be subject to a supplementary fee of \$125 per semester credit hour (\$375 for a 3 hour course) for the repeated course, in addition to tuition and required fees associated with the course.

Students will be notified at the time they register for a course that it has been taken twice at Texas A&M and is subject to the supplementary fee.

Requirements for a Baccalaureate Degree

Requirements for a Baccalaureate Degree

To be a candidate for a degree at the end of the semester, a student must:

1. Be enrolled in or have completed all degree requirements by the 60th class day of the fall or spring semester, or the 15th class day of the second summer term either in residence or at another college or university. Proof of enrollment in any courses taken at another college or university must be provided to the Office of the Registrar, Degree Audit, by the above deadlines. A student must be enrolled in his or her degree-granting college(s) and major(s) at the beginning of the student's last semester at Texas A&M to be a candidate for a degree from that college.
2. Complete a minimum of 120 credit hours.
3. Complete, with at least a 2.0 grade point average, all undergraduate coursework attempted at Texas A&M.
4. Complete, with a 2.0 grade point average, all courses included in the major field of study.
5. Meet the Residence Requirement. A minimum of 25% of coursework applying to a degree must be completed in residence at Texas A&M University. Upper-level Residence Requirement: A minimum of 36 semester hours of 300- and/or 400-level coursework must be successfully completed in residence at Texas A&M to obtain a baccalaureate degree. A minimum of 12 of these 36 semester hours must be in the major. A student participating in Texas A&M off-campus study programs approved by the student's college may apply upper division credits earned in the programs toward the residence requirement up to a maximum of 18 semester hours, including hours transferred from another institution as part of one of these programs. These Texas A&M off-campus study programs may involve domestic or international institutions and may be taught by Texas A&M faculty or faculty from other institutions. Students choosing to participate in such programs and wishing to apply credits earned from the programs toward the residence requirement must receive college approval prior to the student's participation in the off-campus study program. Students participating in international programs must contact the Education Abroad Programs Office for details on how to obtain approval for courses taken outside the United States. Students participating in domestic off-campus programs must contact the dean's office of their college for approval procedures.
6. Complete the University Core Curriculum. Core Curriculum courses are listed on the University Core Curriculum (p. 26) page. For additional information, please reference <https://core.tamu.edu>.
7. Complete the citizenship requirement, which includes at least 6 credit hours in government/political science and at least 6 credit hours in American history. American National Government (POLS 206) and State and Local Government (POLS 207) fulfill the government/political science requirement.
8. Complete the Foreign Language requirement. A minimum of one year of foreign language is required for all baccalaureate degree programs at Texas A&M. For many programs, this degree requirement can be satisfied by the satisfactory completion of two units of the same foreign language at the high school level or a two course sequence of the same language at the college level.
 - a. International students whose native language is not English are exempt from satisfying the university foreign language requirement. These students may not register for the beginning and intermediate level courses in their native language (course numbers 101, 102, 201, and 202) which are used to fulfill the foreign language requirement.
 - b. Many Bachelor of Arts degrees require at least 6 additional semester credit hours of foreign language at the 200-level. Students should consult with an academic advisor about specific language requirements for their degree program.
 - c. Students who wish to demonstrate foreign language proficiency without taking acceptable high school or college courses may do so through the existing credit by examination process. In cases where students wish to demonstrate proficiency in a language not taught at Texas A&M, the following procedures shall apply. The student shall request an examination from the Head of the Department of Hispanic Studies or the Head of the Department of Global Languages and Culture. This department will coordinate the administration of special examinations to demonstrate foreign language proficiency. This will include finding an appropriate examination to test the student's proficiency, informing the student how to arrange to take the examination and certifying the results to the student's advisor. All arrangements shall be made and fees paid by the student.
 - d. American Sign Language (ASL) may be used to fulfill the foreign language degree requirement unless otherwise specified by the student's college or department. Students may either transfer ASL credits or arrange to be tested at another institution. (Texas A&M does not offer courses in ASL.)
9. Complete the Writing requirement. The requirement may be met by passing two writing (W) courses or one writing (W) course and one oral communication (C) course in the student's major. The requirement may not be met by any course listed as a University Core Curriculum communication requirement, nor may it be met through credit by examination. It may be met by a course transferred from another institution of higher learning, with the approval of the dean of the student's college and the Vice Provost for Student Success. Upon request, students will provide their dean with a course description, syllabus or writing sample from the course being transferred.
- a. Both the government/political science and American history requirements may be met, in whole or in part, by equivalent coursework satisfactorily completed at another accredited college or university.
- b. State law permits the substitution of 3 hours of history and 3 hours of government/political science for a student in the program of an approved senior ROTC unit. With the approval of the dean of the appropriate college, students successfully completing the required 12 hours of upper-level ROTC courses will be deemed to have completed the equivalent of POLS 206 or POLS 207 plus HIST 105 or HIST 106 (or another appropriate course) for a total of 6 hours.
- c. Students pursuing teacher certification are not allowed to substitute ROTC credits for this requirement.

10. Complete the International and Cultural Diversity and Cultural Discourse requirements (6 credit hours).

- a. The International and Cultural Diversity (ICD) requirement will prepare graduates for a diverse, global society and address the following University Baccalaureate Learning Outcomes:

- 1) Live and work effectively in a diverse and global society;
- 2) Articulate the value of a diverse and global perspective;
- 3) Recognize diverse opinions and practices and consider different points of view (including but not limited to economic, political, cultural, gender, and religious opinions).

Students must take one course (3 credit hours) from the list available on the International and Cultural Diversity Requirement (p. 49) page. For additional information, please reference <http://icd.tamu.edu> (<http://icd.tamu.edu/>).

- b. The Cultural Discourse (CD) requirement will prepare graduates to be leaders in an increasingly diverse world and act in a multicultural and global society and will address the following:

- 1) Hold respectful discussions and discourse on difficult topics
- 2) Understand self, including personal bias and prejudices
- 3) Understand how power or authority is distributed within organizational systems, including recognizing potential forms of privilege, oppression, and discrimination
- 4) Understand, as an overarching goal, how to use and promote informed dialogue to overcome issues dividing, not uniting, individuals and humankind
- 5) Understand tolerance and intolerance and have knowledge of when it is appropriate to be intolerant of specific behaviors/activities that violate our core values as people and Aggies
- 6) Understand how to function effectively in a multicultural and global society
- 7) Understand conflict from multiple viewpoints
- 8) Incorporates "Aggie Experience Activities" into the course
- 9) Incorporates small group discussions into the course

Students must take one course (3 credit hours) from the list available on the Culture Discourse Requirement page. For additional information, please reference <http://icd.tamu.edu>.

- c. If a course listed as ICD or CD, but it also satisfies a Core Curriculum requirement, then the course may be used to satisfy both requirements.

Undergraduate Minor Programs

A minor is a selection of courses that focuses on a single area or an interdisciplinary perspective as developed by the department or program that offers the minor. The department or program offering the minor is responsible for setting enrollment limits and deciding which courses are used to meet the minor. Coursework consists of 15-18 hours with a minimum of 6 in residence at the 300-400 level.

If a minor is offered by a department or academic unit, then the minor is considered to be available to all students as resources permit. Students must declare a minor no later than the date on which they apply for graduation. A maximum of two minors per degree can be completed by students. A minor is displayed on the transcript after graduation but not displayed on the diploma.

Two Degrees

A student pursuing a second baccalaureate degree must complete all university, college, and department/curricular requirements for the second degree not covered in the first. All essential work required for a second degree must be defined in advance in writing by the Dean or designee of the college granting the second degree. In all such cases, the total semester hours required must be at least 30 hours additional to the greater number required for either degree. At least 12 hours of 300- and 400-level course work must be completed in each field of study.

A student who has previously not been enrolled at Texas A&M and who is seeking a second degree must have a minimum of 36 hours of 300- and 400-level courses, 12 hours of which must be in the major field of study, in residence at Texas A&M. The student must also meet the citizenship requirements for American history and government/political science.

Baccalaureate Degree Option for Students Granted Early Admission to Professional Programs

A current undergraduate student who opts in to the early admission to professional program may be eligible for a Texas A&M University baccalaureate degree after completing their first year of professional school. In order to be eligible, the student must complete the minimum 120 hours as required for a baccalaureate degree from Texas A&M, including courses specified by the department and outlined in this catalog. To be eligible, the student must have satisfied all University Core Curriculum requirements as specified in this catalog. A student intending to use this baccalaureate degree option must coordinate early in their program with the appropriate undergraduate advisor in order to ensure that degree requirements are met. The student must complete at least half of the total hours required for the baccalaureate degree while in residence at Texas A&M. This requirement includes a minimum of 24 hours of upper division courses in residence; 12 of the 24 hours must be in the major.

Students selected into an approved professional program will be required to successfully complete a minimum of one full year of acceptable work at an accredited school of medicine, dentistry, optometry, pharmacy, law, physical therapy, or veterinary medicine in the United States. The student will be responsible for submitting official transcripts to the Office of Admissions to verify completion of agreement requirements. The participating undergraduate department or program will complete the required degree audit, approve the necessary substitutions and clear the student to graduate.

Baccalaureate degrees will be awarded in May, August, and December after the completion of the first year of the approved professional program or the necessary hours for the desired baccalaureate degree. Students must apply for graduation in Howdy. Check the academic calendar for deadlines and for commencement dates. Questions may be emailed to degree-audit@tamu.edu or call (979) 845-1089. For additional information about graduation, visit the graduation (<http://graduation.tamu.edu>) website.

Former students who have received a professional degree and did not receive a baccalaureate degree from Texas A&M prior to starting professional school may request the conferral of a baccalaureate degree with completion of core curriculum and the residence requirement as stated in this catalog. Although this is a University-wide policy, not all colleges choose to participate. The use of this baccalaureate option will remain a college initiative in that each individual college and/or program must clear each candidate for graduation.

Graduation with Honors

Undergraduate Students

To be eligible for graduation with Latin honors, a student seeking a baccalaureate degree must enroll in and complete a minimum of 60 semester hours at Texas A&M University, Texas A&M University Galveston campus, or Texas A&M University Qatar campus preceding graduation and have an institutional grade point average equal to or greater than that required for the appropriate category of honors. Course credit received by examination, and courses reserved for graduate credit only, are excluded from the calculation of the number of hours and the grade point average for graduation with Latin honors.

Categories for Latin honors shall be designated as follows:

- *Summa Cum Laude*: A student may be graduated Summa Cum Laude with a grade point average of 3.90 or above.
- *Magna Cum Laude*: A student may be graduated Magna Cum Laude with a grade point average range of 3.70 through 3.899.
- *Cum Laude*: A student may be graduated Cum Laude with a grade point average range of 3.50 through 3.699.

Grade point averages used to determine Latin honors designations are calculated during the final degree audit the day before the ceremonies and include hours and final grades in courses taken during the graduation semester. Latin honors designations will not be changed after the final graduation clearance deadline.

Information regarding other honors designations may be found on the Honors and Undergraduate Research (<https://catalog.tamu.edu/undergraduate/honors-undergraduate-research/>) page.

Please note:

- Students are **not** required to enroll in honors courses to graduate with Latin honors.
- Taking designated honors courses does not mean students will graduate with Latin honors.
- Grade point averages for Undergraduate Latin honors are truncated at 3 decimal places.

No Upper Division student found guilty of academic misconduct may receive Cum Laude, Magna Cum Laude, or Summa Cum Laude honors at graduation. Upper Division status is defined as having earned 60 or more credit hours, including transfer hours, prior to the date of the violation. This sanction is automatic upon a finding of academic misconduct, and is imposed without regard to the severity of other sanctions imposed by the instructor or Honor Council.

For more information, please see the Aggie Honor System Office (p. 84) section in the catalog.

Professional Practice Students

- Students who complete their entire course of study at Texas A&M University in the College of Medicine are eligible for academic honors.

In the Naresh K. Vashisht College of Medicine, students must obtain a grade point average of 3.50 or greater to graduate with honors.

- In the Irma Lerma Rangel College of Pharmacy, students are eligible for Latin Honors as follows: Summa Cum Laude (4.0-3.90), Magna Cum Laude (3.89-3.75), and Cum Laude (3.74-3.50).
- In the School of Law, JD students may qualify to graduate Summa Cum Laude by holding a final cumulative grade point average of 3.80 or above, Magna Cum Laude with a final cumulative grade point average of 3.60-3.79, and Cum Laude with a final cumulative grade point average of 3.40 through 3.59.
- A professional practice student in the College of Veterinary Medicine may qualify to graduate Summa Cum Laude by holding a final grade point average of 3.90 or above, Magna Cum Laude with a grade point average of 3.70 through 3.899 and Cum Laude with a grade point average of 3.50 through 3.699.

Graduation Application, Diploma and Commencement

Formal application for degrees must be submitted online in Howdy by the deadline stated in the academic calendar and in accordance with Student Rule 14.1 (<https://student-rules.tamu.edu/rule14/>).

The diploma of the University, with the appropriate degree, will be granted to the student who has made formal application for the degree by the published official deadline, has all grades on record in the Office of the Registrar, including grades pertaining to graduation with honors, and has satisfied all degree requirements by no later than 5 p.m., Friday, the first week of classes of the succeeding semester or summer term following commencement in accordance with Student Rule 14.5 (<https://student-rules.tamu.edu/rule14/>).

Students must have settled all financial obligations to the university prior to receiving a diploma.

A degree will not be awarded until full resolution of cases for which a student has been charged or is being investigated for one or more violations of a University or Student Rule that could result in suspension or expulsion in accordance with Student Rule 14.17 (<https://student-rules.tamu.edu/rule14/>).

Graduate and undergraduate students who plan to attend a commencement ceremony must do so the semester they apply for graduation and complete their degree requirements in accordance with Student Rule 14.15 (<https://student-rules.tamu.edu/rule14/>).

Formal application for a degree at Texas A&M University at Qatar is made by submitting an Application for Graduation via the Howdy Portal. Students must also pay the required diploma/graduation fee and the optional regalia fee (if planning to attend the commencement ceremony) using the online payment portal (<https://tamu.estore.flywire.com/products/?storeCatalog=1202>). Applications for graduation should be submitted by the deadline stated in the Texas A&M University at Qatar academic calendar. Under certain circumstances, an application for a degree may be accepted after the stated deadline.

Students must have settled all financial obligations to the university and Qatar Foundation prior to receiving a diploma.

Texas A&M University at Qatar graduate and undergraduate students completing their degree in July or December will have the opportunity to participate in the commencement ceremony in May, following

the completion of their degree. Students must participate in the commencement ceremony at their home campus.

Requirements for a Certificate

Requirements for a Certificate

A current student must receive permission from the department offering the certificate and their primary academic advisor in order to pursue a certificate. All requirements outlined in the catalog and degree evaluation for the specific certificate program must be met in order for a certificate to be awarded.

Certificate types:

- **Major-dependent** - A student is admitted to the program through the offering department. Admission to the program requires the student to pursue a specific degree/major at Texas A&M University. This type of certificate program typically serves as a track within a degree program. The certificate and degree are awarded simultaneously.
- **Degree-dependent** - A student is admitted to the program through the offering department. Admission to the program simply requires that the student pursue a degree at Texas A&M University. The certificate may or may not be related to their specific degree/major. The certificate is awarded upon completion of the requirements independent of a degree.
- **Stand-alone** - A student is admitted to the program through the Office of Admissions. The student may pursue the certificate without being enrolled in a degree program. The certificate may be awarded upon completion of requirements. Students currently pursuing a degree or another stand-alone certificate through Texas A&M can be admitted to an additional stand-alone certificate program through the offering department without submitting an application through the Office of Admissions.

Graduation Application, Certificate and Commencement

Formal application for certificates to be awarded must be submitted online in Howdy (<http://howdy.tamu.edu/>) by the deadline stated in the academic calendar.

Certificates are granted to students who make a formal application for the certificate to be awarded, have all grades on record in the Office of the Registrar, and have satisfied all certificate requirements. With the exception of major dependent certificates, which are awarded at the end of each term along with the student's associated degree, certificates are awarded on the last calendar day of the month in which they are completed. In months where a commencement ceremony is held, degree-dependent and stand-alone certificates will be awarded with the conferral date for that term's commencement.

Students that have made a formal application for a certificate in a given semester/term must have all requirements satisfied no later than 5 p.m., Friday, the first week of classes of the succeeding semester or summer term for the certificate to be formally awarded.

A Certificate Processing and Service Charge is assessed for each certificate graduation application submitted by a student. This charge is non-refundable and cannot be transferred to another certificate graduation application.

Students must have settled all financial obligations to the university prior to receiving a certificate.

University certificates will either be mailed directly to the student or issued to the college for formal presentation.

For additional information regarding certificate tracking and awarding, please visit the Office of the Registrar website (<https://registrar.tamu.edu/administrative-services/degree-audit/certificate-tracking-awarding/>).

Combination Programs

Combination Programs

Combination programs represent two degrees of different academic levels that are pursued and awarded simultaneously. Combination programs may allow a shorter time for completion due to the "double-counting" of some coursework. Even though the programs are combined, students must satisfy the required hours of both programs. See the specific program for more details.

Texas A&M University currently offers the following undergraduate programs combined with graduate and professional programs:

Undergraduate and Graduate Programs

- Bachelor of Arts in Communication and Master of Arts in Communication, 5-Year Degree Program (p. 327)
- Bachelor of Arts in Economics and Master of International Affairs, 5-Year Degree Program (p. 349)
- Bachelor of Arts in Economics and Master of Public Service and Administration, 5-Year Degree Program (p. 350)
- Bachelor of Arts in Economics and Master of Science in Economics, 5-Year Degree Program (p. 352)
- Bachelor of Arts in English and Master of Arts in English, 5-Year Degree Program (p. 364)
- Bachelor of Arts in History and Master of Arts in History, 5-Year Degree Program (p. 414)
- Bachelor of Arts in International Affairs and Master of International Affairs, 5-Year Degree Program (p. 730)
- Bachelor of Arts in Journalism and Master of Arts in Communication, 5-Year Degree Program (p. 333)
- Bachelor of Arts in Mathematics and Master of Science in Mathematics, 5-Year Degree Program (p. 439)
- Bachelor of Arts in Philosophy and Master of Arts in Philosophy, 5-Year Degree Program (p. 455)
- Bachelor of Arts in Political Science and Master of Public Service and Administration, 5-Year Degree Program (p. 737)
- Bachelor of Arts in Sociology and Master of Public Service and Administration, 5-Year Degree Program (p. 483)
- Bachelor of Arts in Telecommunication Media Studies and Master of Arts in Communication, 5-Year Degree Program (p. 339)
- Bachelor of Business Administration in Accounting and Master of Financial Management, 5-Year Degree Program (p. 511)
- Bachelor of Business Administration in Accounting and Master of Science, 5-Year Degree Program (p. 513)
- Bachelor of Science in Agricultural Economics and Master of Public Service and Administration, 5-Year Degree Program (p. 141)
- Bachelor of Science in Applied Mathematics and Master of Science in Economics, 5-Year Degree Program (p. 432)

- Bachelor of Science in Applied Mathematics and Master of Science in Mathematics, 5-Year Degree Program (p. 434)
- Bachelor of Science in Chemistry and Master of Science in Chemistry, 5-Year Degree Program (p. 321)
- Bachelor of Science in (p. 854)Coastal [Environmental Science and Society](#) and Master of Marine Resources Management, 5-Year Degree Program
- Bachelor of Science in Communication and Master of Arts in Communication, 5-Year Degree Program (p. 330)
- Bachelor of Science in Economics and Master of International Affairs, 5-Year Degree Program (p. 354)
- Bachelor of Science in Economics and Master of Public Service and Administration, 5-Year Degree Program (p. 355)
- Bachelor of Science in Economics and Master of Science in Economics, 5-Year Degree Program (p. 356)
- Bachelor of Science in Geographic Information Science and Technology and Master of Science in Geography, 5-Year Degree Program (p. 371)
- Bachelor of Science in Geography and Master of Geoscience in Geoscience, 5-Year Degree Program (p. 373)
- Bachelor of Science in Geography and Master of Science in Geography, 5-Year Degree Program (p. 375)
- Bachelor of Science in Geology and Master of Science in Geology, 5-Year Degree Program (p. 385)
- Bachelor of Science in Geology and Master of Ocean Science and Technology, 5-Year Degree Program (p. 383)
- Bachelor of Science in Geophysics and Master of Science in Geophysics, 5-Year Degree Program (p. 387)
- Bachelor of Science in Industrial Engineering and Master of Science in Finance, 5-Year Degree Program (p. 673)
- Bachelor of Science in Industrial Engineering and Master of Public Health in Occupational Safety and Health, 5-Year Degree Program (p. 671)
- Bachelor of Science in Interdisciplinary Engineering and Master of Public Health in Occupational Safety and Health, 5-Year Degree Program (p. 695)
- Bachelor of Science in Journalism and Master of Arts in Communication, 5-Year Degree Program (p. 336)
- Bachelor of Science in Kinesiology and Master of Science in Athletic Training, 5-Year Degree Program (p. 568)
- Bachelor of Science in Maritime Business Administration and Master of Maritime Business Administration and Logistics, 5-Year Degree Program (p. 871)
- Bachelor of Science in Mathematics and Master of Science in Mathematics, 5-Year Degree Program (p. 442)
- Bachelor of Science in Meteorology and Master of Ocean Science and Technology, 5-Year Degree Program (p. 285)
- Bachelor of Science in Oceanography and Master of Ocean Science and Technology, 5-Year Degree Program (p. 448)
- Bachelor of Science in Political Science and Master of Public Service and Administration, 5-Year Degree Program (p. 739)
- Bachelor of Science in Public Health and Master of Public Health in Epidemiology, 5-Year Degree Program (p. 786)
- Bachelor of Science in Public Health and Master of Public Health in Health Policy and Management, 5-Year Degree Program (p. 789)
- Bachelor of Science in Public Health and Master of Public Health in Health Behavior, 5-Year Degree Program (p. 792)
- Bachelor of Science in Public Health and Master of Public Health in Occupational Health and Safety, 5-Year Degree Program (p. 795)
- Bachelor of Science in Rangeland, Wildlife and Fisheries Management and Master of Public Service Administration, 5-Year Degree Program (p. 228)
- Bachelor of Science in Sociology and Master of Public Service and Administration, 5-Year Degree Program (p. 486)
- Bachelor of Science in Statistics and Master of Science in Statistical Data Science, 5-Year Degree Program (p. 494)
- Bachelor of Science in Telecommunication Media Studies and Master of Arts in Communication, 5-Year Degree Program (p. 342)
- Bachelor of Science in Urban and Regional Planning and Master of Land and Property Development, 5-Year Degree Program (p. 256)
- Bachelor of Science in Urban and Regional Planning and Master of Landscape Architecture, 6-Year Degree Program (p. 255)
- Bachelor of Science in Urban and Regional Planning and Master of Urban Planning, 5-Year Degree Program (p. 258)

Undergraduate and Professional Programs

- Bachelor of Science in Interdisciplinary Engineering and Juris Doctor, 6-Year Degree Program (p. 697)

Degree Programs Tables

Undergraduate, Graduate and Professional Degree Programs

Interdisciplinary Degree Programs

Degree Program	Baccalaureate	Masters	Doctorate	Professional
Agribusiness		MAB		
Biotechnology		MBIOT		
Data Science		MS		
Ecology and Evolutionary Biology		MS	PhD	
Energy		MS		
Environmental Studies	BS			
Genetics and Genomics		MS	PhD	
Kinesiology	BS			
Molecular and Environmental Plant Science		MS	PhD	
Neuroscience		MS	PhD	
Toxicology		MS	PhD	
Water Management and Hydrological Science		MS, MWM	PhD	

University Studies BA, BS

College of Agriculture and Life Sciences

Degree Program	Baccalaureate	Masters	Doctorate	Professional
Department of Agricultural Economics				
Agribusiness	BS			
Agricultural Economics	BS	MS	PhD	
Financial Planning	BS			

Department of Agricultural Leadership, Education and Communications

Agricultural Communication and Journalism	BS			
Agricultural Development		MAgr		
Agricultural Education	BS			
Agricultural Leadership and Development	BS			
Agricultural Leadership, Education, and Communication		MS	PhD	
Applied Youth Development		MAY		

Department of Animal Science

Animal Breeding		MS	PhD	
Animal Science	BS	MS, MAgr	PhD	
Equine Industry Management		MEIM		
Physiology of Reproduction		MS	PhD	

Department of Biochemistry and Biophysics

Biochemistry	BS	MS		
Biochemistry and Molecular Biophysics			PhD	
Genetics	BS			

Department of Biological and Agricultural Engineering

Agricultural Systems Management	BS	MS, MAgr		
Biological and Agricultural Engineering	BS	MS, MEngr	PhD	

Department of Ecology and Conservation Biology

Ecology and Conservation Biology	BS	MS	PhD	

Department of Entomology

Entomology	BS	MS	PhD	
Forensic and Investigative Sciences	BS			

Department of Food Science and Technology

Food Science and Technology	BS	MS, MAgr	PhD	

Department of Horticultural Sciences

Horticulture	BA, BS	MS, MAgr	PhD ¹	
Plant Breeding		MS	PhD	

Department of Hospitality, Hotel Management and Tourism

Hospitality, Hotel Management and Tourism	BS			
Hospitality, Tourism and Recreation Management		MS	PhD	

Department of Nutrition

Clinical Nutrition		MCN		
Nutrition	BS	MS	PhD	

Department of Plant Pathology and Microbiology

Bioenvironmental Sciences				
Plant Pathology		MS	PhD	

Department of Poultry Science

Poultry Science	BS	MS, MAgr	PhD	

Department of Rangeland, Wildlife, and Fisheries Management

Natural Resources		MNA		
Rangeland, Wildlife and Fisheries Management	BS	MS	PhD	

Department of Soil and Crop Sciences

Agronomy		MS	PhD	
Plant Breeding		MS	PhD	
Plant and Environmental Soil Science	BS			
Soil Science		MS	PhD	
Turfgrass Science	BS			

¹ Also offered in cooperation with Texas A&M University–Kingsville.

College of Architecture

Degree Program	Baccalaureate	Masters	Doctorate	Professional

Department of Architecture

Architecture	BS	MS, MArch	PhD	

Department of Construction Science

Construction Science	BS	PhD
Construction Management	MS	
Department of Landscape Architecture and Urban Planning		
Landscape Architecture	BLA	MLA
Land and Property Development		MLPD
Urban and Regional Planning	BS	MUP
Urban and Regional Science		PhD

College of Arts and Sciences

Degree Program	Baccalaureate	Masters	Doctorate	Professional
Environmental Systems Science	BS			
Neuroscience	BS			
Women's and Gender Studies	BA, BS			
Department of Anthropology				
Anthropology	BA, BS	MA	PhD	
Maritime Archaeology and Conservation		MS		
Department of Atmospheric Sciences				
Atmospheric Sciences		MS	PhD	
Meteorology	BS			
Department of Biology				
Biology	BA, BS	MS	PhD	
Microbiology	BS	MS	PhD	
Molecular and Cell Biology	BS			
Zoology	BS			
Department of Chemistry				
Chemistry	BA, BS	MS	PhD	
Department of Communication and Journalism				
Communication	BA, BS	MA	PhD	
Journalism	BA, BS			
Telecommunication Media Studies	BA, BS			
Department of Economics				
Economics	BA, BS	MS	PhD	
Department of English				
English	BA	MA	PhD	
Department of Geography				

Geographic Information Science and Technology	BS		
Geography	BS	MS	PhD
Geoscience		MGsc	
Department of Geology and Geophysics			
Geology	BA, BS	MS	PhD
Geophysics	BS	MS	PhD
Department of Global Languages and Cultures			
Classics	BA		
Global Studies	BA		
Hispanic Studies		MA	PhD ¹
Modern Languages	BA		
Spanish	BA		
Department of History			
History	BA, BS	MA	PhD
Department of Mathematics			
Applied Mathematics	BS		
Mathematics	BA, BS	MS	PhD
Department of Oceanography			
Ocean Science and Technology		MOST	
Ocean Studies	BA		
Oceanography	BS	MS	PhD
Department of Philosophy			
Philosophy	BA	MA	PhD
Society, Ethics, and Law	BA		
Department of Physics and Astronomy			
Applied Physics			PhD
Astronomy		MS	PhD
Physics	BA, BS	MS	PhD
Department of Psychological and Brain Sciences			
Behavioral and Cognitive Neuroscience	BS		
Clinical Psychology			PhD
Industrial/Organizational Psychology			PhD
Psychological Sciences		MS	
Psychology	BA, BS		PhD
Department of Sociology			
Sociology	BA, BS	MS	PhD
Department of Statistics			

Bioinformatics BS				
Statistical Data Science		MS		
Statistics	BS		PhD	

¹ In cooperation with Texas A&M International University and Texas A&M University–Kingsville.

Institute of Biosciences and Technology Mays Business School

Degree Program	Baccalaureate	Masters	Doctorate	Professional
Analytics		MS		
Business	BS	MS		
Business Administration	BBA	MBA	PhD	
Department of Accounting				
Accounting	BBA	MS		
Department of Finance				
Finance	BBA	MS		
Financial Management		MFM		
Land Economics and Real Estate		MRE		
Quantitative Finance		MS		
Department of Information and Operations Management				
Management Information Systems	BBA	MS		
Supply Chain Management	BBA			
Supply Chain and Analytics		MS		
Department of Management				
Entrepreneurial Leadership		MS		
Human Resource Management		MS		
Management	BBA		PhD	
Department of Marketing				
Marketing	BBA	MS		

College of Dentistry

Degree Program	Baccalaureate	Masters	Doctorate	Professional
Dentistry				DDS
Oral and Craniofacial Biomedical Sciences			PhD	
Oral Biology		MS		
Department of Biomedical Sciences				
Caruth School of Dental Hygiene				
Dental Hygiene	BS			

Department of Comprehensive Dentistry

Department of Diagnostic Sciences

Department of Endodontics

Department of Oral and Maxillofacial Surgery

Department of Orthodontics

Department of Pediatric Dentistry

Department of Periodontics

Department of Public Health Sciences

College of Education and Human Development

Degree Program	Baccalaureate	Masters	Doctorate	Professional
Department of Educational Administration and Human Resource Development				
Educational Administration		MS, MEd	PhD, EdD	
Educational Human Resource Development		MS	PhD	
Learning Technology and Performance Systems	BS			
Human Resource Development	BS			
Department of Educational Psychology				
Bilingual, English as a Second Language, and Dual Language Education			EdD	
Bilingual/ESL Education		MS, MEd		
Counseling Psychology			PhD	
Educational Psychology		MS, MEd	PhD	
Human Development and Family Sciences	BS			
School Psychology			PhD	
Special Education		MS, MEd		

Department of Kinesiology and Sport Management				
Athletic Training		MS		
Kinesiology		MS	PhD	
Sport Management	BS	MS		
Department of Teaching, Learning and Culture				
Curriculum and Instruction		MS, MEd	PhD, EdD	
Early Childhood Development and Education	BS			
Education	BS			
Learning Design and Technology		MEd		

College of Engineering

Degree Program	Baccalaureate	Masters	Doctorate	Professional
Department of Aerospace Engineering				
Aerospace Engineering	BS	MS, MEngr	PhD	
Space Engineering		MEngr		
Department of Biomedical Engineering				
Biomedical Engineering	BS	MS, MEngr	PhD	
Department of Chemical Engineering				
Chemical Engineering	BS	MS, MEngr	PhD	
Safety Engineering		MS		
Department of Civil and Environmental Engineering				
Civil Engineering	BS	MS, MEngr	PhD	
Environmental Engineering	BS			
Department of Computer Science and Engineering				
Artificial Intelligence		MS		
Computer Engineering	BS	MS, MEngr	PhD	
Computer Science	BA, BS	MS, MCS	PhD	
Department of Electrical and Computer Engineering				
Computer Engineering	BS	MS, MEngr	PhD	

Electrical Engineering	BS	MS, MEngr	PhD
Microelectronics and Semiconductors		MS	
Department of Engineering Technology and Industrial Distribution			
Electronic Systems Engineering Technology	BS		
Engineering Technology		MS	
Industrial Distribution	BS	MID	
Manufacturing and Mechanical Engineering Technology	BS		
Multidisciplinary Engineering Technology	BS		
Technical Management		METM	
Department of Industrial and Systems Engineering			
Data Engineering	BS		
Engineering Management		MS	
Industrial Engineering	BS	MS, MEngr	PhD
Systems Engineering		MEngr	
Department of Materials Science and Engineering			
Materials Science and Engineering	BS	MS, MEngr	PhD
Department of Mechanical Engineering			
Mechanical Engineering	BS	MS, MEngr	PhD
Department of Multidisciplinary Engineering			
Architectural Engineering	BS		
Engineering		MEngr	DEngr
Interdisciplinary Engineering	BS	MS	PhD
Department of Nuclear Engineering			
Nuclear Engineering	BS	MS, MEngr	PhD
Department of Ocean Engineering			
Ocean Engineering	BS	MS, MEngr	PhD

Department of Petroleum Engineering

Petroleum Engineering	BS	MS, MEngr	PhD

School of Engineering Medicine**The Bush School of Government and Public Service**

Degree Program	Baccalaureate	Masters	Doctorate	Professional

Department of International Affairs

International Affairs	BA	MIA		
International Policy		MIP		
National Security and Intelligence		MNSI		

Department of Political Science

Political Science	BA, BS	MA, MS	PhD	

Department of Public Service and Administration

Public Service and Administration	BA, BS	MPSA		

School of Law

Degree Program	Baccalaureate	Masters	Doctorate	Professional
Cross-Border Advocacy		ML		
Intellectual Property		ML, MLG		
Law				JD ¹
Laws		ML		
Legal Studies		MLG		

¹ Also offered as a dual degree program with the MBA in Business Administration or the MS in Taxation at The University of Texas at Arlington.

Naresh K. Vashisht College of Medicine

Degree Program	Baccalaureate	Masters	Doctorate	Professional
Education for Health Care Professionals		MS		
Medical Sciences		MS	PhD	
Medicine				MD

School of Military Sciences

Degree Program	Baccalaureate	Masters	Doctorate	Professional
Department of Aerospace Studies				
Department of Military Science				
Department of Naval Science				

College of Nursing

Degree Program	Baccalaureate	Masters	Doctorate	Professional
Family Nurse Practitioner		MSN		

Forensic Nursing	MSN			
Nursing	BSN			
Nursing Education	MSN			
Nursing Practice				DNP

Irma Lerma Rangel College of Pharmacy

Degree Program	Baccalaureate	Masters	Doctorate	Professional
Pharmacy				PharmD

Department of Pharmaceutical Sciences

Pharmaceutical Sciences		MS	PhD	

Department of Pharmacy Practice**College of Performance, Visualization and Fine Arts**

Degree Program	Baccalaureate	Masters	Doctorate	Professional
Dance		MFA		
Dance Science	BS			
Music Performance	BFA			
Performance and Visual Studies	BA			
Performance Studies		MA		
Theatre	BFA			
Visual Computing and Interactive Media			PHD	
Visualization	BS	MS, MFA		

School of Public Health

Degree Program	Baccalaureate	Masters	Doctorate	Professional
Health Administration		MHA		
Public Health	BS			
Public Health Sciences			DrPH	
Department of Epidemiology and Biostatistics				
Biostatistics		MPH		
Epidemiology		MPH		

Department of Environmental and Occupational Health

Environmental Health		MPH		
Occupational Safety and Health		MPH		

Department of Health Behavior

Health Behavior		MPH		

Department of Health Policy and Management

Health Policy and Management		MPH, MSPH		
Health Services Research			PhD	

Health Education Programs

Health Education	PhD

College of Veterinary Medicine and Biomedical Sciences

Degree Program	Baccalaureate	Masters	Doctorate	Professional
Biomedical Sciences	BS	MS	PhD	
Science and Technology Journalism		MS		
Veterinary Medicine				DVM
Department of Veterinary Integrative Biosciences				
Veterinary Public Health - Epidemiology		MS		
Department of Veterinary Large Animal Clinical Sciences				
Department of Veterinary Pathobiology				
Department of Veterinary Physiology and Pharmacology				
Department of Veterinary Small Animal Clinical Sciences				

Texas A&M University at Galveston

Degree Program	Baccalaureate	Masters	Doctorate	Professional
Computer Science	BS			
Environmental Engineering	BS			
Interdisciplinary Engineering	BS			
Multidisciplinary Engineering Technology	BS			
Ocean Engineering	BS	MS, MEngr		
College of Marine Sciences and Maritime Studies				
University Studies BA, BS				
Department of Marine Biology				
Marine Biology	BS	MS	PhD	
Marine Fisheries	BS			
Department of Marine Engineering Technology				
Marine Engineering Technology	BS			
Department of Marine and Coastal Environmental Science				

Coastal Environmental Science and Society	BS			
Marine and Coastal Management and Science			PhD	
Marine Resources Management		MMRM		
Marine Sciences	BS			
Department of Maritime Business Administration				
Maritime Business Administration	BS			
Maritime Business Administration and Logistics		MMAL		
Department of Maritime Studies				
Maritime Studies	BA			
Department of Maritime Systems Engineering				
Department of Maritime Transportation				
Marine Transportation	BS			

Degree Programs Via Distance Education

Degree Programs Via Distance Education

Texas A&M University currently offers the following programs by distance education:

Undergraduate Degree Program

- Bachelor of Science in Nursing (BSN) in Nursing

Graduate Degree Programs

- Doctor of Education (EdD) in Curriculum and Instruction
- Doctor of Education (EdD) in Bilingual, English as a Second Language, and Dual Language Education
- Doctor of Engineering (DEng) in Engineering
- Doctor of Nursing Practice (DNP) in Nursing Practice
- Doctor of Philosophy (PhD) in Agronomy
- Doctor of Philosophy (PhD) in Biomedical Sciences
- Doctor of Philosophy (PhD) in Computer Engineering
- Doctor of Philosophy (PhD) in Electrical Engineering
- Doctor of Philosophy (PhD) in Interdisciplinary Engineering
- Doctor of Philosophy (PhD) in Mechanical Engineering
- Doctor of Philosophy (PhD) in Nuclear Engineering
- Doctor of Philosophy (PhD) in Petroleum Engineering
- Doctor of Philosophy (PhD) in Plant Breeding

- Executive Master of Public Service and Administration (MPSA) in Public Service and Administration
- Master of Agriculture (MAgr) in Agricultural Development
- Master of Agriculture (MAgr) in Animal Science
- Master of Agriculture (MAgr) in Poultry Science
- Master of Applied Youth Development (MAY) in Applied Youth Development
- Master of Business Administration (MBA) in Business Administration
- Master of Computer Science (MCS) in Computer Science
- Master of Education (MEd) in Bilingual/ESL Education
- Master of Education (MEd) in Curriculum and Instruction
- Master of Education (MEd) in Educational Administration
- Master of Education (MEd) in Educational Psychology
- Master of Education (MEd) in Learning Design and Technology
- Master of Education (MEd) in Special Education
- Master of Engineering (MEngr) in Aerospace Engineering
- Master of Engineering (MEngr) in Biological and Agricultural Engineering
- Master of Engineering (MEngr) in Computer Engineering
- Master of Engineering (MEngr) in Electrical Engineering
- Master of Engineering (MEngr) in Engineering
- Master of Engineering (MEngr) in Industrial Engineering
- Master of Engineering (MEngr) in Mechanical Engineering
- Master of Engineering (MEngr) in Nuclear Engineering
- Master of Engineering (MEngr) in Ocean Engineering
- Master of Engineering (MEngr) in Petroleum Engineering
- Master of Engineering Technical Management (METM) in Technical Management
- Master of Geoscience (MGsc) in Geoscience
- Master of Health Administration (MHA) in Health Administration
- Master of Industrial Distribution (MID) in Industrial Distribution
- Master of Land and Property Development (MLPD) in Land and Property Development
- Master of Laws (LLM) in Cross-Border Advocacy
- Master of Laws (LLM) in Intellectual Property
- Master of Laws (LLM) in Laws
- Master of Legal Studies (MLG) in Intellectual Property
- Master of Legal Studies (MLG) in Legal Studies
- Master of Maritime Business Administration and Logistics (MMAL) in Maritime Business Administration and Logistics
- Master of Natural Resources (MNA) in Natural Resources
- Master of Public Health (MPH) in Environmental Health
- Master of Public Health (MPH) in Epidemiology
- Master of Public Health (MPH) in Health Behavior
- Master of Science (MS) in Accounting
- Master of Science (MS) in Agricultural Systems Management
- Master of Science (MS) in Agronomy
- Master of Science (MS) in Analytics
- Master of Science (MS) in Artificial Intelligence
- Master of Science (MS) in Bilingual/ESL Education
- Master of Science (MS) in Biomedical Sciences
- Master of Science (MS) in Computer Engineering
- Master of Science (MS) in Construction Management

- Master of Science (MS) in Education for Health Care Professionals
- Master of Science (MS) in Educational Human Resource Development
- Master of Science (MS) in Electrical Engineering
- Master of Science (MS) in Energy
- Master of Science (MS) in Engineering Management
- Master of Science (MS) in Entrepreneurial Leadership
- Master of Science (MS) in Human Resource Management
- Master of Science (MS) in Management Information Systems
- Master of Science (MS) in Marketing
- Master of Science (MS) in Mathematics
- Master of Science (MS) in Nuclear Engineering
- Master of Science (MS) in Ocean Engineering
- Master of Science (MS) in Petroleum Engineering
- Master of Science (MS) in Plant Breeding
- Master of Science (MS) in Safety Engineering
- Master of Science (MS) in Special Education
- Master of Science (MS) in Sport Management
- Master of Science (MS) in Statistical Data Science
- Master of Science in Nursing (MSN) in Family Nurse Practitioner
- Master of Science in Nursing (MSN) in Forensic Nursing
- Master of Science in Nursing (MSN) in Nursing Education

A limited number of graduate certificate programs are available by distance education. Please review them here (<https://catalog.tamu.edu/graduate/degrees-programs/#graduatecertificateprogramstext>).

The delivery platform differs among these programs. Most are available 100% online, some are web-supported with interactive video and others require periodic campus visits. The delivery platform in most programs changes depending on the course/program content, needs of the students and their geographic locations. Students should carefully consider distance education and address any specific questions to the department offering the program of interest.

Only a student who is admitted to Texas A&M University may enroll in these distance education programs and the associated courses. A student wishing to enroll in any of the distance education programs must be admitted as a degree-seeking graduate student or as a post-baccalaureate non-degree seeking student. Please see <http://admissions.tamu.edu> for graduate admissions information.

A student may take up to 12 hours in non-degree-seeking post-baccalaureate status and apply these hours to a master's program with the approval of the student's advisory committee, the head of the department (or Chair of the Intercollegiate Faculty, if appropriate), and the Office of Graduate and Professional Studies if all admission requirements to the selected master's program are fulfilled. Courses offered for extension credit may not be used on the student's degree plan. Post-baccalaureate non-degree status does not establish eligibility for admission to degree-seeking status.

Students who are not enrolled in an approved distance education program cannot take more than 50% of their required courses online. The Texas Higher Education Coordinating Board (THECB) (<https://www.highered.texas.gov/new-program-development/distance-education-resources/>) rules that no more than 50% of courses can be taken online if the program is not approved to be offered online as a distance education program.

Texas A&M University provides students pursuing a graduate degree by distance a wide variety of student support services, including access to library resources, advising, technology support and course materials acquisition through the online bookstore. A complete listing of services, degree program descriptions, appropriate points of contact within each program, and costs are available through the distance education website at <http://distance.tamu.edu>. Additional distance education programs are in development. Interested students should check the website periodically for updates. Students should contact the department offering the program for any questions.

State Authorization

State authorization allows Texas A&M University to offer educational opportunities to students among other states and nationwide.

State Authorization Reciprocity Agreements (SARA)

Texas A&M University participates in the State Authorization Reciprocity Agreements.

The State Authorization Reciprocity Agreements (SARA) is an agreement among member states, districts, and territories that establishes comparable national standards for offering postsecondary distance education courses and programs in other member states. In partnership with the four regional education compacts (<https://nc-sara.org/regional-education-compacts/>), the National Council for State Authorization Reciprocity Agreements (NC-SARA) (<https://nc-sara.org/>) coordinates the implementation of SARA nationally.

Texas was approved as a SARA state in 2015 and is administered through the Southern Regional Education Board (SREB) (<https://www.sreb.org/>).

SARA Student Complaint Process

NC-SARA provides information on filing a student complaint (<https://nc-sara.org/sara-student-complaints-0/>) under SARA policies. Students are encouraged to review this information prior to filing a complaint against a SARA institution. Complaints against a SARA participating institution must first go through the institution's own grievance procedures. All complaints regarding student grades or conduct violations are governed by the institution and the laws of the institution's home state. If a student is not satisfied with the outcome of the institutional grievance process, the student may appeal, within two years of the incident, to the SARA portal agency of the institution's home state.

Distance Education Student Grievances Process

Texas A&M University Student Rules 45 through 62 (<https://student-rules.tamu.edu/studentgrievanceprocedures/>) outline grievance processes and procedures, including the Texas A&M University offices responsible for assisting students through the grievance processes.

For more information regarding Texas A&M University Distance Education Grievance Policies and Procedures or to submit a Distance Education complaint, please reference <https://distance.tamu.edu/grievances.html>.

Approved Minors

Approved Minors

Interdisciplinary

Entrepreneurship (p. 122)

Honors (p. 124)

Leadership (p. 124)

College of Agriculture and Life Sciences

Agribusiness Entrepreneurship (p. 144)

Agricultural Communications and Journalism (p. 152)

Agricultural Economics (p. 145)

Agricultural Systems Management (p. 173)

AgriFood Sales (p. 145)

Agronomy (p. 235)

Biochemistry (p. 164)

Bioenvironmental Sciences (p. 218)

Ecology and Conservation Biology (p. 182)

Entomology (p. 190)

Environmental Soil Science (p. 236)

Extension Education (p. 153)

Financial Planning (p. 146)

Food Engineering (p. 173)

Genetics (p. 165)

Horticulture (p. 201)

International Agricultural Development (p. 153)

Leadership (p. 154)

Nutrition (p. 214)

Park and Natural Resource Management (p. 229)

Plant Breeding (p. 236)

Poultry Science (p. 221)

Rangeland Management (p. 230)

Recreation Management (p. 207)

Tourism Management (p. 207)

Wildlife and Fisheries Management (p. 230)

Youth Development (p. 154)

College of Architecture

Architectural Fabrication and Product Design (p. 242)

Architectural Heritage Conservation (p. 243)

Art and Architecture History (p. 243)

Facility Management (p. 249)

Leadership in the Design and Construction Professions (p. 249)

Sustainable Architecture and Planning (p. 244)

Urban and Regional Planning (p. 259)

College of Arts and Sciences

Africana Studies (p. 402)

Anthropology (p. 281)

Arabic Studies (p. 402)

Archaeology (p. 281)

Astrophysics (p. 470)

Bioinformatics (p. 306)

Biology (p. 307)

Chemistry (p. 323)

Chinese (p. 403)

Classical Studies (p. 403)

Climate Change (p. 287)

Communication (p. 344)

Comparative Cultural Studies-International (p. 404)

Criminology (p. 488)

Economics (p. 358)

English (p. 366)

Environmental Systems Science (p. 274)

French (p. 405)

Gender and Health (p. 274)

Geographic Information Science and Technology (p. 376)

Geography (p. 377)

Geology (p. 388)

German (p. 406)
 Health Humanities (p. 366)
 Hispanic Studies for Community Engagement (p. 406)
 History (p. 416)
 Italian (p. 407)
 Japanese (p. 407)
 Jewish Studies (p. 408)
 Journalism (p. 344)
 Latino/a and Mexican-American Studies (p. 488)
 Mathematics (p. 444)
 Medical Anthropology (p. 282)
 Meteorology (p. 287)
 Museum Studies (p. 282)
 Nautical Archaeology (p. 283)
 Neuroscience (p. 307)
 Oceanography (p. 452)
 Philosophy (p. 457)
 Physics (p. 471)
 Pre-Medicine (p. 308)
 Professional Writing (p. 367)
 Psychology (p. 479)
 Religious Studies (p. 408)
 Russian (p. 409)
 Science Fiction and Fantasy Studies (p. 368)
 Sociology (p. 489)
 Spanish (p. 409)
 Spanish for the Health Professions (p. 410)
 Statistics (p. 496)
 Women's and Gender Studies (p. 275)

Mays Business School

Artificial Intelligence in Business (p. 504)
 Business (p. 504)

College of Education and Human Development

Coaching (<https://catalog.tamu.edu/undergraduate/education-human-development/health-kinesiology/coaching-minor/>)
 Creative Studies (p. 558)
 Educational Supports for Individuals with Disabilities (p. 559)
 Human Resource Development (p. 552)
 Learning Technology and Performance Systems (p. 552)
 Secondary Education (p. 582)
 Secondary Education-Clinical Teaching (p. 581)
 Sport Management (<https://catalog.tamu.edu/undergraduate/education-human-development/health-kinesiology/sport-management-minor/>)

College of Engineering

Biomedical Engineering (p. 601)
 Computer Science (p. 640)
 Cybersecurity (p. 640)
 Electrical Engineering (p. 648)
 Embedded Systems Integration (p. 665)
 Engineering Entrepreneurship (p. 699)
 Engineering Project Management (p. 700)
 Game Design and Development (p. 641)
 Industrial Engineering (p. 675)
 Information Technology Service Management (p. 665)
 Materials Science and Engineering (p. 680)
 Nuclear Engineering (p. 703)
 Radiological Health Engineering (p. 704)
 Technical Sales (p. 666)

Bush School of Government and Public Service

American Politics and Policy (p. 740)
 Comparative Politics (p. 741)
 Homeland Security and Emergency Management (p. 747)
 International Relations (p. 741)
 Legal Foundations (p. 742)
 Nonprofit Studies (p. 747)
 Political Data and Research (p. 742)
 Political Theory (p. 742)
 Public Management (p. 748)
 Public Policy Analysis (p. 748)
 Race, Ethnicity and Gender Politics (p. 743)

School of Military Science

Military Studies (p. 816)

College of Performance, Visualization and Fine Arts

Art (p. 770)
 Artificial Intelligence in the Arts (p. 771)
 Choreography (p. 771)
 Dance Performance (p. 771)
 Devised Theatre (p. 772)
 Film and Media Studies (p. 772)
 Game Design and Development (p. 773)
 Graphic Design (p. 773)
 Music (p. 773)
 Music Technology (p. 774)
 Performance Studies (p. 774)
 Studio Art (p. 775)
 Virtual Production (p. 775)

School of Public Health

Health Behavior (p. 798)
 Occupational Safety and Health (p. 799)
 Public Health Studies (p. 799)

College of Veterinary Medicine and Biomedical Sciences

Biomedical Sciences (p. 804)

Texas A&M University at Galveston

College of Marine Sciences and Maritime Studies

Clinical Laboratory Sciences (p. 851)
 Coastal Environmental Science and Society (p. 858)
 Diving Technology and Methods (p. 875)
 Marine Biology (p. 863)
 Marine Electro-Technology (p. 868)
 Marine Engineering Technology (p. 868)
 Marine Fisheries (p. 864)
 Maritime Business Administration (p. 872)
 Maritime Cybersecurity (p. 872)
 Maritime Environmental Law and Policy (p. 876)

Texas A&M University at Qatar

Chemistry (p. 323)¹
 Electrical Engineering (p. 648)¹
 Geology (p. 388)¹
 Mathematics (p. 444)¹
 Physics (p. 471)¹

¹ Minor is offered by College Station academic departments.

Approved Certificates

Approved Certificates

College of Agriculture and Life Sciences

Coffee Processing and Quality (p. 196)
 Culinary Health (p. 214)
 Equine Science (p. 160)
 Floral Design (p. 201)
 Food Diversity (p. 197)
 Hospitality Management (p. 207) ¹
 International Trade and Agriculture (p. 146)
 Meat Science (p. 160)
 Professional Event Management (p. 208) ¹
 Public Health Entomology (p. 191)
 Recreation and Park Management (p. 208)
 Sport Nutrition (p. 214)
 Tourism Management (p. 209) ¹
 Viticulture and Enology (p. 202)
 Youth Development (p. 209)

College of Arts and Sciences

Behavioral Health (p. 479)
 Communication Leadership and Conflict Management (p. 344)
 Health Communication (p. 345)
 Healthy Development (p. 479)
 Legal History (p. 417)
 Philosophy Pre-Law (p. 458)
 Proficiency in Modern Languages (p. 410)
 Psychology of Diversity (p. 480)
 Social Media (p. 345)
 Strategic Communication (p. 346)
 Work and Organizations (p. 480)

Mays Business School

Business of Technology (p. 504)
 Commercial Banking (p. 519)
 Corporate Finance (p. 519)
 Energy Accounting (p. 515)
 Internal Audit (p. 515)
 International Business Studies (p. 505)
 Management Consulting (p. 507)
 Trading, Risk and Investments (p. 520)

College of Education and Human Development

Interdisciplinary Studies (p. 559)

College of Engineering

Corrosion Science and Engineering
 Cyber Operations (p. 641)
 Data Analytics for Petroleum Industry (p. 711)
 Data Center Operations Engineering (p. 675)
 Data Engineering (p. 676)
 Engineering Concept, Creation, and Commercialization (p. 591)
 Engineering Systems Management (p. 676)
 Engineering Therapeutics Manufacturing (p. 606)
 Holistic Leadership in Engineering (p. 592)
 International Engineering (p. 592)
 Petroleum Ventures (p. 711)
 Polymer Specialty (p. 682)

Safety Engineering (<https://catalog.tamu.edu/undergraduate/engineering/chemical/safety-engineering-certificate/>)

College of Veterinary and Biomedical Sciences

Biomedical Research (p. 811)

¹ Offered via online Distance Education.

For more information on undergraduate certificate programs, please visit the Office of the Registrar (<https://registrar.tamu.edu/administrative-services/degree-audit/certificate-tracking-awarding/>) website.

Cultural Discourse Requirements

Students are required to complete three (3) semester credit hours from the courses listed.

Code	Title	Semester Credit Hours
AFST 201	Introduction to Africana Studies	3
AFST 302	Gateway Course	3
AFST 325	Africana Humanities	3
AFST 327/ MUSC 327	Popular Musics in the African Diaspora	3
AFST 338/ COMM 338	Critical Race Discourse	3
AGSM 105	The World Has a Drinking Problem - Global Water Scarcity	3
ANTH 210	Social and Cultural Anthropology	3
ANTH 222	Cross Cultural Competency	3
ANTH 301	Indians of North America	3
ANTH 324/ MUSC 324	Music in World Cultures	3
ANTH 404/ WGST 404	Women and Culture	3
ARAB 215	Introduction to Modern Arab Culture	3
ARAB 258	Global Middle Eastern Cultures	3
ARTS 234	Body Art of Tattoos	3
ARTS 339	Themes in Contemporary Art	3
ARTS 349	The History of Modern Art	3
ATMO 110/ GEOL 110	Disasters and Society	3
CARC 101	Cultural and Social Issues in the Natural, Built and Virtual Environment	3
COMM 257/ RELS 257	Communication, Religion and the Arts	3
COMM 338/ AFST 338	Critical Race Discourse	3
COMM 343	Communication in a Diverse World	3
COMM 346/ JOUR 346	Media, Culture and Identity	3
COSC 222	Social Issues in the History of the Construction Environment	3
DCED 201	Dance History	3
ECCB 304	Conservation Biology	3

ENGL 211/ GLST 211	Foundations in Cultural Studies	3	PERF 156	Dress in World Cultures	3
ENGL 350	Twentieth-Century Literature to World War II	3	PERF 223	Aesthetics of Activism	3
ENGL 378	The British Novel, 1870 to Present.	3	PERF 301	Performance in World Cultures	3
EPFB 210	Family Engagement and Empowerment	3	PERF 326	Dance and Identity in the United States	3
FILM 215/ GLST 215	Global Cinema	3	PHIL 111	Contemporary Moral Issues	3
FILM 315/ JWST 315	Cinema in Israel	3	PHIL 282	Ethics in a Digital Age	3
FILM 376/ PHIL 376	Philosophy, Film and Evil	3	PHIL 376/ FILM 376	Philosophy, Film and Evil	3
FSCI 334	One Health in Coastal Regions	3	PHIL 482	Ethics and Engineering	3
GEOG 205	Environmental Change	3	PHLT 342/ HLTH 342	Human Sexuality	3
GEOL 110/ ATMO 110	Disasters and Society	3	RELS 201/ JWST 201	Introduction to Jewish Studies	3
GLST 211/ ENGL 211	Foundations in Cultural Studies	3	RELS 202	Religion in America	3
GLST 215/ FILM 215	Global Cinema	3	RELS 257/ COMM 257	Communication, Religion and the Arts	3
HIST 225	Revolutionary America	3	RELS 350	Religions, Utopias, and Happiness	3
HIST 240	Empires of Food	3	RELS 367	Christianity and American Identity	3
HIST 308	History of American Indians in the U.S. South	3	SCSC 201	American Agriculture	3
HLTH 342/ PHLT 342	Human Sexuality	3	SCSC 315	Hemp Production and Utilization	3
HMGT 340	Global Communities & Diverse Populations in Hospitality, Hotel Management and Tourism	3	SCSC 330	Social and Ethical Aspects of International Cropping Systems	3
INST 222	Foundations of Education in a Multicultural Society	3	SOCI 207/ WGST 207	Introduction to Gender and Society	3
JOUR 346/ COMM 346	Media, Culture and Identity	3	SOCI 217	Introduction to Race and Ethnicity	3
JWST 201/ RELS 201	Introduction to Jewish Studies	3	SOCI 240	Tourism, Culture and Place	3
JWST 301	Contemporary Jewish Cultures	3	SOCI 319/ SPMT 319	Sociology of Sport	3
JWST 315/ FILM 315	Cinema in Israel	3	SPMT 304	Sport Psychology Management and Practice	3
LMAS 201	Introduction to Latino/Mexican American Studies	3	SPMT 319/ SOCI 319	Sociology of Sport	3
MARA 373	Personnel Management	3	THEA 386/ MUSC 386	Evolution of the American Musical	3
MARB 445	Marine Fisheries Management	3	URPN 240	More Than Monuments: Preservation as Social Justice	3
MAST 226	Museums, Law and Ethics	3	VTPB 303	Medical Communication in the International Community	3
MUSC 222	Music of the Americas	3	WGST 200	Introduction to Women's and Gender Studies	3
MUSC 224	History of Country and Western Music	3	WGST 207/ SOCI 207	Introduction to Gender and Society	3
MUSC 324/ ANTH 324	Music in World Cultures	3	WGST 404/ ANTH 404	Women and Culture	3
MUSC 327/ AFST 327	Popular Musics in the African Diaspora	3			
MUSC 386/ THEA 386	Evolution of the American Musical	3			
NURS 421	Care of Community Health Clients	5			
NURS 464	Health Promotion Across the Lifespan for the RN	3			

Undergraduate Studies' units have modified services available to students enrolled via distance education, at branch campuses, or at other instructional locations.

International and Cultural Diversity Requirements

Students are required to complete three (3) semester credit hours from the courses listed.

Code	Title	Semester Credit Hours			
ACCT 430/ IBUS 430	Global Immersion in Accounting	3	ARTS 150	Art History Survey II	3
ACCT 445/ IBUS 445	International Accounting	3	ASIA 352/ HIST 352	Modern East Asia	3
AFST 204/ ENGL 204	Introduction to African-American Literature	3	BESC 311	International Perspectives on Environmental Issues	3
AFST 206/ PBSI 206	Black Psychology	3	CLAS 220	History of Christianity: Origins to the Reformation	3
AFST 209/ PBSI 209	Psychology of Culture and Diversity	3	COMM 335	Intercultural Communication	3
AFST 301/ HIST 301	Blacks in the United States Since 1877	3	COMM 340	Communication and Popular Culture	3
AFST 303	Psychology of Women of Color	3	COMM 407/ WGST 407	Gender, Race and Media	3
AFST 339/ ENGL 339	African-American Literature Post-1930	3	DCED 202	Dance Appreciation	3
AFST 357/ HIST 357	Out of Africa: The Black Diaspora and the Modern World	3	ECCB 308	Fundamentals of Environmental Decision-Making	3
AFST 393/ ENGL 393	Studies in Africana Literature and Culture	3	ECCB 452/ RWF 400	Study Abroad in Natural Resources	2-12
AGEC 452	International Trade and Agriculture	3	ECON 312	Poverty, Inequality and Social Policy	3
AGEC 453	International Agribusiness Marketing	3	ECON 318/ WGST 318	The Economics of Gender and Race	3
ALEC 350	Global Agricultural Issues	3	ECON 452	International Trade Theory and Policy	3
ANTH 201	Introduction to Anthropology	3	ENDS 101	Design Process	3
ANTH 205	Peoples and Cultures of the World	3	ENGL 204/ AFST 204	Introduction to African-American Literature	3
ANTH 229	Introduction to Folklore	3	ENGL 206	Twenty-first Century Literature and Culture	3
ANTH 317/ RELS 317	Introduction to Biblical Archaeology	3	ENGL 219	Literature and the Other Arts	3
ANTH 335	Cultures of Central Asia	3	ENGL 221/ MODL 221	World Literature	3
ANTH 370	Cultural Diversity and Ethics	3	ENGL 232	Survey of English Literature II	3
ANTH 403/ RELS 403	Anthropology of Religion	3	ENGL 251/ FILM 251	Introduction to Film Analysis	3
ANTH 426	Anthropology of Food and Nutrition	3	ENGL 306	Transnational Literature and Culture	3
ANTH 427	Human Biological Variation	3	ENGL 308	History of Literary Criticism	3
ANTH 435	Medical Anthropology	3	ENGL 333/ WGST 333	Lesbian, Gay, Bisexual, Transgender and Queer Literatures	3
ARAB 201	Intermediate Arabic I	3	ENGL 338	American Ethnic Literature	3
ARAB 202	Intermediate Arabic II	3	ENGL 339/ AFST 339	African-American Literature Post-1930	3
ARAB 475	Media and the Middle East	3	ENGL 340	Modern and Contemporary Drama	3
ARCH 212	Social and Behavioral Factors in Design	3	ENGL 352	Literature, World War II to Present.	3
ARCH 246	Foundations of Historic Preservation	3	ENGL 374/ WGST 374	Women Writers	3
ARCH 249	Survey of World Architecture History I	3	ENGL 376	The American Novel Since 1900	3
ARCH 250	Survey of World Architecture History II	3	ENGL 393/ AFST 393	Studies in Africana Literature and Culture	3
ARCH 346	Architecture, Heritage and Culture	3	ENGL 401	Contemporary Literary Theory	3
ARCH 350	History and Theory of Modern and Contemporary Architecture	3	ENGL 474/ WGST 474	Studies in Women Writers	3
ARCH 438	World Religious Architecture	3	ENGR 410	Global Engineering Design	3
ARCH 458	Cultural and Ethical Considerations for Global Practice	3	ENTO 210	Global Public Health Entomology	3
ARTS 149	Art History Survey I	3	FILM 251/ ENGL 251	Introduction to Film Analysis	3
			FILM 299	History of Film	3

FILM 435/ GERM 435	German Film	3	IBUS 310	Global Context of Business	3
FILM 455/ ITAL 455	Italian Cinema	3	IBUS 320	Global Sustainable Business	3
FINC 445/ IBUS 446	International Finance	3	IBUS 401/ MKTG 401	Global Marketing	3
FREN 202	Intermediate French II	3	IBUS 402/ MKTG 402	International Marketing: Study Abroad	3
FREN 301	French Society and Culture in Evolution	3	IBUS 403/ MKTG 403	International Market Entry Strategies	3
FREN 322	French Literature II	3	IBUS 430/ ACCT 430	Global Immersion in Accounting	3
FREN 336	Politics, Culture and Society in Contemporary France	3	IBUS 445/ ACCT 445	International Accounting	3
FSTC 300/ NUTR 300	Religious and Ethnic Foods	3	IBUS 446/ FINC 445	International Finance	3
GEOG 201	Introduction to Human Geography	3	IBUS 450/ MGMT 450	International Environment of Business	3
GEOG 202	Geography of the Global Village	3	IBUS 452/ MGMT 452	International Management	3
GEOG 301	Geography of the United States	3	IBUS 455	Asian Business Environment	3
GEOG 306	Introduction to Urban Geography	3	IBUS 456	European Integration and Business	3
GEOG 323	Geography of Latin America	3	IBUS 457/ MGMT 457	Global Entrepreneurship	3
GEOG 325	Geography of Europe	3	IBUS 459	Latin American Markets	3
GERM 201	Intermediate German I	3	INST 301	Educational Psychology	3
GERM 202	Intermediate German II	3	INTA 211	Introduction to International Social Issues	3
GERM 322	German Culture and Civilization II	3	INTA 301	Theories of Globalization	3
GERM 435/ FILM 435	German Film	3	INTA 321	Political Islam and Jihad	3
GLST 210	Languages of the World	3	ITAL 201	Intermediate Italian I	3
HIST 220	History of Christianity: Origins to the Reformation	3	ITAL 202	Intermediate Italian II	3
HIST 221/ RELS 221	History of Islam	3	ITAL 251	Global Italy	3
HIST 222/ RELS 222	History of Christianity, Reformation to Present	3	ITAL 452	Topics in Italian Women and Gender Studies	3
HIST 301/ AFST 301	Blacks in the United States Since 1877	3	ITAL 453	Literatures of Italy	3
HIST 336	Europe Since 1919	3	ITAL 455/ FILM 455	Italian Cinema	3
HIST 347/ RELS 347	Rise of Islam, 600-1258	3	ITAL 456	Contemporary Italian Cultures	3
HIST 352/ ASIA 352	Modern East Asia	3	JAPN 201	Intermediate Japanese I	4
HIST 357/ AFST 357	Out of Africa: The Black Diaspora and the Modern World	3	JAPN 202	Intermediate Japanese II	4
HIST 412	Russia's Long Twentieth Century - The Soviet Experiment and Beyond	3	KINE 282	Culture of Wellness	3
HIST 477/ WGST 477	Women and Gender in Modern European History	3	LAND 240	History of Landscape Architecture	3
HLTH 236	Introduction to Health Disparities and Diversity	3	MARA 440	Global Economy and Enterprise Management	3
HLTH 333/ PHLT 363	Spirituality and Health	3	MARB 407	Research and Conservation in Greece-Dolphins, Fisheries and Cultural Heritage	4
HLTH 334	Women's Health	3	MARS 210	Marine Geography	3
HMGD 411	Cruise Tourism	3	MARS 280	Coastal and Ocean Resources	3
HMGD 442	International Perspectives in Hospitality, Tourism and Events	3	MAST 411	International Maritime Culture	3
HORT 335	Sociohorticulture	3	MGMT 450/ IBUS 450	International Environment of Business	3
HUMA 321	Political Islam and Jihad	3	MGMT 452/ IBUS 452	International Management	3
			MGMT 457/ IBUS 457	Global Entrepreneurship	3

MKTG 401/ IBUS 401	Global Marketing	3	RWFM 400/ ECCB 452	Study Abroad in Natural Resources	2-12
MKTG 402/ IBUS 402	International Marketing: Study Abroad	3	RWFM 420	Ecology and Society	3
MKTG 403/ IBUS 403	International Market Entry Strategies	3	SCMT 340	Managing Logistics and Supply Chain Operations	3
MODL 221/ ENGL 221	World Literature	3	SCSC 420	Brazilian Agriculture and Food Production Systems	3-6
MUSC 201	Music and the Human Experience	3	SOCI 205	Introduction to Sociology	3
MUSC 221	Guitar Heroes	3	SOCI 206	Global Social Trends	3
MUSC 226	History of Rock	3	SPAN 201	Intermediate Spanish I	3
MUSC 323	Global Hip Hop	3	SPAN 202	Intermediate Spanish II	3
NURS 424	Professional Issues	2	SPAN 304	Advanced Grammar for Heritage Speakers	3
NURS 466	Community Health for the RN	5	SPAN 412	U.S. Hispanic Writers	3
NUTR 300/ FSTC 300	Religious and Ethnic Foods	3	SPMT 220	Olympic Studies	3
PBSI 107	Introduction to Psychology	3	SPMT 336	Diversity in Sport Organizations	3
PBSI 206/ AFST 206	Black Psychology	3	SPMT 337	International Sport Business	3
PBSI 208	Stereotypes, Prejudice, and Minority Experience	3	TEFB 273	Introduction to Culture, Community, Society and Schools	3
PBSI 209/ AFST 209	Psychology of Culture and Diversity	3	THEA 103	Introduction to Devised Theatre	3
PBSI 210/ WGST 210	Psychological Aspects of Human Sexuality	3	THEA 200	Introduction to World Theatre	3
PBSI 303	Psychology of Women of Color	3	THEA 281	History of the Theatre II	3
PERF 325	Dance in World Cultures	3	URPN 203	Smart Cities - Bit, Bots and Beyond	3
PERF 328	Japanese Traditional Performing Arts	3	VTPB 411	One Health and Tropical Ecology	3
PHIL 283	Latin American Philosophy	3	WGST 210/ PBSI 210	Psychological Aspects of Human Sexuality	3
PHLT 307	Public Health in the Global Context	3	WGST 303	Psychology of Women of Color	3
PHLT 336	Health Disparities and Diversity in Society	3	WGST 318/ ECON 318	The Economics of Gender and Race	3
PHLT 360	Women's Health	3	WGST 333/ ENGL 333	Lesbian, Gay, Bisexual, Transgender and Queer Literatures	3
PHLT 363/ HLTH 333	Spirituality and Health	3	WGST 334	Women's Health	3
POLS 231	Introduction to World Politics	3	WGST 374/ ENGL 374	Women Writers	3
POLS 366	Political Conflicts of the Middle East	3	WGST 407/ COMM 407	Gender, Race and Media	3
RELS 200	Religions of the World	3	WGST 474/ ENGL 474	Studies in Women Writers	3
RELS 220	History of Christianity: Origins to the Reformation	3	WGST 477/ HIST 477	Women and Gender in Modern European History	3
RELS 221/ HIST 221	History of Islam	3	<i>Undergraduate Studies' units have modified services available to students enrolled via distance education, at branch campuses, or at other instructional locations.</i>		
RELS 222/ HIST 222	History of Christianity, Reformation to Present	3			
RELS 312	Contemplation in the Modern World	3			
RELS 317/ ANTH 317	Introduction to Biblical Archaeology	3	Admission		
RELS 321	Political Islam and Jihad	3			
RELS 347/ HIST 347	Rise of Islam, 600-1258	3			
RELS 403/ ANTH 403	Anthropology of Religion	3	General Application Information		
RWFM 314	Principles of Rangeland Management Around the World	3			
			Application Information		
			Students can apply for undergraduate admission to Texas A&M University by using any one of several application services.		
			You may access the appropriate undergraduate application from the Texas A&M University admissions website http://admissions.tamu.edu .		

Texas A&M University has several conveniently located Prospective Student Centers throughout the state, staffed with advisors ready to serve you. Please contact the center nearest you to learn more about admissions, financial aid, academic programs and student services. Texas A&M also has advisors who serve the Brazos Valley, Central Texas and El Paso areas as well as advisors throughout the U.S. to assist out-of-state applicants. Visit the website admissions.tamu.edu/connect (<https://admissions.tamu.edu/connect/>) for more details.

Aggieland Admission Center¹

Texas A&M University
109 John J. Koldus Building
1265 TAMU
College Station, TX 77843-1265
(979) 458-0950

Corpus Christi Regional Prospective Student Center¹

5350 South Staples, Suite 442
Corpus Christi, TX 78411
(361) 289-7905

Dallas/Fort Worth Regional Prospective Student Center¹

3900 Arlington Highlands Blvd., Suite 273
Arlington, TX 76018
(817) 375-0960

Houston Regional Prospective Student Center¹

1225 North Loop West, Suite 200
Houston, TX 77008
(713) 454-1990

Laredo Regional Prospective Student Center¹

6401 Arena Road, Suite 5A
Laredo, TX 78041
(956) 795-0412

Rio Grande Valley Regional Prospective Student Center¹

500 N Jackson Rd, Suite A-7
Pharr, TX 78577
(956) 683-8647

San Antonio Regional Prospective Student Center¹

40 NE Loop 410, Suite 605
San Antonio, TX 78216
(210) 212-7016

¹ Se habla español.

The admission guidelines presented here are for admission to the Spring, Summer or Fall 2026 semester. While they are the best guide available, admission criteria are subject to change. The Office of Admissions website (<http://admissions.tamu.edu>) contains the admission policies and procedures in effect for 2026 admission.

Types of Admission and Application Calendars

At the Time of Application	Term	Opening Date	Closing Date
Freshman			
An applicant who: • is a citizen or permanent resident of the United States or qualifies for Texas residency. • is a degree-seeking applicant and is without college credit ¹ or • is still in high school, with or without college credit	Spring 2026	Aug. 1, 2025	Oct. 15, 2025
	Fall 2026	Aug. 1, 2025	Dec. 1, 2025
Transfer			
An applicant who: • is a citizen or permanent resident of the United States or qualifies for Texas residency • is a degree-seeking applicant • has graduated from high school or equivalent • has enrolled in a post-secondary institution after graduation from high school • does not have a bachelor's degree • does not qualify for readmission	Spring 2026	Aug. 1, 2025	Oct. 15, 2025
	Summer/Fall 2026	Jan. 1, 2026	Mar. 1, 2026

International Freshman

An applicant who: • is not a citizen or permanent resident of the United States (or applicant for permanent residency) and does not qualify for Texas residency • after high school graduation has never enrolled at a university as an undergraduate degree-seeking student	Spring 2026	Aug. 1, 2025	Oct. 15, 2025
	Fall 2026	Aug. 1, 2025	Dec. 1, 2025
International Transfer			
An applicant who: • is not a citizen or permanent resident of the United States (or applicant for permanent residency) and does not qualify for Texas residency • is an applicant seeking a bachelor's degree • has graduated from high-school or equivalent • has enrolled in a post-secondary institution, and • is not eligible for readmission (has never enrolled at Texas A&M University as an undergraduate degree-seeking student).	Spring 2026	Aug. 1, 2025	Oct. 15, 2025
	Summer/Fall 2026	Jan. 1, 2026	Mar. 1, 2026
Readmission			
An applicant who: • is a former degree-seeking Texas A&M undergraduate student (including an international student) • does not have a bachelor's degree • did not officially register for the previous semester (excluding summer sessions) at Texas A&M Readmission does not include applicants whose only previous enrollment at Texas A&M has been as a non-degree student.	Spring 2026	Aug. 1, 2025	Nov. 1, 2025
	Summer 2026	Jan. 1, 2026	April 1, 2026
	Fall 2026	Jan. 1, 2026	July 1, 2026
Postbaccalaureate Undergraduate			
An applicant who: • has a bachelor's degree • wishes to pursue a second undergraduate degree	Spring 2026	Aug. 1, 2025	Oct. 15, 2025
	Summer/Fall 2026	Jan. 1, 2026	Mar. 1, 2026
Non-degree Undergraduate			
An applicant who: • does not wish to pursue a degree at Texas A&M • wishes to take specific undergraduate coursework	Spring 2026	Aug. 1, 2025	Oct. 15, 2025
	Summer/Fall 2026	Jan. 1, 2026	Mar. 1, 2026
High School Enrichment Program			

An applicant who: • is a high school junior or senior in the Bryan/College Station area • has an SAT score of 1270, or an ACT score of 27 • has completed all levels of related coursework offered at their high school Each student is eligible to take 1 (one) course per fall or spring semester, and course registration will be completed by the TAMU advisor. No summer classes are offered at this time. Classes will be held on the Texas A&M University campus. Students and their parents/guardians will be responsible for any lodging or transportation considerations. Admission for this program is on a space-available basis. The applicant pool is competitive, and admission into this program is not guaranteed.	Spring 2026	Aug. 1, 2025	Nov. 1, 2025
	Fall 2026	Jan. 1, 2026	July 1, 2026

¹ An applicant who has enrolled in a post-secondary institution since high school graduation, with or without credit earned, must apply as a transfer applicant.

Items Necessary to Complete an Application File

Please see the Readmission, Post-baccalaureate or Non-degree sections for other items required to complete the transfer application

for those types of admission. U.S. citizens completing a non-U.S. high school program should refer to International Admissions for questions concerning transcripts, examination results, and foreign credentials.

An application is reviewed to make a decision about admission after all items listed below have been received. The items must be received by the appropriate closing date to qualify for consideration for admission.

In addition, freshman applicants must show proof of meeting the State of Texas Uniform Admission Policy to qualify for review. If you attend an out-of-state high school or are a home-schooled student, you are exempt from the Uniform Admission Policy.

Application submitted electronically via the Common Application or ApplyTexas

Application Fee (check, money order, Visa, MasterCard, Discover or American Express) – All fees are nonrefundable

- Domestic Undergraduate - \$75
- International - \$90

Guidelines for requesting application fee waivers:

- Fee waivers are not available for international students.

Freshman Waivers

Applicants who qualify for federally funded free/reduced lunch programs may qualify for a fee waiver. **Students must certify their eligibility on the application by answering Texas A&M's fee waiver question.**

Please see our document submission page, <https://admissions.tamu.edu/resources/undergraduate-document-submission> (<https://admissions.tamu.edu/resources/undergraduate-document-submission/>), for additional instructions for requesting a waiver.

Transfer or Readmit Waivers

To request a fee waiver, please provide your Student Aid Report (SAR), found within your current FAFSA, or a copy of an award letter from your current institution. The Office of Admissions does not have access to your FAFSA or SAR, you must provide a copy as part of your application file. **Checking the fee waiver box on the application will not satisfy the fee waiver requirement.**

Please see our document submission page, <https://admissions.tamu.edu/resources/undergraduate-document-submission> (<https://admissions.tamu.edu/resources/undergraduate-document-submission/>), for additional information.

Essays

- Freshman applicants are required to complete Essay Topic A.
- Transfer applicants are required to complete Essay Topic A.

SAT or ACT Scores

Texas A&M University is test optional and does not require ACT or SAT scores for freshman applicants. The submission of test scores is strongly encouraged but will not create any unfair advantage or disadvantage for those students who provide them.

We encourage students who have test score to send them.

- Scores should be sent **directly from the testing agency** and must be received by the posted deadline to be considered.
- The SAT code is 6003; the ACT code is 4198.
- Test scores must be from a test date within five years of the date of planned enrollment.

- The highest test score from **one test date** will be used in our review for admission. Texas A&M does not combine test scores from different test dates.

Self-reported Transcript and Academic Record (STAR) and relevant transcripts

- Domestic freshman applicants are required to fill out and submit the Self-reported Transcript and Academic Record (STAR) indicating coursework, credits earned, grades, graduation plan/diploma type, grade point average and a numerical class rank (if available) at least through their junior year. Students should have a copy of their high school transcript available to use as a reference when filling out the STAR. If admitted, the applicant will be required to submit a final transcript with graduation date by **August 15**. Discrepancies between a student's STAR and official final transcript will be thoroughly reviewed; depending on findings, this could result in a student's admission being rescinded. Freshman applicants who have already graduated from high school must also provide an official high school transcript with a graduation date as part of the application file.
- Access to the STAR will be available on our admissions website when the application opens.
- Domestic applicants attending an international school which follows an academic curriculum patterned after the U.S. education system may fill out the STAR.
- International applicants studying in the U.S. are required to fill out the STAR.
- International applicants studying outside the U.S. are required to fill out the STAR and provide official academic records, see International Admission Criteria for details.
- The Office of Admissions reserves the right to require official transcripts from any student; students should check the Applicant Information System to ensure completion of their file.
- Freshman and transfer applicants who have graduated from high school at the time of application should submit an official high school transcript that includes grades and credits for all completed coursework, a numerical class rank (if available), date of graduation and graduation plan completed, or a certificate verifying completion of a GED program.
- Post-baccalaureate applicants are not required to submit a high school transcript as part of the application file. Readmit applicants may be required to submit a final high school transcript if one is not currently on file with the university.
- To be considered official, a transcript must bear an original signature of a school official or an original school seal.
- Applicants who have attended high school both in the U.S. and out of the U.S. may complete the STAR provided the courses and grades are present on the U.S. transcript; otherwise, official transcripts are required. Details for providing international transcripts can be found under International Admission Criteria.
- For students enrolled in the U.S., copies of official transcripts from other countries will be accepted provided the copies are on file and verified by the U.S. institution.
- Faxed or emailed copies are not official and will not be accepted.

Class Rank

- Students **graduating from a Texas high school who rank in the top ten percent** must provide both the Self-reported Transcript and Academic Record and a high school transcript noting the student's rank and class size or a letter on school letterhead signed by a school official noting the student's rank and class size to qualify for

automatic admission. Documents may be uploaded in the Applicant Information System for processing.

- Texas A&M's Office of Admission will assign a ranking to students from non-ranking high schools.

Official College Transcripts

- An official transcript is required from **every** post-secondary institution attended even if the applicant did not earn credit, receive a course grade or the course is not transferable. Coursework from one college posted on the transcript of another college will not satisfy this requirement. Failure to acknowledge attendance and provide transcripts from **all** schools attended may be considered a fraudulent admissions application resulting in a denial of the application.
- A college transcript for **dual credit** coursework earned in high school is required.
- Official paper transcripts are to be sent by the sending institution in a sealed envelope. The transcript will not be considered official if the student has had access to the transcript.
- Requirements for submitting international transcripts can be found under International Admission Criteria.
- Faxed copies are not official and will not be accepted.
- For students enrolled in the U.S., copies of official transcripts from other countries will be accepted provided the copies are on file and verified by the U.S. institution.

Lawful Permanent Residents of the United States

An applicant who has applied for or been granted Lawful Permanent Resident (LPR) status in the United States by the Department of Homeland Security (DHS) is eligible to submit an application as a Domestic Applicant. To qualify, you must include one of the following with the application:

- a copy of both sides of the DHS-issued Permanent Resident Card, or
- the I-551 Entry Stamp and Immigrant Visa in the passport, or
- an approved I-797 Notice of Action or I-797C Notice of Receipt.

If your parent is also a permanent resident, a copy of the parent's proof of LPR status will be necessary to determine in-state residency for tuition purposes.

Note: If you have applied for adjustment of status to Lawful Permanent Residency and have not received your LPR card or Notice of Action that says Notice Type: Approval Notice, you will be considered an international student once you are admitted to the University. There are certain requirements that international students must fulfill in order to enroll. Please contact International Student and Scholar Services at <https://global.tamu.edu/iss> (<https://global.tamu.edu/iss/>) for more information about these requirements.

Required Immunizations

Texas Education Code (TEC) 51.9192 requires all entering students (under the age of 22) to provide evidence of vaccination against bacterial meningitis received within the last 5 years or a signed affidavit declining the vaccine at least 10 days prior to the start of classes for any given semester. Learn more about bacterial meningitis at <http://admissions.tamu.edu/meningitis>.

Notification of Application Status

Check the Applicant Information System (AIS) at applicant.tamu.edu (<https://applicant.tamu.edu/>) to verify your application has been received

and to determine if any credentials are missing or are incomplete. Please allow at least two weeks to process credentials.

The Office of Admissions will make every effort to inform applicants of incomplete files through AIS. If incomplete credentials are received within one month of the closing date, there may not be sufficient time for the Office of Admissions to notify applicants. All items necessary to complete an admission file must be received by the Office of Admissions by the closing date (not postmarked) to assure consideration for admission.

Required Coursework

Applicants who graduate from an accredited Texas public or private high school applying to Texas A&M University must have completed the Foundation High School Program preferably with the Distinguished Level of Achievement and at least one endorsement. The high school curriculum should be noted on the official high school transcript. Please visit <https://admissions.tamu.edu/resources/future-students/college-readiness> (<https://admissions.tamu.edu/resources/future-students/college-readiness/>) for a complete description of coursework including information for home-schooled and out-of-state applicants.

State of Texas Uniform Admission Policy

Texas Education Code (TEC) 51.803-51.809 (State of Texas Uniform Admission Policy (<http://admissions.tamu.edu/freshman/TexasUAP/>)) requires that all freshman applicants meet one of the following college readiness standards in order to be eligible to be considered for admission at a Texas four-year public institution.

- Satisfy the College Readiness Benchmarks on the SAT or ACT assessment; or
 - SAT – 480 EBRW and 530 Math for tests taken after February 2016
 - ACT – 18 English, 22 Reading, 22 Mathematics and 23 Science
- Successfully complete the State of Texas foundation, recommended or advanced/distinguished high school program or complete the portion of the program that was available to them; or
- Successfully complete a curriculum that is equivalent in content and rigor to the foundation, recommended or advanced/distinguished high school program at a high school that is exempt from offering such programs.

Students attending an out-of-state/out-of-country high school or home school are exempt from the Uniform Admission Policy.

Freshman Admissions

Additional Information for Freshman Applicants

1. Information Presented in the Application
 - Extracurricular activities including time commitment and duration of involvement
 - Leadership and/or exceptional talent as shown in extracurricular activities and/or work
 - Community/volunteer work including time commitment and duration of involvement
 - Awards and achievements earned while in high school
 - Employment and/or internships including dates of work and hours per week

- Family educational background and household income
- Number of people in household

2. Essay Topic A on the application is required.

Essay prompt: Tell us your story. What unique opportunities or challenges have you experienced throughout your high school career that have shaped who you are today?

Freshman Admissions

When all credentials necessary to complete a freshman applicant's file are received during the admission application period, one of the following criteria will be used to determine who will be offered admission:

1. Top 10% Applicants from Texas High Schools
Applicants who are Texas residents or who are enrolled in recognized public or private high schools in Texas with a rank in the top 10% of their high school graduating class, on or before the admissions deadline, will be automatically admitted to Texas A&M University if they have successfully met the State of Texas Uniform Admission Policy and have successfully completed the recommended or distinguished graduation plan or the foundation distinguished plan. Choice of major is not guaranteed. Applicants must submit all required credentials and a high school transcript verifying top ten percent ranking by the closing date in order to qualify for automatic admission.
2. Review Applicants
Applicants not meeting the above requirements for automatic admission but who have met the state of Texas Uniform Admission Policy will be considered for admission by holistic review of their application file, provided they submitted all required credentials by the closing date.

Information for all Freshman Applicants

- All applicants should use the application questions and the essay to present their academic background and personal strengths as well as personal circumstances.
- Letters of recommendation are optional. If an applicant chooses to submit letters of recommendation, only the first two received will be considered. The most helpful letters are from individuals who know the applicant well and who can write about what distinguishes the individual from other applicants in the areas of leadership, exceptional talent or special circumstances. Photocopies are acceptable.
- A competitive applicant who cannot be admitted to a major due to restricted enrollment will be offered admission to their second major choice. If the second major choice is full, then an alternate major must be chosen by the applicant after admission to the university.

Admission Decisions

Notice of Admission Decision

Texas A&M University receives many more academically prepared applicants for admission than we can accommodate. Admission decisions are made beginning September 1 and continue throughout the application period. A final decision may not be announced until early December for spring admission or late March for summer or fall admission. A limited number of applicants may be offered provisional admission that requires the successful completion of a summer school program at Texas A&M. In addition, some applicants may be offered admission to the Texas A&M Higher Education Center at

McAllen (<http://admissions.tamu.edu/HECM/>), Texas A&M Blinn TEAM Program (<https://tap.tamu.edu/programs/team.html>), Texas A&M Engineering at Blinn (<https://engineering.tamu.edu/admissions-and-aid/engineering-at-blinn-bryan/>), Texas A&M Engineering at Galveston (<http://engineering.tamu.edu/academics/engineering-at-galveston/>), Texas A&M Engineering at McAllen (<https://engineering.tamu.edu/admissions-and-aid/engineering-at-mcallen/>), or the Program for System Admission (<http://admissions.tamu.edu/PSA/>).

Suspected Fraudulent Admission Applications

Applicants for admission to Texas A&M University should be aware that the information submitted as part of the application process will be relied upon by University officials to determine their status for admission and residency for tuition purposes. By signing and submitting an admission application, the applicant certifies that the information in, and submitted with, the application is complete and correct and may be verified by Texas A&M University.

All students applying to Texas A&M University are expected to follow the Aggie Code of Honor which states "An Aggie does not lie, cheat or steal nor tolerate those who do." Applicants found to have misrepresented themselves or submitted false information on the application will receive appropriate disciplinary action which may include rejection of the application, withdrawal of any offer of acceptance, cancellation of enrollment or any other appropriate disciplinary action. In all instances of disciplinary action, the application fee is non-refundable.

Pursuant to Texas A&M Student Rule 24.4.1 (<http://student-rules.tamu.edu/rule24/>), acts of dishonesty include but are not limited to:

- Withholding material information from the *University*, misrepresenting the truth during a *University investigation* or student conduct conference, and/or making false statements to any *University officials* or law enforcement officers in the course of their duties.
- Furnishing false information to and/or withholding information from any *University official, faculty member, office, or law enforcement officers* in the course of their duties.
- Forgery, alteration, possession, or misuse of any *University* document, record, or instrument of identification.
- The submission of false information at the time of admission or readmission is grounds for rejection of the application, withdrawal of any offer of acceptance, cancellation of enrollment, dismissal or other appropriate disciplinary action.

For prospective undergraduate students (admitted but not enrolled), the initial determination of whether an individual has submitted a fraudulent application will be made by the Director of Admissions Operations, with a right of appeal to the Executive Director of Admissions. All appeals will be considered by the Admissions Decisions Appeals Committee and a recommendation made to the Executive Director of Admissions. For prospective graduate students, initial appeals will be made to the Dean of the Graduate and Professional School.

Enrolled students suspected of violating Student Rules will be reported to the Student Conduct Office.

Any University official who suspects that a prospective student or enrolled student has submitted a fraudulent admission application must notify the Executive Director of Admissions.

Residence Requirement for Baccalaureate Degree

A student must complete at least 25% of semester credit hours applied to a baccalaureate degree in residence at Texas A&M University.

Upper-level Residence Requirement: A minimum of 36 semester credit hours of 300-level and/or 400-level coursework must be successfully completed in residence at Texas A&M University to obtain a baccalaureate degree. A minimum of 12 of these semester credit hours must be in the major.

- For the Bachelor of Science in Nursing - RN to BSN Track, a minimum of 30 semester credit hours of 300-level and/or 400-level coursework must be successfully completed in residence at Texas A&M University. A minimum 12 of these semester credit hours must be in the major.
- Students participating in TAMU off-campus study programs approved by the student's college may apply upper division credits earned in the programs towards the upper-level residence requirement. A maximum of 18 semester hours, including hours transferred from another institution as a part of these programs, may be applied.

Abbreviations for Texas A&M Colleges and Majors

Colleges and Majors	Abbrev.
College of Agriculture and Life Sciences	AG
Agribusiness	AGBL
Agricultural Communications and Journalism	AGCJ
Agricultural Economics	AGEC
Agricultural Education	AGED
Agricultural Leadership and Development	ALED
Agricultural Systems Management ¹	AGSM
Agriculture and Life Sciences ²	AGLS
Animal Science	ANSC
Biochemistry	BICH
Bioenvironmental Sciences	BESC
Biological and Agricultural Engineering	BAEN
Ecology and Conservation Biology	ECCB
Entomology	ENTO
Environmental Studies	ENST
Financial Planning	FINP
Food Science and Technology	FSTC
Forensic and Investigative Sciences	FIVL
Genetics	GENE
Horticulture	HORT
Hospitality, Hotel Management and Tourism	HMGH
Nutrition	NUTR
Plant and Environmental Soil Sciences	PSSC
Poultry Science	POSC
Rangeland, Wildlife and Fisheries Management	RWFM
Turfgrass Science	TGSC
College of Architecture ³	AR

Architecture ^{1,4}	ARCH
Construction Science ¹	COSC
Landscape Architecture ¹	LAND
Urban and Regional Planning	URPN
College of Arts and Sciences	AT
Anthropology	ANTH
Applied Mathematics	APMT
Biology	BIOL
Chemistry	CHEM
Classics	CLSS
Communication	COMM
Economics	ECON
English	ENGL
Environmental Studies	ENST
Environmental Systems Science	ENSS
Geographic Information Science and Technology	GIST
Geography	GEOG
Geology	GEOL
Geophysics	GEOP
History	HIST
Journalism	JOUR
Mathematics	MATH
Meteorology	METL
Microbiology	MBIO
Modern Languages (French, German, Russian)	MODL
Molecular and Cell Biology	BMCB
Neuroscience (Behavioral and Cognitive, Molecular and Cellular)	NRSC
Ocean Studies	OCNS
Oceanography	OCNG
Philosophy	PHIL
Physics	PHYS
Psychology	PSYC
Society, Ethics and Law	SEAL
Sociology	SOCI
Spanish	SPAN
Statistics	STAT
Telecommunication Media Studies	TCMS
University Studies	USLA, USSC
Women's and Gender Studies	WGST
Zoology	ZOOL
Mays Business School ^{3,5}	BA
Business Administration (Accounting, Business Honors, Finance, Management, Management Information Systems, Marketing, Supply Chain Management)	BUAD
Business	BUSI
University Studies	USBU
College of Dentistry (Dallas location)	DN

Dental Hygiene ²	DDHS
College of Education and Human Development	ED
Early Childhood Development and Education	ECDE
Education (Early Childhood-6; Middle School; Special Education; Bilingual Education) ⁶	EDUC
Human Development and Family Sciences	HDFS
Human Resource Development	HRDV
Kinesiology (Applied Exercise Physiology, Basic Exercise Physiology, Exercise & Sport Science, Motor Behavior) ¹	KINE
Learning Technology and Performance Systems	LTPS
Sport Management	SPMT
College of Engineering	EN
Aerospace Engineering	AERO
Architectural Engineering	AREN
Biological and Agricultural Engineering ⁷	BAEN
Biomedical Engineering	BMEN
Chemical Engineering	CHEN
Civil Engineering	CVEN
Computer Engineering (Computer Science Track, Electrical Engineering Track)	CPEN
Computer Science ¹	CPSC
Data Engineering	DAEN
Electrical Engineering	ELEN
Electronic Systems Engineering Technology	ESET
Environmental Engineering	EVEN
Industrial Distribution	IDIS
Industrial Engineering	INEN
Information Technology Service Management	ITSV
Interdisciplinary Engineering	ITDE
Manufacturing and Mechanical Engineering Technology	MMET
Materials Science and Engineering	MSEN
Mechanical Engineering	MEEN
Multidisciplinary Engineering Technology	MXET
Nuclear Engineering	NUEN
Ocean Engineering	OCEN
Petroleum Engineering	PETE
Bush School of Government and Public Service	GB
International Affairs	INTA
Political Science	POLS
Public Service and Administration	PSAA
College of Nursing	NU

Nursing ²	NURS
College of Performance, Visualization and Fine Arts	PV
Dance Science	DANS
Music Performance	MUSP
Performance and Visual Studies	PVST
Theatre Arts	THEA
Visualization ⁵	VIZL
School of Public Health ³	PH
Public Health	PHTL
College of Veterinary Medicine and Biomedical Sciences ⁸	VM
Biomedical Sciences	BIMS
University Studies	USVM

¹ See this catalog pertaining to your major for the specific science.

² Choice available for transfer applicants only. Nursing and Dental Hygiene applicants must have completed or be enrolled in pre-requisite courses at the time of application. Courses may be completed at any accredited college or university.

³ All new students to the College of Architecture, Mays Business School, and School of Public Health enter the lower level.

⁴ The curriculum leading to a professional degree in Architecture begins in the four-year undergraduate Bachelor of Science in Architecture degree program. This degree provides entry to the Master of Architecture program.

⁵ No spring transfer admission.

⁶ All students seeking elementary teacher certification will complete a baccalaureate degree in Education. There is no major in Secondary Teacher Education. All students seeking secondary certification (except those preparing to teach physical education or health) will major in an academic discipline other than Education (i.e., mathematics, english, computer science, biology, etc.) and take appropriate coursework for teacher certification in the College of Education and Human Development.

⁷ Apply through College of Agriculture and Life Sciences.

⁸ Pre-veterinary medicine is not offered at Texas A&M. If you plan to apply to the Doctor of Veterinary Medicine (DVM) program, you should select a major that would be a good vocational choice if you do not later enter the DVM program. Any major may be selected; however, some curricula more closely parallel courses that must be completed before applying to the DVM program than others.

Change of Curriculum to Another Campus

In addition to main campus, Texas A&M offers certain undergraduate degrees at its branch campus in Galveston and the Higher Education Center at McAllen. While enrolled as a student in residence at any one of the Texas A&M locations, students may apply for a change of curriculum to another location for a future semester. Students must comply with the established change of curriculum procedures and requirements of their desired major, department, and college, and space must be available. Final approval is granted by the academic dean or departmental advisor for that major.

Transfer Admissions

Transfer Admissions

Transfer applicants will be reviewed and receive a decision from the Office of Admissions provided they submit all required credentials by the closing date.

Recommended/required coursework for all majors is available on the **Transfer Course Sheets** at <https://admissions.tamu.edu/resources/future-students/transfer-students> (<https://admissions.tamu.edu/resources/future-students/transfer-students/>). Students are strongly encouraged to follow the guidelines and complete both the required and recommended courses as outlined on the Transfer Course Sheets and in the catalog. Applicants who begin a set of courses which have a two-semester sequence are encouraged to complete both courses in the sequence before planning to transfer to Texas A&M.

Admission Criteria

- Transfer applicants should have at least a 2.5 grade point average (GPA) on at least 24 graded semester hours of transferable coursework at the time of application to be competitive for admission.
- Transfer admission decisions are made based on the college or major requested and are competitive; thus, admission standards may change from one semester to another. Preference is given to the applicant with the highest grade point average (GPA) and the most courses completed for the major designated on the application.
- Applicants who drop or withdraw from courses frequently and who do not routinely achieve satisfactory grades will be at a disadvantage in the review for admission.
- Spring grades may be used in the fall admission decision if requested by the Review Committee or in instances where the student did not meet the university requirements for review. Spring transcripts must be received by June 1 for review with spring grades. A complete application must be on file by March 1 to be considered for fall admission and to qualify for spring grade review. Spring grade review is not available for all applicants and is not an option for students studying outside the U.S.
- The entire application, including essay topic A, is considered in the review process.
- Some colleges consider second choice majors and some do not consider second choice majors. This is noted on the Transfer Course Sheets. The admission decisions follow the guidelines presented in the Transfer Course Sheets and the College Specific Information provided in the catalog. Space may be limited for those being reviewed for their second choice.

Automatic Transfer Admission through SB 175

A transfer applicant who graduated from a Texas high school and ranked in the top 10% of their high school qualifies for automatic transfer admission to a 4-year university under the provisions of SB 175 if they meet the following guidelines:

1. The applicant must have graduated in the top 10% of his or her high school graduating class from a Texas high school not more than 4 years prior to the semester for which the student is applying. The top 10% ranking must be stated on the final high school transcript, or the applicant must have been previously offered admission under the Top 10% rule to the institution to which the applicant seeks admission as a transfer student.

2. The applicant must complete the core curriculum at a public junior college or other public or private lower-division institution with a 2.5 GPA on a four-point scale or equivalent.
3. Transcript should note core completion.
4. The applicant must expressly and clearly claim in the application that he or she is seeking admission under the transfer Top 10% rule (SB 175).
5. The applicant must provide all of the documents required for transfer admission to Texas A&M by the posted deadline. Transfer requirements can be found at <http://admissions.tamu.edu/apply/transfer>.

Applicants qualifying for transfer Top 10% admission under SB 175 will be admitted to Texas A&M but the choice of major is not guaranteed. Students desiring admission to Business or Engineering are encouraged to select a second choice major of interest due to the limited enrollment capacity in these colleges.

For information concerning the Transfer Top 10% Admission, please see <https://admissions.tamu.edu/apply/transfer/transfer-programs> (<https://admissions.tamu.edu/apply/transfer/transfer-programs/>).

College Specific Information

College of Agriculture and Life Sciences

Transfer admission requirements vary for the different academic programs offered by the College. Transfer admission decisions are made by major and are competitive. Most majors have required and recommended coursework to be completed by the student prior to application. It is highly recommended that prospective students contact the academic advisor for the major of interest to inquire about specific transfer admission requirements. Students should also refer to the Texas A&M University Admissions website (<http://admissions.tamu.edu/transfer/apply/>) to review the Transfer Course Sheets for each major. Also, note that transfer admission GPA requirements vary by major and several exceed the minimum 2.5 GPA. Completion of the essay indicating why the major was selected and how a degree in this major will help meet career goals is required. For more information on transfer guidelines, coursework and contact information for all academic advisors, refer to the College of Agriculture and Life Sciences website (<http://aglifesciences.tamu.edu>).

College of Architecture

Applicants must have completed 24 hours of transferable coursework at the time of application, and it is recommended that these courses be selected from the degree program described elsewhere in this catalog. The essay is an important component in the review process and should explain why the applicant is interested in either the Architecture, Construction Science, Landscape Architecture, Urban and Regional Planning, or University Studies - Global Arts, Planning, Design and Construction concentration degree. Depending on the program of interest, applicants with less than a 3.0 GPA are rarely admitted. For more information, visit the College of Architecture website (<http://www.arch.tamu.edu>).

Enrollment in Architecture, Landscape Architecture, and Urban and Regional Planning is driven by available studio space. Additionally, there are eight sequential studios in those degree programs which makes it difficult for students that transfer with more than 36 hours to graduate in a timely manner.

Degree	Applicable Majors	Courses	TCCNS Number
Architecture	Architecture	ENGL 104, MATH 140 ¹ , MATH 142, PHYS 201	ENGL 1302, MATH 1324, PHYS 1401
Construction Science	Construction Science	ENGL 104, MATH 140 ¹ , PHYS 201	ENGL 1302, MATH 1324, PHYS 1401
Urban and Regional Planning, Landscape Architecture	Landscape Architecture, Urban and Regional Planning	ENGL 104, MATH 140 ¹ , PHYS 201 or Core Science	ENGL 1302, MATH 1324

¹ MATH 1324 from some colleges will not be a direct equivalent to MATH 140 at Texas A&M University but will satisfy the core math requirement for this major.

College of Arts and Sciences

Competitive applicants will apply with at least 24 hours of graded transferable coursework and a minimum GPA of 2.5 at the time of application. Transfer admission GPA requirements vary by major, with the majority requiring at least a 3.0 to be competitive for transfer admission consideration. Applicants should complete the essay indicating why they are interested in admission into their selected major. Applicants who have special or extenuating circumstances they wish to share are encouraged to address these within the essay(s) as well. Academic performance in courses relevant to the student's prospective major are considered in admissions decisions. STEM majors pay close attention to performance in required math and science courses. Majors may have prerequisites that must be met prior to admission. The College of Arts and Sciences will consider second-choice majors. Students with 90 hours of college credit may not be considered for transfer admission to some majors. Refer to this catalog for all electives in each curriculum. For more information about majors, programs and curricular requirements, please refer to this catalog, the Transfer Course Sheets (<https://admissions.tamu.edu/resources/future-students/transfer-students/>), and the College of Arts and Sciences website (<https://artsci.tamu.edu/>).

See below for courses required for STEM related majors:

Applicable Majors	Courses
Environmental Studies (ENST) BS	At least one course selected from: GEOG 1302, 1303, GEOL 1303 and 1103, 1403 or other introductory courses in the Geosciences (Geography, Geology, Atmospheric Science, Oceanography) Two Math courses: MATH 1324 and 1325 One Science course selected from: BIOL 1306 and 1106, 1406 CHEM 1311 and 1111, 1411

Environmental Geosciences (ENGs) BS At least one course selected from: GEOG 1302, 1303, GEOL 1303 and 1103, 1403 or other introductory courses in the Geosciences (Geography, Geology, Atmospheric Science, Oceanography) Two Math courses: MATH 2413 and 2414 One Science course selected from: BIOL 1306 and 1106, 1406 CHEM 1311 and 1111, 1411 PHYS 1301 and 1101, 1401

Geography (GEOG) BS University Studies - Geography (USGE) BS Geographic Information Science and Technology (GIST) BS One course selected from: GEOG 1301, 1302 or 1303, or the equivalent to GEOG 203 (Earth System Science) Two Math courses: MATH 1324 and 1325 One Science course selected from: BIOL 1306 and 1106, 1406 GEOL 1403 CHEM 1311 and 1111, 1411 PHYS 1301 and 1101, 1401

Geology (GEOL) BA GEOL 1303 and 1103 or 1403 Two Math courses: MATH 1324 and 1325 One Science course selected from: BIOL 1306 and 1106, 1406 CHEM 1311 and 1111, 1411, 1412 PHYS 1301 and 1101, 1401

Geology (GEOL) BS GEOL 1303 and 1103 or 1403 These four Math/Science courses: MATH 2413, 2414, CHEM 1411, 1412

Geophysics (GEOP) BS GEOL 1303 and 1103 or 1403 These four Math/Science courses: MATH 2413, 2414; PHYS 2325 and 2125, PHYS 2326 and 2126

Meteorology (METR) BS MATH 2413, 2414; PHYS 2425, CHEM 1411, 1412 (These courses must be completed with a B or better.)

Oceanography (OCNG) BS MATH 2413, 2414; CHEM 1411, 1412; PHYS 2325, 2326; BIOL 1106, 1306 (These courses must be completed with a C or better.)

Biology

Course Number	Course Title	TCCNS Number
BIOL 111 ¹	Introductory Biology I	BIOL 1306 and 1106, 1406
BIOL 112 ¹	Introductory Biology II	BIOL 1307 and 1107, 1407
CHEM 119 ¹	Fund. of Chem. I	CHEM 1311 and 1111, 1411
CHEM 120 ¹	Fund. of Chem. II	CHEM 1312 and 1112, 1412
MATH 151 ²	Engineering Math I	MATH 2413
MATH 152 ²	Engineering Math II	MATH 2414

Chemistry

Course Number	Course Title	TCCNS Number
CHEM 119 ¹	Fund. of Chem. I	CHEM 1311 and 1111, 1411

CHEM 120 ¹	Fund. of Chem. II	CHEM 1312 and 1112, 1412
ENGL 104 ³	Composition and Rhetoric	ENGL 1302
HIST 105 ³	History of the U.S.	HIST 1301
HIST 106 ³	History of the U.S.	HIST 1302
MATH 151 ¹	Engineering Math I	MATH 2413
MATH 152 ¹	Engineering Math II	MATH 2414

Mathematics

Course Number	Course Title	TCCNS Number
ENGL 104 ³	Composition and Rhetoric	ENGL 1302
ENGL 210 ³	Scientific/Technical Writing	ENGL 2311
HIST 105 ³	History of the United States	HIST 1301
MATH 151 ¹	Engineering Math I	MATH 2413
MATH 152 ¹	Engineering Math II	MATH 2414
PHYS 206 and PHYS 226 ¹	Newtonian Mechanics for Engineering and Science/Lab	PHYS 2325 and 2125, 2425
PHYS 207 and PHYS 227 ¹	Electricity and Magnetism for Engineering and Science/Lab	PHYS 2326 and 2126, 2426

Physics

Course Number	Course Title	TCCNS Number
CHEM 119 ³	Fund. of Chem. I	CHEM 1311 and 1111, 1411
ENGL 104 ³	Composition and Rhetoric	ENGL 1302
HIST 105 ³	History of the United States	HIST 1301
MATH 151 ¹	Engineering Math I	MATH 2413
MATH 152 ¹	Engineering Math II	MATH 2414
PHYS 206 and PHYS 226 ¹	Newtonian Mechanics for Engineering and Science/Lab	PHYS 2325 and 2125, 2425
PHYS 207 and PHYS 227 ¹	Electricity and Magnetism for Engineering and Science/Lab	PHYS 2326 and 2126, 2426

Statistics

Course Number	Course Title	TCCNS Number
COMM 203 ³	Public Speaking	SPCH 1315
CSCE 206 ³	Structured Programming in C	BCIS 1420, COSC 1420
ENGL 104 ³	Composition and Rhetoric	ENGL 1302
MATH 151 ¹	Engineering Math I	MATH 2413
MATH 152 ¹	Engineering Math II	MATH 2414
PHYS 206 and PHYS 226 ¹	Newtonian Mechanics for Engineering and Science/Lab	PHYS 2325 and 2125, 2425

PHYS 207 and PHYS 227 ¹	Electricity and Magnetism for Engineering and Science/Lab	PHYS 2326 and 2126, 2426

¹ A grade of B or better is required on all courses. Requirements also include a cumulative GPA of 3.00 or better.

² Must be completed with a C or better.

³ Meets major requirement. May be taken as time permits.

Mays Business School

Mays Business School offers transfer admission to the most competitive applicants. The transfer admission process identifies applications that evidence outstanding accomplishments, including academic credentials using the following guidelines.

Mays admits transfer applicants for summer or fall admission. **No spring transfer admission is available.**

Applicants are expected to have completed and excelled in substantially all of the required coursework. Applicants need a grade of A in most courses and a high overall GPA to be competitive. Applicants desiring to major in business are encouraged to plan early and incorporate the required coursework listed below into their curriculum prior to applying. It is especially important to have credit for both required math courses before applying.

Required coursework differs based on the applicant's intended program and the number of hours completed at the time of application. Applicants for Bachelor of Business Administration (BUAD) with less than 30 hours completed are expected to have both required math and economics courses completed or in progress at the time of application. Applicants for BS in Business Administration (BUSI) and BUAD applicants with more than 30 hours completed are expected to have all required coursework completed or in progress upon application.

The entire record is reviewed for consistency in coursework and grades. Successful applicants include carefully written essays that demonstrate clarity of purpose, creativity, and an advanced writing style. Applicants are encouraged to use the required essay as an opportunity to identify their past accomplishments, discuss what they hope to study at Texas A&M University, and describe how their undergraduate business education will help them meet their goals after graduation. Applicants who have special circumstances they wish to have considered are urged to share all pertinent information, with appropriate documentation, in their essay(s).

REQUIRED COURSEWORK FOR ADMISSION: Priority courses to be completed before transfer application to Mays Business School are:

Course Number	Course Title	TCCNS Number
ACCT 229	Introductory Accounting - Financial	ACCT 2301, ACCT 2401
ACCT 230	Introductory Accounting - Managerial	ACCT 2302, ACCT 2402
BUSN 203	Statistical Methods for Business	BUSI 2305
ECON 202	Principles of Economics - Microeconomics	ECON 2302

ECON 203	Principles of Economics - Macroeconomics	ECON 2301
ISTM 210	Fundamentals of Information Systems	BCIS 1305
MATH 140 ¹	Mathematics for Business and Social Sciences	MATH 1324
MATH 142 ¹	Business Calculus	MATH 1325

¹ In lieu of MATH 1324 and MATH 1325, Mays accepts MATH 2414 and MATH 2413, respectively.

College of Education and Human Development

Transfer admission requirements vary for the different academic programs offered by the College of Education and Human Development (CEHD). All majors have required coursework to be completed by the student prior to application. It is highly recommended that prospective students contact the CEHD Undergraduate Prospective Student Office to inquire about specific transfer admission requirements. Students should also refer to the Texas A&M University Admissions website at <http://admissions.tamu.edu/transfer/majors> (<http://admissions.tamu.edu/transfer/majors/>) to review the Transfer Course Sheets for each major. Also, note that transfer admission GPA requirements vary by major, and several exceed the minimum 2.5 GPA. Completion of the essay indicating why the major was selected and how a degree in this major will help meet career goals is required. For more information on transfer guidelines, coursework and contact information for the CEHD Undergraduate Prospective Student Office refer to the following website <https://education.tamu.edu/> or email cehd-recruitment@tamu.edu

College of Engineering

Applicants should complete at least 24 hours of graded, transferable coursework at the time of submitting their application, all with a grade of C or better. Transfer admission GPA requirements vary by major, with the majority exceeding the minimum requirements for transfer admission consideration to Texas A&M. Transfer admission course requirements also vary by major.

Prospective transfer students should review the College of Engineering (<http://engineering.tamu.edu/>) website for more information about each major. Transfer Course Sheets (<https://admissions.tamu.edu/resources/future-students/transfer-students/>) are available for each major in the College of Engineering to provide guidance on specific transfer admission requirements.

Field of Study Curricula

A Field of Study Curriculum is a set of courses that will satisfy lower-division requirements for a baccalaureate degree in a specific academic area at a general academic teaching institution. The Texas Higher Education Coordinating Board publishes information about Board-approved Field of Study Curricula (www.highered.texas.gov/) (<https://www.highered.texas.gov/>). Texas A&M University complies with requirements outlined in 19 Texas Administrative Code §4.32 regarding transfer of course credit for completed or partially-completed Field of Study Curricula. Per 19 Texas Administrative Code §4.32, following the receipt of credit, "the student may be required to satisfy the remaining course requirements in the field of study curriculum of the receiving institution, or to complete additional requirements in the receiving

institution's program, as long as those requirements do not duplicate course content already completed through the field of study curriculum."

Notification of Admission Decisions

Transfer admission decisions are made through a competitive review process. Applicants are notified of the admission decision on a rolling basis throughout the application season. For those applicants requested to submit spring grades for fall consideration, decisions should be announced by early July.

Additional Information for Transfer Applicants

1. All applicants are encouraged to view the Transfer Course Sheets (<http://admissions.tamu.edu/transfer/majors/>) posted on the admissions website for information concerning required courses and GPA requirements for admission to a specific major.
2. A 2.0 GPA or better on coursework in progress during the semester (excluding summer terms) immediately prior to enrollment at Texas A&M is a condition of admission.
3. Grades for all transferable courses are used in the computation of the GPA. This includes:
 - Failing grades, repeated courses, WF, Incomplete, etc.
 - Grades reported as Incomplete are computed as Fs.
 - Plus and minus grade designations are not used; C+ is computed as a C, B- as a B, etc.
4. Credit by examination courses which are transcribed from other colleges or universities may be transferred if sequential coursework with credit is also indicated. If there is evidence that the credit by examination courses are part of the student's program of study at that institution, credit will be awarded for those courses that meet the transfer guidelines. Note: Credit by examination will not count toward the 24 hours required for consideration for admission.
5. Coursework taken as credit-by-exam must be listed as a specific course and course number on an official college transcript to be considered for transfer of credit.

Transfer Course Credit Policies

Transfer credit on coursework complete at the time of application to Texas A&M University is determined when an official transcript from the originating institution is presented as part of the application for admission or readmission process. An official transcript is required from every post-secondary institution attended (including dual credit earned in high school) even if the applicant did not earn credit, receive a course grade or the course is not transferable.

The transfer of course credit is determined by the Office of Admissions on a course-by-course basis by application of policies set under the guidance of the Texas Higher Education Coordinating Board, the Texas Association of Collegiate Registrars and Admissions Officers, and under the guidance of faculty within the academic colleges. Credit submitted for transfer must be on an official transcript received by the Office of Admissions from the Registrar of the institution where the credit was earned. Course content will be determined from the catalog description or the syllabus. The transferability of courses will be based on the criteria below. All criteria are intended to be considered together; for example, criteria 10 may be qualified by criteria 7.

Undergraduate course credit will only be evaluated and posted for undergraduate applicants and undergraduate students, not for graduate level applicants.

Credit from Institutions Accredited by One of the Institutional Accrediting Agencies

1. A course that is normally considered as part of a bachelor's degree program (not including the bachelor of technology or similar terminal degree) may be transferred. The following criteria, taken together, are used:
 - a. The course is applicable to a bachelor's degree at Texas A&M.
 - b. The course is similar to a course or courses offered for degree credit by Texas A&M.
 - c. The course content is at or above the level of the beginning course in the subject matter offered by Texas A&M.
2. A course that is intended for use in a vocational, technical or occupational program will not typically transfer. In certain cases, credit for occupational skill courses will be considered. Transfer of this credit requires that the student's Texas A&M major is engineering technology or industrial distribution or that the student's major department and dean approve the course for use in the student's degree program after enrollment.
3. Credit for support courses such as Math, Science and English intended specifically for use in an occupational program will not be transferred.
4. Credit for courses must be shown on the official transcript in semester hours or in units that are readily converted to semester hours.
5. A graduate-level course will not be transferred for undergraduate credit unless approved for use in the student's undergraduate degree program by the student's major department and Dean. This also applies for a course offered in a professional degree program such as Nursing, Law, or Medicine.
6. Credit by examination courses which are transcribed from other colleges or universities may be transferred if sequential coursework with credit is also indicated. If there is evidence that the credit by examination courses are part of the student's program of study at that institution, credit will be awarded for those courses that meet our transfer guidelines.
7. Courses similar to ones offered by Texas A&M at the junior or senior level transfer by title only. Such courses may be used in the student's degree program only if approved by the Department Head and Dean of the student's major field. Validation of such credit, either by examination or the completion of a higher level course, may be required.
8. A field experience, internship or student teaching course may be transferred by title only.
9. Credit for cooperative education will not be transferred.
10. A course that is substantially equivalent to a Texas A&M lower level course transfers as an equivalent course. Two or more courses may be combined to form one or more equivalent courses. If there is doubt about the equivalency of a course, the Texas A&M department offering the course subject matter may be asked to determine if the course is equivalent. STEM courses are often referred to the departments for evaluation.
11. As a general policy, credit for admission will be given for transfer work satisfactorily completed with a passing grade at another properly accredited institution.
12. Grade Point Average (GPA) for any period shall be computed by dividing the total number of semester hours of transferable courses for which the student received grades into the total number of grade points earned in that period. Credit hours to which grades equivalent to Texas A&M grades of W, WF, F, I or U are assigned shall be included;

those having grades equivalent to Texas A&M grades of WP, Q, S, X and NG shall be excluded.

13. In any case where a decision cannot be made using the above criteria, the Office of Admissions will determine the transfer of credit based on University policy, previous actions of the University and prior experience.

Resolution of Transfer Disputes for Lower Division Courses Between Public Institutions in Texas

The following procedures shall be followed by public institutions of higher education in the resolution of transfer credit disputes involving lower-division courses:

1. If an institution of higher education does not accept course credit earned by a student at another institution of higher education, the receiving institution shall give written notice to the student and to the sending institution that transfer of the course credit is denied. A receiving institution shall also provide written notice of the reasons for denying credit for a particular course or set of courses at the request of the sending institution.
2. A student who receives notice as specified in subsection 1 may dispute the denial of credit by contacting a designated official at either the sending or the receiving institution.
3. The two institutions and the student shall attempt to resolve the transfer of the course credit in accordance with the rules and guidelines of the Texas Higher Education Coordinating Board (THECB).
4. If the transfer dispute is not resolved to the satisfaction of the student or the sending institution within 45 days after the date the student received written notice of denial, the institution that denies the course credit for transfer shall notify the Commissioner of its denial and the reasons for the denial.

The Commissioner of Higher Education or the Commissioner's designee shall make the final determination about the dispute concerning the transfer of course credit and give written notice of the determination to the involved student and institutions.

Credit from Non-accredited Schools

Students who transfer to Texas A&M from an institution of higher education that is not accredited by one of the institutional accrediting agencies may validate the work taken at the institution by one of the following methods upon admission:

1. Successful completion of a comprehensive departmental examination or nationally standardized examination that is approved by the department.
2. Successful completion of a higher level course in the same subject area when approved by the Department Head and the Dean of the college or school.

Credit will be given to students transferring from non-accredited public colleges in Texas for work completed with grades of C or better if they earn a grade point of 2.0 (C average) on the first 30 hours of residence work at Texas A&M.

Credit from Foreign Institutions

Transfer work from institutions that do not follow the United States educational system with instruction in English will be evaluated on an individual basis. A-level examinations with a grade of C or better will result in the award of transfer credit. We do not award credit for

Baccalaureate II examinations. Credit will be given for work satisfactorily completed at international institutions offering programs recognized by Texas A&M. Official transcripts which include a listing of courses completed, terms of attendance, credit, and grades awarded submitted directly from the Office of the Registrar must accompany any request for transfer credit. Transfer work will be awarded by course title unless previous arrangements have been made using the Texas A&M University Transfer Credit Study Abroad Pre-Approval Form. Courses must be equivalent in character and content to courses offered at Texas A&M. Credit will not be awarded from international institutions which are not academically accredited by the Ministry of Education or other appropriate authority in the home country.

No English composition courses will be transferred from institutions located in non-English speaking countries. American history and American political science (government) courses will not transfer from foreign institutions.

Courses taken at language training centers or language institutes are generally not awarded transfer credit. A transcript from such an institution must be issued through the Office of the Registrar at a Texas A&M recognized university, institute or language training center. Credentials of all language training centers and institutes are carefully reviewed.

Credit for Military Experience

State law (Texas Education Code Section 51.3042) and Texas A&M University policy awards credit for military service to eligible veterans. To receive credit, student veterans must submit proof of eligibility to the Office of Admissions. Up to 12 hours of general elective credits may be awarded, as needed for the student's degree plan.

Proof of eligibility includes:

- DD Form 214 showing 1 year active duty and an honorable discharge OR
- Military orders OR
- Disability discharge documentation AND
- Documentation of high school completion (final high school transcript or General Educational Development certificate)

Military transcripts are evaluated at the time of application and credit for military experience/training is awarded based on recommendations contained within the Guide to the Evaluation of Educational Experiences in the Armed Services published by the American Council on Education (ACE). Texas A&M University will award KINE 198 and KINE 199 credit for completion of Basic Training if applicable to a student's degree plan. Credit under this policy does not prohibit Texas A&M University from awarding additional credit. The Military Transcript Credit Appeal form shall be provided to the Office of Admissions with approval of the academic advisor and veteran.

Proof of eligibility includes:

- Official military transcript (JST or CCAF)

Military Service Credits are irrevocable once awarded. Potential consequences should be identified and understood before a request is submitted. Students must consult their academic advisor for advice on the number of credits from military service that can be used in their degree program to avoid excess credit accumulation and possible negative effects.

Extension and Correspondence Courses

Students may apply a maximum of 30 semester hours of approved extension class work and correspondence study toward a degree. Students may apply up to 12 hours of correspondence credit earned through an accredited institution toward the requirements for an undergraduate degree, even though Texas A&M does not offer courses by correspondence.

Correspondence courses taken through the Defense Activity for Nontraditional Education Support (DANTES) may be accepted and included in the 12 hours allowed.

In order for a student in residence at Texas A&M to receive credit for correspondence work toward a bachelor's degree, he or she should:

- obtain advance written permission from the Dean of their college or school;
- present appropriate evidence of having completed the course.

Testing Services is authorized to act as an agent to receive correspondence courses.

International Admissions

International Admission Criteria

Transcripts/Examination Results

Official academic records (transcripts, marksheets, diplomas, etc.) are required for all secondary and any university coursework completed. Records should include all courses taken in high school and every college or university the applicant has attended.

Official records require the original school seal or an original signature of a school official (Registrar, Principal, Headmaster or Director of Student Records, Controller of Examinations, or the Ministry of Education). Official records should be mailed from the school directly to Texas A&M University, Office of Admissions. Examination results should be sent directly from the examination agency. In addition to the original records in a language other than English, Texas A&M requires official translations in English. Translations sent directly from the institution attended or from a recognized translator will be accepted. Transcript evaluations that include a certified copy of the original transcript and a word-for-word translation from an evaluation service that is a member of the National Association of Credential Evaluation Services (<https://naces.org/members/>) are strongly recommended and will allow faster processing of files. We recommend a document-by-document evaluation (with a GPA) for high school credentials and a course-by-course evaluation for college/university transcripts from non-U.S. institutions. Credential evaluations that include a word-for-word translation will be considered as an official translation but will **NOT** be accepted as a substitute for required transcripts. For students enrolled in the United States, we will accept copies of official transcripts from other countries that are on file and verified by the U.S. institution. Unofficial photocopies, fax copies, and notarized copies of records, examination results, or translations will not be accepted. Uploaded transcripts and diplomas indicating graduation from secondary school (final high school transcripts) will not be accepted. These transcripts must be mailed.

Admission Criteria for International Applicants with U.S. Based Credentials

International applicants who are completing their education at an institution that is accredited by the U.S. will be reviewed in accordance with the guidelines determined for domestic admission. However,

these applicants must still meet international deadlines and testing requirements. (See item 2 below.)

Admission Criteria for International Applicants with Foreign Credentials

International applicants who are completing their education at an institution that is not accredited by the U.S. will be reviewed based on the following criteria:

1. Academic Achievement

- International applicants are expected to complete an educational program that will allow them to be considered for admission to a university in their home country. Examples include the completion of Grade 13, Form 6 or 3 A-level exams following the General Certificate of Secondary Education (GCSE). Predicted A-level exam results must be received by the application closing date.
- Applicants must submit proof of high school graduation, typically a diploma, leaving certificate, or official examination results. Students that complete the West African Examinations Council (WAEC) exam must provide the necessary information for Texas A&M to verify the WAEC results, typically a WAEC scratch card or results checker, by the application closing date.
- Successful applicants will rank near the top of their country's educational system (B average or better) and score well above average on national exams.
- Secondary school courses: Appropriate college preparatory coursework is required.

2. Testing and Proof of English Proficiency

SAT or ACT scores will be considered in the review criteria for international freshman applicants. Applicants whose spoken language is not English are required to demonstrate English proficiency by meeting one of the following requirements to be eligible for review for admission:

- TOEFL internet-based test score of 80 or higher (taken within two years of date of intended enrollment)
- Minimum TOEFL Essentials score of 8.5 from a test date within two years (Texas A&M University does not accept the MyBest TOEFL score)
- IELTS with a 6.0 overall band score (taken within two years of date of intended enrollment)
- SAT Evidence Based Reading and Writing (EBRW) score of 560 or higher
- ACT English score of 21 or higher
- Completed all four years of high school within the U.S.
- Transfer from an accredited U.S. institution of higher education with at least 30 semester credit hours including the equivalent to Texas A&M's ENGL 103 or ENGL 104 with a grade of C or better.
- Please view the admissions website (<https://admissions.tamu.edu/apply/international/international-freshman/>) for information concerning acceptable English language testing for 2024.

3. Individual Achievement and Recognition

- Leadership positions held
- Honors/awards received
- Major national, state or Texas A&M scholarships received

Additional Requirements for International Applicants After Admission

If admitted, international students should review the International Student Services Channel, howdy.tamu.edu (<https://howdy.tamu.edu>) - Applicant tab, for next steps concerning enrollment at Texas A&M University. Additional information is available on the International Student and Scholar Services (ISSS) (<https://global.tamu.edu/iss/>) website.

Scholarship Information for International Students

There are a limited number of scholarships, fellowships, grants and loans available to international students, both in the admission process and throughout their enrollment. Some of these come from academic departments, particularly for graduate applicants, but there are also forms of financial aid available through International Student Services and Scholarships & Financial Aid. International applicants with financial need are encouraged to complete the International Student Financial Aid Application (ISFAA) (<https://aggie.tamu.edu/financial-aid/apply-for-aid/>). This form must be resubmitted annually for continued consideration for aid.

One special opportunity that a student may be eligible for upon admission to Texas A&M University is the Texas/Mexico Education Scholarship. Texas law allows a limited number of admitted applicants who are citizens of Mexico, and who can document financial need, to pay the same tuition as the residents of the State of Texas. For more information regarding how to apply for this scholarship, please refer to International Student and Scholar Services (ISSS) (<https://global.tamu.edu/iss/>) website.

For additional information regarding financial assistance and other scholarships available to International Students, please contact:

Scholarships & Financial Aid
Texas A&M University
P. O. Box 30016
College Station, TX 77842-3016
(979) 845-3236
aggieonestop@tamu.edu
<http://financialaid.tamu.edu>

For additional information, please contact:

International Student and Scholar Services Office
Pavilion Room 110
Texas A&M University
1226 TAMU
College Station, TX 77843-1226
USA
(979) 845-1824
Fax (979) 862-4633
iss@tamu.edu
<http://iss.tamu.edu>

Other Admissions

Admission Criteria for Other Application Types

Readmission Criteria

Admission decisions for readmission are based on the following:

- GPA on Texas A&M coursework;
- GPA on coursework since leaving Texas A&M;
- desired major; and
- information presented in the application and essay/statement of purpose.

If you were previously admitted but did not enroll and attend class through the official census date, you do not qualify as a readmit, and you must apply as either a freshman or transfer student.

If you were previously enrolled at Texas A&M but did not attend class through the official census date of the previous long semester, then you must apply for readmission.

Transcripts from institutions attended since the last enrollment at Texas A&M are required as follows:

If Desired Readmission Term Is	Must Have Transcripts Through
2026 Spring Semester	2025 Summer Semester
2026 Summer Semester	2025 Fall Semester
2026 Fall Semester	2026 Spring Semester if applying after June 1

Post-baccalaureate Undergraduate Criteria

Admission is limited and intended for applicants with a degree who wish to apply for further study at the undergraduate level to pursue a second bachelor's degree.

Additional requirements to complete a post-baccalaureate application:

- an official transcript indicating the receipt of a recognized baccalaureate degree
- a statement of purpose explaining why enrollment at Texas A&M is necessary
- official transcripts from all colleges attended (official high school transcript not required)

Admission decisions for post-baccalaureate undergraduates consider:

- GPA on transferable college coursework
- completion of prerequisite coursework
- information presented in the application

Priority is given to qualified applicants for their initial degree; therefore, **post-baccalaureate undergraduate admission may be limited or may not be available**. Mays Business School and the School of Public Health do not consider applicants for post-baccalaureate study. Students are encouraged to contact the major to determine if post-baccalaureate study is allowed. See the Classification section of this catalog for the enrollment rights and privileges of this classification.

Undergraduate Non-degree Criteria

Admission is limited and intended for applicants with a high school diploma (with the exception of High School Enrichment Program participants) or for degree applicants who do not intend to pursue a baccalaureate degree at Texas A&M. This includes:

- local residents or University employees taking courses on a part-time basis
- applicants completing established Texas A&M University requirements for teacher or other certification

- applicants completing a prescribed set of courses as preparation for application to graduate study or professional programs (i.e., medical school, veterinary school, law school or CPA exam)
- others as deemed appropriate by the Office of Admissions and the college or program of admission

Additional requirements to complete an undergraduate non-degree application:

- a statement of purpose explaining why enrollment at Texas A&M is desired
- an official college transcript showing the latest collegiate coursework attempted or a complete, official high school transcript if no college work has been attempted after high school graduation
- additional information presented in the application may be considered
- other credential as deemed appropriate by the Office of Admissions and the college or program of admission

Priority is given to qualified applicants for their initial bachelor's degree; therefore, non-degree admission may be limited or not available. Students are encouraged to contact the major to determine if non-degree seeking study is allowed for any given semester. See the Classification section of this catalog for the enrollment rights and privileges of this classification.

Transient Session Only Criteria

Admission is considered for applicants who wish to attend summer only, present appropriate credentials for the level of specified coursework, and apply within the processing period for the specific session. The School of Public Health does not allow transient admission. Students are encouraged to contact the major to determine if transient study is allowed.

Additional requirements to complete transient session only application:

- a statement of purpose explaining why enrollment at Texas A&M is desired
- an official college transcript showing the latest collegiate coursework attempted or a complete, official high school transcript if no college work has been attempted after high school graduation

High School Enrichment Program

Texas A&M University is pleased to offer the High School Enrichment Program (HSEP) for qualified high school students in the Bryan/College Station area that will provide college credit and may also provide credit toward high school graduation. Admission for this program is on a space-available basis. The applicant pool is competitive, and admission into this program is not guaranteed.

This program provides a chance to further your knowledge in a subject you have completed in high school and earn valuable credit for graduation at both levels. For example, if you are interested in Physics and you have completed all of the classes your high school offers, you may qualify to continue to study Physics at the college level.

To be considered for this program, students must have completed all levels of related coursework offered at their high school. Each student is eligible to take one course per fall or spring semester, and course registration will be completed by the Texas A&M departmental advisor. No summer classes are offered at this time. Classes will be held on the Texas A&M campus, and students and their parents/guardians will be responsible for any transportation considerations.

Eligibility requirements:

- You must be a junior or senior in high school in the Bryan/College Station area.
- You must have a minimum SAT score of 1270 or an ACT score of 27.
- You must provide a recommendation form from your high school counselor to participate.

Academic Fresh Start Policy

Applicants for admission or readmission to Texas A&M may choose to have academic coursework that was completed at least 10 years prior to their term of application removed from consideration in the admission decision (Texas residents only). All other admission requirements apply. Should a Fresh Start applicant be admitted, he or she will forfeit all credit earned prior to 10 years from the term of admission. Academic Fresh Start must be requested as part of the application process. It cannot be requested after an applicant is admitted or enrolled.

Academic work done subsequent to ten years will be used in the evaluation of the applicant for admission. Applicants with subsequent coursework are required to submit the transfer application along with transcripts for all college level coursework as well as all additional required documents by the posted deadline. If a student does not have coursework subsequent to ten years, he or she will be considered for admission based on the guidelines for new entering freshmen.

See <https://admissions.tamu.edu/apply/academic-fresh-start> for additional requirements.

Admitted Fresh Start applicants have "Academic Fresh Start" indicated on their official Texas A&M transcript, are required to satisfy TSI (<https://asc.tamu.edu/tx-success-initiative/>) requirements, and will follow the academic requirements of the Undergraduate Catalog of record for the term of admission.

Forfeited coursework cannot be considered as prerequisites but placement examinations are allowed for courses which were not considered for admission because of the Fresh Start Policy. Once admitted on Academic Fresh Start, the applicant or student cannot subsequently request that the Fresh Start policy restrictions be removed.

If an applicant has used the Academic Fresh Start Policy at a previous school, the Academic Fresh Start will remain in effect at Texas A&M upon transfer.

Note: For financial aid purposes all previously taken coursework will be included when evaluating aid eligibility. In addition, the Department of Veterans Affairs (VA) does not recognize the Academic Fresh Start program. Students cannot be certified for courses they have successfully completed. Students using VA educational benefits should coordinate with the Veterans Services Office.

Entry to a Major – College of Engineering

Students who begin in general engineering programs in College Station (<https://engineering.tamu.edu/admissions-and-aid/incoming-students/>), (<https://engineering.tamu.edu/admissions-and-aid/incoming-students/>) Galveston (<https://engineering.tamu.edu/admissions-and-aid/engineering-at-galveston/>) or McAllen (<https://engineering.tamu.edu/admissions-and-aid/engineering-at-mcallen/>) or who are in Texas A&M Engineering at Blinn (<https://engineering.tamu.edu/admissions-and-aid/engineering-at-blinn-bryan/>), or the Texas A&M Engineering Academy Programs (<https://engineering.tamu.edu/academics/academies/>) pursue a common first year engineering curriculum to provide them opportunities

to explore the various engineering majors (<https://engineering.tamu.edu/academics/explore-engineering/>). Students are introduced to the different engineering majors in the first year engineering courses, ENGR 102, ENGR 216/PHYS 216 and ENGR 217/PHYS 217. Additionally, students are encouraged to leverage additional resources, including the Career Center (<https://careercenter.tamu.edu/>), faculty, and academic advisors, to gain more information about engineering majors. All general engineering students must complete the following first year engineering curriculum requirements over the course of at least two semesters before applying to an engineering major: two engineering courses, two math courses, and two science courses, from a pre-approved list posted at tx.ag/etam (<https://engineering.tamu.edu/academics/undergraduate/entry-to-a-major/>).

The entry-to-a-major (ETAM) process (<https://engineering.tamu.edu/academics/undergraduate/entry-to-a-major/>) enables students to take ownership of their future by identifying at least three majors that are a good match for their academic and career goals. The ETAM process is designed to place students in the highest rank major possible based upon academic performance, ETAM application content, and program capacities. Students who begin in general engineering programs in College Station (<https://engineering.tamu.edu/admissions-and-aid/incoming-students/>), (<https://engineering.tamu.edu/admissions-and-aid/incoming-students/>) Galveston (<https://engineering.tamu.edu/admissions-and-aid/engineering-at-galveston/>) or McAllen (<https://engineering.tamu.edu/admissions-and-aid/engineering-at-mcallen/>) or who are in Texas A&M Engineering at Blinn (<https://engineering.tamu.edu/admissions-and-aid/engineering-at-blinn-bryan/>), or the Texas A&M Engineering Academy Programs (<https://engineering.tamu.edu/academics/academies/>) are encouraged to be in a major as early as possible, and must be in a major by the end of the fourth semester.

Transfer students are admitted directly to a degree granting major through the admissions process.

Upper-Level Entry to the College of Architecture, Mays Business School, and Veterinary Medicine and Biomedical Sciences-Biomedical Science

College of Architecture

Transfer Students

Transfer students, who meet the University entrance requirements and who desire to enter a major field of study in the College of Architecture, will be admitted based on available space and current College of Architecture entrance criteria. Following admission, some departments place transfer students on a 2.5 GPA probation for a minimum of 12 credit hours to substantiate competency in required lower-level courses. Departments with lower-level classification will admit transfer students into the school with a lower-level classification. Students may apply for upper-level status after at least one semester at Texas A&M University.

Change of Major

Students currently enrolled in another major at Texas A&M University with fewer than 60 hours who desire to change their major field of study into the College of Architecture must fill out a Change of Curriculum application found on the Howdy portal under the "My Record" tab. See Student Rule 5.

The best-qualified applicants will be admitted based on the number of spaces available in their program of choice. Enrollment in Architecture, Landscape Architecture, and Urban and Regional Planning is driven by available studio space. Additionally, there are eight sequential studios in those degree programs which makes it difficult for students that transfer with more than 36 hours to graduate in a timely manner.

Mays Business School

Lower-level business (BUAD) students are encouraged to complete the freshman and sophomore sequence of courses as listed under Program Requirements.

The Upper-Level (UL) entry requirements and application procedures are as follows:

1. **Admission:** To be admitted to an UL major, a student must be admitted to Mays Business School and have:

- a. Satisfactorily completed the following five courses:

Code	Title	Semester Credit Hours
ACCT 229	Introductory Accounting	3
ECON 202	Principles of Economics	3
ECON 203	Principles of Economics	3
MATH 140	Mathematics for Business and Social Sciences	3
MATH 142	Business Calculus	3

- b. Submitted application for UL admission no later than preregistration for the expected UL entry term. **NOTE:** For summer UL entry, all requirements must be completed BEFORE the first class day of the FIRST SUMMER SESSION.
 - c. BUAD students may preregister for UL business courses in the semester for which they have applied for UL. However, students who fail to complete UL requirements shall not be permitted to remain registered in UL business classes.
2. **Transfer Students:** Transfer students admitted to Mays Business School enter as lower-level business (BUAD) students until they complete all requirements listed previously in item 1, at which time they may apply for admission to an UL major. Transfer students may immediately apply for UL when admitted to Mays Business School if, and only if, they meet all UL requirements at that time.
 3. **On-Campus Change of Major Students:** Texas A&M students who change major into Mays Business School from another college or department at the University will enter as lower-level business (BUAD) students until they complete all requirements listed previously in item 1. Change of major students who, when admitted to the business school, qualify to apply for admission to an UL major may do so.
 4. **Junior- and Senior-Level Business Courses:** Preference for available seats in junior- and senior-level business courses will be given to students who have been admitted to an UL major in Mays Business School. All ineligible students who preregister for UL business classes are subject to cancellation of their registration in these courses.

College of Veterinary Medicine and Biomedical Sciences

1. A Biomedical Sciences (BIMS) major will be admitted into the upper-level courses according to the following criteria:
 - a. Completion of a set of Common Body of Knowledge (CBK) courses with a grade of C or better in each course completed at Texas A&M. Any CBK course transferred from a community

- college must have a minimum grade of a B. For admission to BIMS upper-level courses, a student may have attempted a CBK course no more than twice.
- b. A minimum of 55 completed semester hours with a cumulative overall TAMU Grade Point Average (GPA) of 3.0 or better.
 - c. Process: Each student upon completing 55–65 semester credit hours must have a degree audit to verify upper-level eligibility. (All students are required to submit a completed degree planner yearly between March 1 and September 30. Students are encouraged to submit their planners prior to September 1).
2. The Biomedical Sciences Program will continue to accept changes of major into BIMS according to current Texas A&M University policy, but restrict changes of major into the upper-level courses (BIMS) according to the criteria listed in item 1. Students in other majors requesting a change of major to the BIMS program must fulfill the criteria in item 1. In addition, the dean must verify availability of resources necessary to insure the student's full-time enrollment in required upper-level courses prior to admission to upper-level status. If such courses are not available, the student will be denied admission to Biomedical Sciences.
 3. To enter BIMS upper-level courses, transfer students must have:
 - a. A minimum GPA of 3.0 in CBK courses with a grade of B or better in each completed course if taken at a 2-year college. A grade of C or better is accepted from a 4-year college.
 - b. Transfer students admitted under another major and wishing to change into BIMS must complete one semester of graded coursework at Texas A&M University with a cumulative overall TAMU GPA of 3.0, as well as meet change of major requirements for current students.
 - c. Texas A&M University change of majors must have at least 55 semester credit hours with a minimum cumulative GPA of 3.0.
 4. Students seeking readmission will be considered on a case-by-case basis, according to current catalog policy. No quotas will be placed on readmission; however, the decision to readmit will be dependent on resource availability and University policy.
 5. Any BIMS student admitted to upper-level courses who then falls below the 2.5 GPA requirement will not be considered in good academic standing in their major and will be placed on college probation. Students who achieve less than an overall TAMU GPA of 1.0, in any semester, are not eligible for college probation or grade warning status. All Biomedical Sciences majors must follow established probation rules for the Biomedical Sciences Program.
 6. The Dean, Director, or Department Head will reserve the right to waive CBK or GPA requirements within the criteria established in Texas A&M University Student Rules.
 7. No courses, other than those specifically approved by the Dean or designee or research/directed studies courses, can be taken as S/U to be used in the BIMS or USVM degree plans.
 8. BIMS/USVM probation is determined at the end of both Fall and Spring semesters. Students not meeting acceptable GPA requirements (cumulative 2.5 BIMS majors with 55 or more hours or cumulative 2.0 for USVM majors/BIMS majors with less than 55 hours) will be placed on probation for one semester. Students who achieve less than a cumulative TAMU GPA of 1.0 in any semester (BIMS or USVM) are not eligible for college probation or grade warning status. Any written correspondence from Texas A&M University regarding suspension supersedes departmental probation terms.

9. Students may only attempt Biomedical Science courses a total of three times.

Texas Success Initiative (TSI)

The Texas Success Initiative (TSI) was instituted to ensure that students enrolled in Texas public colleges and universities possess the necessary academic skills to perform effectively in college and to provide diagnostic information about reading, writing and mathematics skills of each student. All undergraduate students who did not meet one of the allowed exemptions must take the approved TSI Assessment.

Students who do not meet established cutoff scores or other approved exemptions for the TSI Assessment are required by Texas law to be enrolled in, and actively attend, an academic skills course and/or program each semester prior to completing all TSI requirements. Academic skills courses in each of the three TSI areas are offered by Texas A&M. Failure to meet the attendance requirements of the academic skills course may result in withdrawal from Texas A&M. The hours for these courses will not count toward any degree program but may count toward determining full-time status. See <https://asc.tamu.edu/TX-Success-Initiative> (<https://asc.tamu.edu/TX-Success-Initiative/>) for specific information.

Upload your official SAT/ACT/TSI Score Report to AIS and save as **Test Scores**. You can also send your scores directly from the testing agency (College Board, Accuplacer, etc.) to Texas A&M. Exempting documentation may also be included with the **official** high school transcript.

NOTE: FAILURE TO SUBMIT TSI SCORES OR OTHER EXEMPTING DOCUMENTATION (SAT/ACT SCORES) WILL RESULT IN A REGISTRATION HOLD.

Students required to take the TSI Assessment can also provide their score reports to the Academic Success Center at Texas A&M University at the address below.

Academic Success Center
1133 TAMU
College Station, TX 77843-1133

More information can be obtained from testing centers at most Texas public colleges and universities or by contacting:

Texas Higher Education Coordinating Board
P.O. Box 12788
Austin, TX 78711-2788

Undergraduate Studies' units have modified services available to students enrolled via distance education, at branch campuses, or at other instructional locations.

College of Dentistry – Caruth School of Dental Hygiene

Basis For Acceptance

All applicants will be considered using the following criteria. In addition, the applicant must be able to perform the essential functions required in the curriculum. The quality of the applicant's academic achievement is a prime consideration. A grade point average (GPA) is computed based on all courses taken in college.

Preference for admission is given to students with:

- A cumulative GPA and Science GPA indicating ability to succeed in the program.
- Attention given to detail when completing the application.
- A comprehensive biographical sketch that includes information that will help the Admissions Committee know the applicant better. Details about the dental hygiene procedures that have been observed, a description of the community service projects in which you have participated and information concerning your interests, abilities and attitudes that have motivated you to make the commitment required for a career in dental hygiene are examples of information that might be included.

The application deadline is January 5. The Office of Recruitment and Admissions encourages applicants to submit the online application forms by December 1. All materials related to the application must be received in the Office of Recruitment and Admissions by February 1.

- The following must be included with the application when it is submitted online:
 - a. Application for Admission
 - b. Secondary Application
 - c. List of courses in progress and those planned prior to enrollment in the dental hygiene program
 - d. Biographical sketch
- Other materials that should be sent to complete your application:
 - a. Application Fee (\$35.00)
 - b. Photograph sized 2 X 2 (does not have to be a passport picture - can be regular photograph cut down)
 - c. Transcripts from high school and all colleges attended (if you attended a foreign high school, you do not have to submit a copy)
 - d. Scores from Texas Success Initiative (TSI). (Or if exempt, SAT/ACT or TAAS— usually scores are listed on high school transcript; you do not have to submit scores separately.)
 - e. Observation Verification Form (minimum 16 hours required)
 - f. Recommendations: these evaluation forms should be completed by 1) a college instructor, 2) a dental hygienist and 3) an individual who has known applicant for some time; for example, an employer or supervisor.
- An application is valid for one academic year only.
- Official transcripts are required and will be accepted only when sent directly from each school the applicant has attended.
- It is the responsibility of the applicant to keep the application file current. Failure to supply grades, transcripts or recommendations may be perceived as an indication that the applicant is no longer interested in admission.

Interviews

Processing of applications begins the year prior to entrance into the professional program and continues until the class is filled. The applications are evaluated, and an invitation for an interview may be extended. The purpose of the interview is to determine the applicant's knowledge of the dental hygiene profession. It also provides an opportunity for the applicant to see the facility, meet with the Admissions Committee and to ask questions about the Caruth School of Dental Hygiene program.

All prospective students are encouraged to contact the college with questions regarding prerequisite courses or the program.

To Access the Dental Hygiene Application Forms:

The applicant will need to create an account on the Banner Admissions Management Framework (BAMF) website. The applicant will be required to complete and submit the College of Dentistry Dental Hygiene Application, the Secondary Application and the Ethnicity Form.

The application for the Dental Hygiene Program will be available on the BAMF website from July 15 to January 5.

Download Forms (Adobe PDF files):

The Evaluation Form and Observation Verification Form are available for download. You will need to print these forms and submit them with signatures through regular mail.

- Evaluation Form – top section to be filled in by applicant
- Observation Verification Form

For questions about the application process, please contact The Office of Recruitment and Admissions at (214) 828-8231 or by email at admissions-dentistry@tamhsc.edu.

Mail forms and transcripts to:

Office of Recruitment and Admissions
Texas A&M University College of Dentistry
3302 Gaston Avenue, Room 525
Dallas, TX 75246-2013
USA

Transfer Credit

Transfer credit will be determined by each component in conjunction with the staff of the college on a course-by-course basis from official transcripts submitted in the competitive admissions process. Course content will be determined by the catalog course description or course syllabus.

Course acceptability is guided by these criteria:

- Courses completed at regionally accredited institutions are considered for transfer if:
 - a. They are acceptable as credit for a bachelor's degree at a regionally accredited institution.
 - b. Course content is at or above the level of courses specified in the requirements for admission.
- Courses intended for use in a vocational, technical or occupational program normally do not transfer; general courses within this type of program may transfer.
- Credit on the transcript must appear in semester hours or credits that may be converted to semester hours.
- Credit by examination courses may be transferred if accepted by another college and followed by sequenced coursework.
- Equivalency of coursework is determined by content found in catalog course descriptions or syllabi of courses. In case of doubt, departmental faculty will determine equivalency. The final determination is left to the Program Director.
- As a general policy, coursework with a passing grade may be transferred, but the applicant must keep in mind that admission to the hygiene program is on a competitive basis and grades of F are calculated into the grade point average.

- Course hours will be evaluated on a course-by-course basis but will be transferred as a block of hours, and the grades do not calculate into the GPA for the hygiene program.
- Online courses are accepted.
- Typically, credit will not be given for courses completed at institutions not accredited by a regional accrediting agency.
- The college does not accept non-credit coursework to be used in lieu of coursework taken for academic credit.

Dental Hygiene Program (BS)

Application Fee	\$35 non-refundable fee
Admission Standards	Completion of required courses with GPA as high as possible. Admission is competitive.
Use of High School Record	No
Number of Articulation Agreements and Requirements for Admission	Not applicable
TOEFL**	Not applicable
Other Requirements	Three LOR required and TSI assessment. Interview; comprehensive biographical sketch; and 16 hours of verified observation of a dental hygienist

College of Nursing

Three different tracks lead to a baccalaureate degree in nursing. The traditional BSN track is for students seeking their first degree in college. The second-degree BSN track (post-baccalaureate) is for individuals who have already earned a bachelor's degree in another field of study. The RN to BSN track is for registered nurses who hold an associate degree in nursing. Prerequisite courses, which are the essential foundation for nursing, must be completed before entry into upper-division nursing courses through a competitive admission process. In addition, all students must meet the core curriculum requirements for Texas A&M University if not already completed at another institution.

The following documents are required for an application to be considered complete and eligible for review:

- Application
- Application fee
- Official college transcript(s)
- Timed verbal and written assessment
- Completion of prerequisite courses by the time of enrollment with a grade of C or better and 3.3 GPA
- Admissions Assessment (HESI A2) entrance exam required for traditional and second-degree BSN applicants only; minimum score of 75% in each required section
- Reference and professional resume required for RN to BSN applicants only
- RN to BSN applicants must provide proof of RN licensure in good standing by the start of the second semester
- Copy of permanent resident card, if applicable
- Official TOEFL Scores are required for international applicants and must be taken within the past two years. Test scores must be sent directly from the testing agency to be considered official.

The most current information regarding application to nursing can be found on the College of Nursing (CON) website. Applications must be received by the posted deadline. No late documents will be accepted. Admission to the college is competitive. At the time of application, students must be enrolled in or have completed all prerequisite course requirements which includes University Core Curriculum and nursing prerequisites with minimum GPA (prerequisite/nursing science GPA of 3.3). Admission offers may be made to students finalizing courses and will be contingent upon successful completion of all prerequisite requirements and students presenting a clear criminal background check and a negative drug screen.

If the student completed a core curriculum from another Texas public institution in a previous degree program, they are not required to complete the college's Core Curriculum. Students transferring from out of state, from a private institution, those with an international degree or anyone with concerns about this requirement, please contact an academic advisor at the College of Nursing for further clarification. Students will not be considered for admission unless the required coursework is completed by the time of enrollment while maintaining a 3.3 minimum GPA.

Additional Requirements for International Applicants and Applicants with Foreign Credentials

In addition to each program's stated application requirements, applicants with foreign transcripts must also include a transcript evaluation from an evaluation service which is a member of the National Association of Credential Evaluation Services. A course-by-course listing that reflects U.S. grade point equivalencies and semester credits is required. These reports must be sent directly from the evaluation agency in the original sealed envelope to NursingCAS. Send to: NursingCAS, P.O. Box 9201, Watertown, MA 02471. If sent via UPS or FEDEX, send to NursingCAS Transcript Department, 311 Arsenal Street, Suite #15, Watertown, MA 02472. Students may wish to speak with an advisor to determine transfer credits based on the results of the evaluation.

If admitted to the College of Nursing, applicants with foreign transcripts must submit the native language transcript along with an official English translation. These documents must include all original seals and/or signatures and be approved by the Texas A&M Office of Admissions prior to enrollment in the program.

English Proficiency and other Requirements for International Applicants

Applicants whose native language is not English are required to submit proof of English proficiency to be eligible for review. English proficiency can be demonstrated through various criteria. See more on this requirement on the international admissions website. International applicants will be expected to present a declaration of finances, F-1 travel documents and additional documentation upon acceptance to the College of Nursing. All deadlines required by the Office of International Student Services must be met.

College of Nursing (Health Science Center)

Traditional, Second Degree and RN to BSN

Applications & Fee	• Non-refundable fee set by NursingCAS • \$75 Paid through Apply Texas Application

Admission Standards	• Admission is competitive. • Required minimum grade of "C" in each of the prerequisite courses.
Use of High School Record	• Not used for admission purposes but required upon acceptance
Articulation Agreements	• South Texas College, Blinn College, and Angelina College
TOEFL	• See website for additional information
Other Requirements	• Entrance exam for pre-licensure applicants; Reference and Professional Resume for RN to BSN applicants; Timed verbal and written assessments may be required through Kira Talent portal.

Course Credit

Course Credit

Testing Services

Testing Services serves as the center for credit by examination, placement testing and correspondence testing, as well as national standardized testing. Other services include posting of test scores and evaluation of tests for college credit.

Credit by Examination

Undergraduate students at Texas A&M may earn course credits by demonstrating superior achievement on tests offered through several examination programs. Credit by examination is available to freshmen who plan to enter the University and to students who are currently enrolled. Credit earned by examination does not contribute to a student's grade point ratio. The University awards credit for scores on certain tests published by the Advanced Placement Program (AP), the College Level Examination Program Computer-Based Testing (CLEP CBT), the SAT Subject Tests, DANTES Subject Standardized Tests (DSST) and the International Baccalaureate (IB) Program. Texas A&M also offers qualified students opportunities to earn credits by taking departmental examinations prepared by the faculty. Information concerning credit by examination may be obtained from Testing Services (<http://testing.tamu.edu>), (979) 845-0532.

Please note these regulations concerning credit by examination:

1. Test scores and/or credit eligibility must be reported formally to Testing Services for credit by examination to be awarded. Credit is posted to the academic record once appropriate scores are received by Testing Services, the student has officially enrolled in the University and the student has accepted the credit. For information regarding current procedures for accepting credit, please visit the Testing Services (<http://testing.tamu.edu>) website.
2. Students may not receive credit by examination for courses that are prerequisites to courses for which they already have credit except with the approval of the department authorizing the examination.
3. A student may not have credit posted for credit by examination for a course in which he or she is currently registered. If a student has acquired a grade or exercised First-Year Grade Exclusion on a course, then the student will not be eligible to take the equivalent departmental exam. Eligibility will not be affected if a student has a Q, W or NG in a course.

4. Please note that once any credit has been accepted it cannot be removed.

Advanced Placement Program (AP)

Examinations offered by the AP Program are administered during late spring by high schools. Students usually take the examinations after completing Advanced Placement courses, although experience in an AP course is not required. Interested students should contact their high school counselors for information concerning registration and test sites. High school students and currently enrolled students should have the College Board forward their scores to Testing Services, institution code: 6003. Advanced Placement scores of entering freshmen are generally received in July. Students will need to log onto their Howdy portal under My Records and then Credit by Exam to accept the credit earned via AP tests. Testing Services suggests visiting with your advisor before you accept credit.

The following list includes all AP examinations currently accepted for credit.

AP Examination	Minimum Score Required	Texas A&M Course(s)	Credit Hours
African American Studies	3	AFST 289	3
AP Pre-Calculus	3	MATH 102	3
AP Research	3	See academic advisor	up to 3 hours
AP Seminar	3	See academic advisor	up to 3 hours
Art History	3	ARTS 149	3
	4	ARTS 149, ARTS 150	6
Biology	3	BIOL 113	3
	4	BIOL 111, BIOL 112	8
Calculus AB	3	MATH 142	3
	4	MATH 151	4
Calculus BC	3 ¹	MATH 151	4
	4 ¹	MATH 151, MATH 152	8
Chemistry	3	CHEM 119	4
	4	CHEM 119, CHEM 120	8
Chinese	3	CHIN 101, CHIN 102	8
	4	CHIN 101, CHIN 102, CHIN 201, CHIN 202	14
Comparative Governments	3	POLS 229	3
Computer Science A	3	CSCE 110	4
Computer Science Principles	3	CSCE 110	4
Economics: Macroeconomics	3	ECON 203	3

Economics: Microeconomics	3	ECON 202	3
English Lang. and Comp.	3	ENGL 104	3
	4	ENGL 104, ENGL 241	6
English Lit. and Comp.	3	ENGL 104	3
	4	ENGL 104, ENGL 203	6
Environmental Science	3	ENSS 105	3
European History	3	HIST 102	3
French Language	3	FREN 101, FREN 102	8
	4	FREN 101, FREN 102, FREN 201, FREN 202	14
German Language	3	GERM 101, GERM 102	8
	4	GERM 101, GERM 102, GERM 201, GERM 202	14
Human Geography	3	GEOG 201	3
Italian Language	3	ITAL 101, ITAL 102	8
	4	ITAL 101, ITAL 102, ITAL 201, ITAL 202	14
Japanese Language	3	JAPN 101, JAPN 102	8
	4	JAPN 101, JAPN 102, JAPN 201, JAPN 202	14
Latin	3	CLAS 121, CLAS 122	8
	4	CLAS 121, CLAS 122, CLAS 221, CLAS 222	14
Macroeconomics	3	ECON 203	3
Microeconomics	3	ECON 203	3
Music Theory	3	MUSC 204, MUSC 208	3
Physics 1	3	PHYS 201	4
	4	PHYS 201	4
Physics 2	3	PHYS 202	4
	4	PHYS 202	4
Physics C: Mechanics	3*	PHYS 206 and PHYS 226	3 or 4
Physics C: Elect. and Magnetism	3*	PHYS 207 and PHYS 227	3 or 4

Psychology	3	PBSI 107	3
Spanish Language	3	SPAN 101, SPAN 102	8
	4	SPAN 101, SPAN 102, SPAN 201	11
	5	SPAN 101, SPAN 102, SPAN 201, SPAN 202	14
Spanish Literature	3	SPAN 202	3
	5	SPAN 202, SPAN 320	6
Statistics	3	STAT 201	3
Studio Art: Drawing	3	ARTS 103	3
	4	ARTS 103, ARTS 111	6
Studio Art: 2-D	3	ARTS 103	3
	4	ARTS 103, ARTS 111	6
Studio Art: 3-D Design	3	ARTS 103	3
U.S. Government and Politics	3	POLS 206	3
U.S. History	3	HIST 105, HIST 106	6
World History	3	HIST 104	3

¹ Students must consult their academic advisor for advice on the number of credits that can be used in their degree program to avoid excessive credit accumulation and possible negative effects.

² Variable credits up to a maximum of 3 credit hours. Students must consult their academic advisor for advice on the number of credits that can be used in their degree program to avoid excessive credit accumulation and possible negative effects.

* Engineering majors should accept credit for PHYS 206 and PHYS 207 only, (not 226 and 227) a 2 hour lab is required for their degree plan

For instructions on accepting AP credit, please visit T (<http://dars.tamu.edu>)esting Services (<http://testing.tamu.edu>).

College Level Examination Program Computer-Based Testing (CLEP CBT)

CLEP CBT tests are designed to evaluate nontraditional college-level education such as independent study, correspondence work, etc. Both enrolled undergraduate students and entering freshmen may receive CLEP CBT credit for the courses which are listed below. Only examination titles below are currently accepted. The minimum scores listed below are based on the current version of CLEP CBT Examinations. Students will need to log onto their Howdy portal under My Records and then Credit by Exam to accept the credit earned via CLEP tests. Testing Services suggests visiting with your advisor before you accept credit.

CLEP CBT Subject Examination	Minimum Score Required	Texas A&M Course(s)	Credit Hours
Algebra	50	MATH 102	3
American Government	50	POLS 206	3
Calculus with Elementary Functions	50	MATH 151 or MATH 171	4
Chemistry	45	CHEM 119	4
	50	CHEM 119, CHEM 120	8
Financial Accounting	50	ACCT 209	3
History of the United States I: Early Colonization to 1877	50	HIST 105	3
History of the United States II: 1865 to the Present	50	HIST 106	3
Human Growth and Development	50	EPSY 320 or PBSI 225	3
Information Systems and Computer Applications	50	ISTM 209	3
Macroeconomics	50	ECON 203	3
Microeconomics	50	ECON 202	3
Pre-Calculus	50	MATH 150	4
Psychology, Introductory	50	PBSI 107	3
Sociology, Introductory	50	SOCI 205	3
Western Civilization I: Ancient Near East to 1648	50	HIST 101	3
Western Civilization II: 1648 to Present	50	HIST 102	3

For instructions on accepting CLEP credit, please visit Testing Services (<http://testing.tamu.edu>).

Dantes Subject Standardized Tests (DSST) Program

The DSST Program is available to all interested persons. Enrolled undergraduate students and entering freshmen may receive DSST credit for the courses listed below. For more information about the test, please contact Testing Services.

DSST Examination	Minimum Score Required	Texas A&M Course(s)	Credit Hours
Art of the Western World	50	ARTS 149, ARTS 150	6
Astronomy	48	ASTR 101	3

Business Law II	52	MGMT 312	3
Lifespan Develop. Psyc.	47	PBSI 307	3
Principles of Statistics	48	STAT 201 or PBSI 301	3,4

International Baccalaureate (IB)

Texas A&M University, in compliance with SB111, will grant at least 24 semester credit hours of course-specific college credit in subject-appropriate areas on all International Baccalaureate (IB) exam scores of 4 or above as long as the incoming freshman has earned an IB diploma. While some course credit will be awarded regardless of a student's IB diploma status, some course credit at Texas A&M University may be subject to the successful completion of the IB diploma.

Entering freshman students should submit their International Baccalaureate transcript to Texas A&M University, institution code: 01355, for review. Students should contact Testing Services regarding their eligibility for course credit. Students should work with an academic advisor to determine the use of the IB credits in their individual degree plan and the impact accepting the credit may have upon tuition rebate eligibility, tuition charges for excessive total hours, and preparedness for sequential coursework based on IB test scores. Students will need to log onto their Howdy portal under My Records and then Credit by Exam to accept the credit earned via IB tests. Testing Services suggests visiting with your advisor before you accept credit.

Texas A&M University will notify IB applicants of their eligibility to receive credit by posting information on the website, Testing Services, and by establishing links to other web pages.

The evaluation of IB courses in order to identify the appropriate course credit is continuing and will be posted as it becomes available. The following list includes all IB examinations currently accepted for credit.

IB Higher Level Examination	Minimum Score Required	Texas A&M Course(s)	Credit Hours
Arabic: Language A or B SL	4	ARAB 101	4
	5	ARAB 101, ARAB 102	8
	6	ARAB 101, ARAB 102, ARAB 201	11
	7	ARAB 101, ARAB 102, ARAB 201, ARAB 202	14
Arabic: Language A or B HL	3	ARAB 101	4
	4	ARAB 101, ARAB 102	8
	5	ARAB 101, ARAB 102, ARAB 201	11
	6	ARAB 101, ARAB 102, ARAB 201, ARAB 202	14
Biology SL	4	BIOL 113	3

Biology HL	4	BIOL 111	4
	5	BIOL 111, BIOL 112	8
Business Management SL	4	MGMT 309	3
Business Management HL	4	MGMT 309	3
Chemistry SL	4	CHEM 106/ CHEM 116	4
Chemistry HL	4	CHEM 119	4
	5	CHEM 119, CHEM 120	8
Chinese: Language A or B HL	3	CHIN 101	4
	4	CHIN 101, CHIN 102	8
	5	CHIN 101, CHIN 102, CHIN 201	11
	6	CHIN 101, CHIN 102, CHIN 201, CHIN 202	14
Chinese: Language A or B SL	4	CHIN 101	4
	5	CHIN 101, CHIN 102	8
	6	CHIN 101, CHIN 102, CHIN 201	11
	7	CHIN 101, CHIN 102, CHIN 201, CHIN 202	14
Classical Greek: A or B SL	4	CLAS 101	4
	5	CLAS 101, CLAS 102	8
	6	CLAS 101, CLAS 102, CLAS 211	11
Classical Greek HL	3	CLAS 101	4
	4	CLAS 101, CLAS 102	8
	6	CLAS 101, CLAS 102, CLAS 211	11
Computer Science SL	4	CSCE 111	4
Computer Science HL	4	CSCE 111	4
Economics SL	4	ECON 203	3
Economics HL	4	ECON 203	3

English: Lang. A SL	4	ENGL 104	3
English: Lang. A HL	4	ENGL 104	3
	5	ENGL 104, ENGL 222/ MODL 222	6
Environmental Systems	4	ENSS 105	3
French: Lang. A or B SL	4	FREN 101	4
	5	FREN 101, FREN 102	8
	6	FREN 101, FREN 102, FREN 201	11
	7	FREN 101, FREN 102, FREN 201, FREN 202	14
French: Lang. A or B HL	3	FREN 101	4
	4	FREN 101, FREN 102	8
	5	FREN 101, FREN 102, FREN 201	11
	6	FREN 101, FREN 102, FREN 201, FREN 202	14
Fundamentals of Music	5	MUSC 102	6
Further Mathematics SL	4	MATH 102	3
	5	MATH 150	4
Geography SL	4	GEOG 201	3
Geography HL	4	GEOG 201	3
German: Lang. A or B SL	4	GERM 101	4
	5	GERM 101, GERM 102	8
	6	GERM 101, GERM 102, GERM 201	11
	7	GERM 101, GERM 102, GERM 201, GERM 202	14
German: Lang. A or B HL	3	GERM 101	4
	4	GERM 101, GERM 102	8
	5	GERM 101, GERM 102, GERM 201	11

6	GERM 101, GERM 102, GERM 201, GERM 202	14
History HL		
Africa	4	HIST 104 3
Americas	4	HIST 105 3
	5	HIST 105, HIST 106 6
E & SE Asia and Oceania	4	HIST 104 3
Europe	4	HIST 102 3
South Asia & Middle East	4	HIST 104 3
History SL		
Islamic History	4	HIST 221/ RELS 221 3
Info Tech in a Global Society SL	4	PHIL 205 3
Info Tech in a Global Society HL	4	PHIL 205 3
Italian: Lang. A or B SL	4	ITAL 101 4
	4	ITAL 101, ITAL 102 8
	6	ITAL 101, ITAL 102, ITAL 201 11
	7	ITAL 101, ITAL 102, ITAL 201, ITAL 202 14
Italian: Lang. A or B HL	3	ITAL 101 4
	4	ITAL 101, ITAL 102 8
	5	ITAL 101, ITAL 102, ITAL 201 11
	6	ITAL 101, ITAL 102, ITAL 201, ITAL 202 14
Japanese: Lang. A or B SL	4	JAPN 101 4
	5	JAPN 101, JAPN 102 8
	6	JAPN 101, JAPN 102, JAPN 201 11
	7	JAPN 101, JAPN 102, JAPN 201, JAPN 202 14
Japanese: Lang. A or B HL	3	JAPN 101 4

4	JAPN 101, JAPN 102	8
5	JAPN 101, JAPN 102, JAPN 201	11
6	JAPN 101, JAPN 102, JAPN 201, JAPN 202	14
Latin SL	4	CLAS 121 4
	5	CLAS 121, CLAS 122 8
	6	CLAS 121, CLAS 122, CLAS 221 11
	7	CLAS 121, CLAS 122, CLAS 221, CLAS 222 14
Latin HL	3	CLAS 121 4
	4	CLAS 121, CLAS 122 8
	5	CLAS 121, CLAS 122, CLAS 221 11
	6	CLAS 121, CLAS 122, CLAS 221, CLAS 222 14
Mathematics SL	4	MATH 150 4
Mathematics HL	4	MATH 150 4
Mathematics: Analysis & Approaches SL	6	MATH 102 3
Mathematics: Analysis & Approaches HL	4 or 5	MATH 102 3
Mathematics Analysis & Approaches HL	5	MATH 150 4
	5	MATH 150, MATH 151 ¹ 8
Mathematics: Analysis & Approaches HL	6	MATH 102 or MATH 150 or MATH 151 3, 4, 4
Mathematics Applications & Interpretations SL	6	MATH 102 3
Mathematics Applications & Approaches HL	5 or 6	MATH 102 3
Mathematics Applications & Approaches HL	6	MATH 150 4
Mathematical Methods SL	4	MATH 102 3
	5	MATH 150 4

Mathematical Studies SL	4	MATH 102	3
	5	MATH 150	4
Music SL	4	MUSC 201	3
Music HL	4	MUSC 201	3
Other Languages SL	4	MODL 289	4
	5	MODL 289	8
	6	MODL 289	11
	7	MODL 289	14
Other Languages HL	3	MODL 289	4
	4	MODL 289	8
	5	MODL 289	11
	6	MODL 289	14
Philosophy SL	4	PHIL 251	3
Philosophy HL	4	PHIL 251	3
Physics SL	4	PHYS 201	4
Physics HL	4	PHYS 201, PHYS 202	4
Psychology SL	4	PBSI 107	3
Psychology HL	4	PBSI 107	3
Russian: Language A or B SL	4	RUSS 101	4
	5	RUSS 101, RUSS 102	8
	6	RUSS 101, RUSS 102, RUSS 201	11
	7	RUSS 101, RUSS 102, RUSS 201, RUSS 202	14
Russian: Language A or B HL	3	RUSS 101	4
	4	RUSS 101, RUSS 102	8
	5	RUSS 101, RUSS 102, RUSS 201	11
	6	RUSS 101, RUSS 102, RUSS 201, RUSS 202	14
Social and Cultural Anthropology SL	4	ANTH 210	3
Social and Cultural Anthropology HL	4	ANTH 210	3
Spanish: Lang. A or B SL	4	SPAN 101	4
	5	SPAN 101, SPAN 102	8

	6	SPAN 101, SPAN 102, SPAN 201	11
	7	SPAN 101, SPAN 102, SPAN 201, SPAN 202	14
Spanish: Lang. A or B HL	3	SPAN 101	4
	4	SPAN 101, SPAN 102	8
	5	SPAN 101, SPAN 102, SPAN 201	11
	6/7	SPAN 101, SPAN 102, SPAN 201, SPAN 202	14
Visual Arts SL	4	ENDS 101	3
Visual Arts HL	4	ENDS 101	3

¹ Credit for MATH 151 may be substituted for MATH 142 or MATH 171.

For instructions on accepting IB credit, please visit Testing Services (<http://testing.tamu.edu>).

SAT Subject Tests

Credits are offered to entering freshmen who score high on the SAT Subject Tests. High school students who are interested in taking these tests should contact their school counselors or write College Board ATP, Box 592, Princeton, NJ 08541.

Subject Test	Minimum Score Required	Texas A&M Course(s)	Credit Hours
Chemistry	630	CHEM 119	4
French	640	FREN 101	4
	740	FREN 101, FREN 102	8
German	630	GERM 101	4
	740	GERM 101, GERM 102	8
Italian	630	ITAL 101	4
	750	ITAL 101, ITAL 102	8
Latin	630	CLAS 121	4
	730	CLAS 121, CLAS 122	8
Physics	680	PHYS 201, PHYS 202	8
Spanish	630	SPAN 101	4
	750	SPAN 101, SPAN 102	8

The minimum score required is based on the re-centered scale. Students who took tests before April 1, 1995, should contact Testing Services to determine the minimum score required. For instructions

on accepting SAT Subject credit, please visit Testing Services (<http://testing.tamu.edu>).

Departmental Examinations for Entering Freshmen and Currently Enrolled Students

Qualified entering freshmen may take departmental tests after being officially admitted into Texas A&M University. Currently enrolled students can also take the exams throughout the year. Contact Testing Services (<http://testing.tamu.edu>) for registration information. The tests are prepared by participating Texas A&M departments. Current offerings include:

Code	Title	Semester Credit Hours
CHEM 119	Fundamentals of Chemistry I	4
CHEM 120	Fundamentals of Chemistry II	4
MATH 102	Algebra (Available to entering freshman only during the summer before beginning classes at Texas A&M)	3
MATH 142	Business Calculus (Available to entering freshman only during the summer before beginning classes at Texas A&M)	3
MATH 151	Engineering Mathematics I (Available to entering freshman only during the summer before beginning classes at Texas A&M)	4
MATH 152	Engineering Mathematics II (Available to entering freshman only during the summer before beginning classes at Texas A&M)	4
MATH 171	Calculus I (Available to entering freshman only during the summer before beginning classes at Texas A&M)	4
MATH 172	Calculus II (Available to entering freshman only during the summer before beginning classes at Texas A&M)	4
MATH 251	Engineering Mathematics III (Available to entering freshman only during the summer before beginning classes at Texas A&M)	3
PHYS 201	College Physics	4
PHYS 202	College Physics	4
PHYS 206	Newtonian Mechanics for Engineering and Science (Non-engineering majors also qualify for PHYS 226 credit)	3
PHYS 207	Electricity and Magnetism for Engineering and Science (Non-engineering majors also qualify for PHYS 227 credit) *	3

Graduate Admission

Graduate Admission

For information related to graduate admission, please contact:

Office of Graduate Admissions
Texas A&M University
P.O. Box 40001
College Station, TX 77842-4001
(979) 845-1060
admissions@tamu.edu
<http://admissions.tamu.edu/apply/graduate>

Please reference the *Texas A&M University Graduate and Professional Catalog* on this website.

Registration and Academic Status

Registration for the fall and spring semesters is accomplished at several times. During the fall and spring semesters (in November and April), a preregistration period is held for currently enrolled and readmitted students to register for the next semester. There are periods of announced open registration for students who were unable to preregister during the scheduled preregistration period. New Student Conferences serve as an opportunity for new undergraduate students to register. Further information concerning registration may be obtained from the academic calendar published in this catalog or from the Office of the Registrar. The schedule of classes is available online.

Full-Time Student

A full-time undergraduate student is defined as one who is registered for 12 semester hours during a fall or spring semester or 8 hours in a summer semester. Full-time enrollment for federal financial aid is always defined as 12 semester hours, including the summer term. A Q grade or W grade does not count toward the certification of enrollment status. Only hours for which a student is currently enrolled at Texas A&M University can be used toward certification of enrollment.*

**Students participating in the Blinn TEAM program or the TAMU Engineering Academy at Blinn Bryan program may have unique enrollment certification specifications based on the program agreements. Enrollment status for students in these programs is reported to the National Student Clearinghouse by Texas A&M University and includes enrolled hours from both institutions.*

Undergraduates Registering for Graduate Courses

A senior undergraduate student with a grade point average of at least 3.000 or approval of their academic Dean or designee, is eligible to enroll in a graduate course and reserve it for graduate credit. To do this, students must work with their academic advisor to submit a request online through the Course Level Change (CLC) System (<https://registrar.tamu.edu/administrative-services/degree-audit/course-level-change-system/>). The request must be approved by the course instructor, the student's major department head, and the dean of the student's undergraduate college. Undergraduate credit hours used to meet the requirements for a baccalaureate degree may not be used to meet the requirements for a graduate degree.

An academically superior undergraduate student with a grade point average of at least 3.250 or approval of their academic Dean or designee, is eligible to apply graduate credit hours toward their undergraduate

degree program. To do this, students must work with their academic advisor to submit a request online through the Course Level Change (CLC) System (<https://registrar.tamu.edu/administrative-services/degree-audit/course-level-change-system/>). The petition must be approved by the course instructor, the student's major department head, and the dean of the student's undergraduate college. Graduate credit hours used to meet the requirements for a baccalaureate degree may not be used to meet the requirements for a graduate degree.

VA Benefits

Students who are military veterans should note that to receive full VA benefits they must be registered for enough hours to be considered full-time for their degree during each term they are seeking benefits. This number may differ between degrees and during the summer semester. For hour requirements, please visit Veterans Services.

Maximum Schedule

An undergraduate student with an overall grade point average of 3.0 or better may register for a course load in excess of 19 hours in a fall or spring semester with the approval of their advisor. An undergraduate student with an overall grade point average of less than 3.0 must obtain approval from their dean before registering for a course load in excess of 19 hours in a fall or spring semester.

Classification

Each student has a classification which indicates the type of degree program in which the student is enrolled, and reflects the student's progress within that program. The classifications are:

Code	Classification Definition
U0	Undergraduate Non-degree Students with a high school diploma (with the exception of high school concurrent enrollment participants) who do not intend to pursue a baccalaureate degree at Texas A&M University. This includes: a. Summer session only students. b. Local residents or university employees taking courses on a part-time basis. c. Others as may be deemed appropriate by the Office of Admissions and the school, college or program of admission.
	Undergraduate non-degree students are not permitted to enroll in courses until all degree seeking students have had the opportunity to enroll. Undergraduate non-degree enrollment begins on the first day of open registration. Enrollment may be limited by college or program policies. Admitted students are not eligible for refund of the admission processing fee regardless of course availability.

An undergraduate non-degree student must maintain a 2.0 GPA on all coursework attempted to remain eligible to register. Enrollment is subject to review at the end of each semester of enrollment. Enrollment beyond two years of attendance will be approved only in exceptional cases.

Should an undergraduate non-degree student desire admission to a degree program, regular formal application is necessary, including: a complete application for admission, the required application processing fee, the submission of all required credentials, and the meeting of all admission requirements.

An undergraduate non-degree student may not take graduate-level coursework.

Undergraduate non-degree students are subject to TSI and English proficiency requirements.

An undergraduate non-degree student does not qualify for financial aid through the University. With few exceptions, undergraduate non-degree status is not available to international students.

U1	Freshman 0-29 hours
U2	Sophomore 30-59 hours
U3	Junior 60-89 hours
U4	Senior 90+ hours
U5	Postbaccalaureate Undergraduate Students with a recognized baccalaureate degree who wish to complete requirements for a second baccalaureate degree at Texas A&M University or to complete established Texas A&M University certification requirements. The postbaccalaureate undergraduate classification (U5) has all the privileges and responsibilities of a senior classification (U4). Recipients of a Texas A&M University baccalaureate degree are not eligible for continued enrollment unless they have the specific approval of the school or college offering the second bachelor's degree or certification. Should they break enrollment, they must apply for readmission as second bachelor's degree candidates.

A candidate for a second baccalaureate degree must complete all the essential work of the second degree not covered in the first. In all such cases, the total semester hours required must be at least 30 semester hours additional to the greater number required for either degree (see Two Degrees in the Degree Information section). To pursue a second baccalaureate degree concurrently with the pursuit of the initial degree, all essential work required for a second degree must be defined in advance in writing by the dean of the school or college granting the second degree. To pursue a second baccalaureate degree sequentially requires admission to a second bachelor's degree classification. Pursuit of a second baccalaureate degree may be limited or may not be allowed by some schools or colleges.

Academic Status

Distinguished Student and Dean's Honor Roll

An undergraduate student who completes a semester schedule of at least 15 graded hours or a summer term schedule of at least 12 graded hours with no grade lower than C and with a grade point average of not less than 3.5 for the semester or for a summer term shall be designated "distinguished student." A student who, under the same circumstances, achieves a grade point average of at least 3.75 shall also be designated as a member of the "dean's honor roll." First-semester freshmen must complete a semester schedule of at least 15 hours with no grade lower than a C, no Q-drops, and with a grade point average of not less than 3.5 for "distinguished student" designation and a 3.75 for "dean's honor roll." Official notification of these designations will be issued to the student by the dean of the student's college. The hours earned with a grade of S shall not be included in determining minimum hours required for the designation of "distinguished student" or "dean's honor roll." A grade of I or U disqualifies a student from being considered as a "distinguished student" or for the "dean's honor roll." Grades of Q, W, and NG may not be included in the 15 graded hours. Only undergraduate courses or graduate courses used for the undergraduate degree will be used in either calculation.

Scholastic Probation

Scholastic probation is conditional permission for an undergraduate student to continue in the University after he or she has become scholastically deficient. For university policy regarding scholastic deficiency and scholastic probation, see the Texas A&M University Student Rules (<http://student-rules.tamu.edu>).

Withdrawal from the University

An official withdrawal from the university will result when a student drops all in progress and courses not yet started in a particular term. A student who withdraws from the university before the completion of a semester or summer term is required to comply with the official

withdrawal procedure. This process is initiated by submitting a request in the Howdy portal. Students may not withdraw after the Q-drop deadline. The student's dean will retain the authority to support a student withdrawal after the deadline.

If a student is enrolled in one or more inter/intra-session ("minimesters") or summer sessions and chooses to withdraw, all current and future in-progress courses for the entire semester will be dropped. The student will be ineligible to register for courses for the remainder of that semester.

For university policy regarding withdrawal, see the Texas A&M University Student Rules (<http://student-rules.tamu.edu>).

Official University Communications

Texas A&M may use email for official communications. It is each student's responsibility to claim their Texas A&M University email account (<http://gateway.tamu.edu>) and to check that account on a frequent and consistent basis.

Correct Addresses

It is necessary to have a correct mailing address on file with the University. Students may change their address in Howdy. International students must have a correct physical and permanent address.

Grading System

Because students attend a college or university to extend their education, grades are usually given as an indication of the proficiency of their endeavors. The student's semester grade in a course shall be based upon performance and/or participation in class, exercises and tests, laboratory work and final examination, as applicable to the course. The proportionate weight assigned to each of the factors shall be determined by the department administering the course.

The basis upon which the final grade will be determined shall be distributed in written form to the class during the first class meeting.

There are five passing grades at the undergraduate level, A, B, C, D and S, representing varying degrees of achievement; these letters carry grade points and significance as follows:

A	Excellent, 4 grade points per semester hour
B	Good, 3 grade points per semester hour
C	Satisfactory, 2 grade points per semester hour
D	Passing, 1 grade point per semester hour
F	Failing, no grade points, hours included in GPA calculation
I	Incomplete, no grade points, hours not included in GPA calculation
NG	No grade, grade removed from record, no grade points, hours not included in GPA calculation
Q	Course dropped with no penalty, no grade points, hours not included in GPA calculation
S	Satisfactory (C or above), no grade points, hours not included in GPA calculation

U	Unsatisfactory (D or F), no grade points, hours included in GPA calculation
X	No grade submitted, no grade points, hours not included in GPA calculation
W	Withdrew, no grade points, hours not included in GPA calculation (effective Spring 1996)
F*	Aggie Honor Code violation, no grade points, hours included in GPA calculation
U*	Aggie Honor Code violation, no grade points, hours included in GPA calculation

There are two failing grades, U and F, indicating work of unsatisfactory quality.

Repetition of a Course to Improve Grade

Any undergraduate student who wishes to repeat a course must do so before they complete a more advanced course in the same subject. What constitutes a more advanced course will be determined by the head of the department offering the course.

Credit for a course failed may be obtained only by registering for and repeating the course. The original grade will remain on the student's permanent record, and both grades will be used in computing the GPA. An F or U previously earned is not removed once the course is passed. Credit for each repeated course may only be used once toward degree requirements.

A student repeating a course completed at Texas A&M in which a grade of B or better has been earned will not receive grade points for the repeated course, unless the catalog states the course may be repeated for credit.

I and X Grades

A temporary grade of I (incomplete) at the end of a semester or summer term indicates that the student has completed the course with the exception of a major quiz, final examination or other work. The instructor shall give this grade only when the deficiency is due to an excused absence or other cause beyond the control of the student.

The remaining work must be completed in accordance with excused absence rules. See Student Rule 7 (<https://student-rules.tamu.edu/rule07/>). The instructor shall resolve the I grade before the last day of scheduled classes of the next fall or spring semester in which the student enrolls in the University unless the student's academic dean, with the consent of the instructor (in the absence of the instructor, the department head), grants an extension of time for good reason. If the incomplete grade is not resolved within this time or if the student registers for the same course again, the I will be changed to an F by the Office of the Registrar.

The X notation is assigned to a course by the Office of the Registrar at the end of a semester or summer term only when a grade is not submitted by the instructor. The Office of the Registrar will notify the dean of the college in which the course is taught that an X notation has been made. The dean of the college offering the course will request, through the department head, that the instructor submit a Grade Change

Request online in Howdy, removing the X notation and assigning a grade. The instructor will have 30 days from the beginning of the succeeding semester or summer term to report a change of grade to the Office of the Registrar. If a Grade Change Request is not received during this time period, the Office of the Registrar will automatically remove the X notation and assign a grade of F.

Q-Drop, Add and Drop

1. A student may enroll in a class during the first five class days of a fall or spring semester or during the first four class days of a summer term. A student requesting to add a course after these deadlines must have the approval of the student's dean or designee and department.
2. A student may drop a course with no record during the first 12 class days of a fall or spring semester and during the first four class days of a summer term. Following this period, if approved by the dean of the college or their designee, a student may drop a course without penalty through the 60th class day of a fall or spring semester, the 15th class day of a summer term or the 35th class day of a 10-week summer semester. The symbol Q shall be given to indicate a drop without penalty.

Under section 51.907 of the Texas Education Code, "an institution of higher education may not permit a student to drop more than six courses, including any course a transfer student has dropped at another institution of higher education." Any course that a student drops is counted toward the six-course limit if "(1) the student was able to drop the course without receiving a grade or incurring an academic penalty; (2) the student's transcript indicates or will indicate that the student was enrolled in the course; and (3) the student is not dropping the course in order to withdraw from the institution." Some exemptions for good cause could allow a student to drop a course without having it counted toward this limit, but it is the responsibility of the student to establish that good cause. Undergraduate students at Texas A&M will normally be permitted four Q-drops during their undergraduate studies. However, in order to comply with this statute, a student who has dropped courses at other Texas public institutions may not be permitted four Q-drops if the student's total number of dropped courses would exceed the State limit of six.

3. Any course taught on a shortened format or between regularly scheduled terms will have add/drop, Q-drop and withdrawal dates proportionally the same as if the course were offered in a regular term. These dates will be determined by the Office of the Registrar.
4. After the Q-drop period has elapsed, a course may be dropped and a grade of W recorded if the student's dean determines that unusual circumstances exist to warrant a late drop.

Satisfactory/Unsatisfactory

Undergraduate students may be permitted to take courses in their degree programs at Texas A&M on a satisfactory/unsatisfactory (S/U) basis consistent with the requirements of the student's college. The hours for which a student receives a grade of satisfactory shall not be included in the computation of the student's semester or cumulative GPA; a grade of unsatisfactory shall be included in the computation of the student's grade points per credit hour as an F. A grade of satisfactory (S) will be given only for grades of C and above; a grade of unsatisfactory (U) will be given for grades D and F. The hours earned on a satisfactory/unsatisfactory basis shall not be included in the designation of distinguished student or dean's honor roll.

Students on probationary standing may be required to take electives on an S/U basis as determined by published college policies.

Students must register for courses on an S/U basis during the official registration periods and shall not be permitted to change the basis on which their grades will be recorded on their official transcripts, except for unusual circumstances and with the approval of the student's academic dean.

Students registered for KINE 199 who wish to change the grade type from a graded course to S/U or from S/U to a graded course, may do so in Howdy. All requests for KINE 199 changes must be completed on or before the Q-drop deadline for the fall, spring or summer semester.

Grade Point Average (GPA)

Only the grade earned in coursework for which the student was registered in this institution shall be used in determining his or her grade point average. Students anticipating graduating with honors should refer to that section of this catalog for information concerning the computation of grade point averages for that purpose.

A student's grade point average for any period shall be computed by dividing the total number of semester hours for they received grades into the total number of grade points earned in that period. Semester credit hours to which grades of F or U are assigned shall be included; those involving grades of W, Q, S, X, I, and NG shall be excluded.

Classification

Classification for academic purposes shall be based solely on scholastic progress as shown by the official records in the Office of the Registrar. Sophomore, junior and senior classification will be granted students who have passed 30, 60 and 90 semester hours, respectively.

Grade Reports

Mid-semester Report

Near the middle of the fall and spring semesters, a preliminary report, showing the current progress of undergraduate students who have completed less than 30 semester credit hours of coursework at Texas A&M, and of a selected group of other students that the academic deans/departments are monitoring, will be made available. Preliminary grades are not recorded on the student's permanent record. Grades are available in Howdy.

Final Grade Report

End of semester final grades are available in Howdy. No student grade may be posted in a manner that is personally identifiable unless the student has given written consent in advance.

Parent/Guardian Access to Grades

A parent or guardian may access midterm and final grades in Howdy after the student sets the parent access password. The Office of the Registrar cannot access the passwords created by students for parental access.

Semester Credit Hour

A lecture course which meets one hour per week for 15 weeks is worth 1 semester credit hour. Thus, a course worth 3 semester credit hours meets three hours per week. Credit hours for laboratory courses are determined to be some fraction of the number of hours spent in class.

For further information, see Texas A&M University Rule 11.03.99.M1 Definition of a Credit Hour (<https://rules-saps.tamu.edu/PDFs/11.03.99.M1.pdf>), which complies with the Texas Higher Education Coordinating Board definition of minimum course lengths as part of the Texas Administrative Code, "Minimum Length of Courses and Limitation on the Amount of Credit that a Student May Earn in a Given Time Period." For more information, please see the Texas Administrative Code online (<https://www.sos.state.tx.us/tac/index.shtml/>).

Transcripts

Students applying for admission to Texas A&M are required to submit transcripts of previous academic work and in some cases, results of standardized tests. The submission of altered documents or the failure to furnish complete and accurate information on admission forms will be grounds for disciplinary action.

Individuals who have attended the University may obtain an official transcript of their work. A fee will be charged for each copy. During grading and degree posting, official transcripts may be produced for enrolled students only after all courses for that semester or term have final grades processed. Students and former students may submit a Transcript Request Order form in person or online through the Myhub portal for the National Student Clearinghouse. Transcript requests will not be accepted over the phone. A transcript request ordered through the Myhub portal must be paid by using a credit card from a United States bank. Requests made in person may be paid with check, money order or a credit card.

Housing

Student Life - Off Campus Student Services

The Bryan-College Station community offers a variety of options for living off campus. Student Life provides resources and information to students preparing to or currently living off campus. Students are encouraged to stay informed about best practices for living off campus, whether you are new to living off campus or continuing off campus. Being a good neighbor means staying informed and complying with city rules and community standards. Frequent city code violations include:

- Occupancy -#Per city ordinance, no more than four unrelated individuals can reside in a single-family home. So, remember me +3 before you sign a lease.
- Noise -#Community ordinances are clear that it is unlawful for anyone to engage in "loud noise" that, because of its volume level, duration, or character, annoys, disturbs, injures, or endangers the comfort, health, peace, or safety of reasonable persons of ordinary sensibilities within the limits of the city, especially during the hours of 10 p.m. to 6 a.m.
- Trash -After collecting trash, tenants have 12 hours to remove the sanitation container from the street.
- Parking -Not following parking rules could result in a parking violation or an emergency vehicle being unable to access someone in need. Do your part in being a good neighbor and ensure you know parking guidelines.

There are plenty of options to live in the Bryan/College Station community. AggieSearch is a fully searchable database that allows students, parents, faculty, staff and guests to find off-campus housing that meets their needs. AggieSearch to learn more.

Securing your new place in Aggieland means signing a lease. Reading and understanding the lease is critical before signing a lease. Leases are legally binding in Texas, and there are minimal means to get out of the lease. Remember these key tips before signing a lease:

- Read everything.
- All requests should be put in writing.
- Keep a copy of everything.
- Don't be afraid to ask questions.

#To learn more about off-campus living, visit the Student Life website.

Pay By Semester Housing: Residence Halls and White Creek Apartments

<http://reslife.tamu.edu>

Admission to the University is required prior to apply for campus housing.

Undergraduate students can apply for campus housing online. Applications should be completed as soon as possible following admission since the date of application for housing is important in the housing assignment process. An application fee is required at the time of application.

On-campus housing is assigned on a first-come, first-served basis. With the exception of the Corps of Cadets, students are not required to live on campus at Texas A&M.

University Apartments (The Gardens Apartments)

<http://reslife.tamu.edu/apartments>

Available for graduate students, married students, students with dependent children, international students, U.S. military veteran students, or undergraduate students who are sophomores, juniors, seniors or non-traditional first year students.

Fully furnished one- and two-bedroom units are available. Rent for The Gardens is paid monthly and includes furniture, parking, cable TV service, high-speed internet, and all utilities. Electricity charges are covered up to \$125 per apartment; any amount over \$125 will be billed to the residents of the apartment. All leases are either 9 1/2- or 12-month leases.

Application forms, rental rates and additional information may be obtained online at <http://reslife.tamu.edu/apartments>.

Orientation

New Student Conferences

<http://newaggie.tamu.edu>

- New Student Conferences are held each year for undergraduate students entering Texas A&M University. New students are required to register for and attend a conference in order to accept their offer of admission and register for classes.
- During the conference, new students learn about valuable university services and meet with academic advisors for curriculum advising and selection of first-semester courses.

Additional services and programs from Student Life - New Student and Family Programs:

- Howdy Week: Aggieland's Official Welcome (<https://howdyweek.tamu.edu/>) - held each fall and spring
- Aggie Parent and Family Programs (<http://familyprograms.tamu.edu>) - support and outreach including a family communication portal open to all Aggie families
- Family Weekend (<http://familyweekend.tamu.edu/>) - held each spring to honor and celebrate family members as they support their Aggie student
- Supervision and advising of Aggie Orientation Leaders (<https://newaggie.tamu.edu/studentleadership/ol/>) and Aggie Parent and Family Ambassadors (<https://familyprograms.tamu.edu/apfa/>)
- Publications for incoming students and family members

Extended Orientation

Excellence uniting Culture, Education, and Leadership (ExCEL)

<https://excel.tamu.edu/>

Excellence uniting Culture, Education, and Leadership (ExCEL) is a recognized student organization designed to help new students find academic, social, and personal balance at Texas A&M by fostering a community where they can holistically connect to campus. Since 1984, ExCEL has assisted new Aggies in making a smooth transition to campus by orienting them to the program through a conference, cultivating relationships between peers and mentors, providing a sense of social belonging, offering academic and personal support, and serving as a resource for transitioning into Aggie life.

ExCEL launches with the ExCEL Conference in the fall. During the conference, students become familiar with the year-long program, upper-class peer mentors, a peer group, and fellow freshmen. The conference consists of motivational speakers, dialogue within peer groups, sessions focused on personal development, and meet and greet activities. Following the conference, academic, social, and community development activities begin through the close of the spring semester.

ExCEL is student-run and information can be obtained by contacting excel@tamu.edu.

Fish Camp

<http://fishcamp.tamu.edu>

Fish Camp is an extended orientation program designed to provide incoming freshman the opportunity to establish relationships, meet student leaders, become familiar with Aggie traditions, the core values, and learn about campus life at Texas A&M. Held during a three-week period preceding the Fall semester, each three-day, two-night session is designed to aid students with the transition from high school to college and, particularly, to Texas A&M.

Peer counselors, as well as faculty and staff, speak on topics such as student involvement, academic and campus resources, personal development, community-building, and traditions. In addition to providing educational programs, large-group activities, and small group discussions, Fish Camp allows students to get to know each other through recreation, free time activities, and evening social programs. Participants of Fish Camp will have the opportunity to continue gathering with their camps and small groups through different activities and events

during the Fall semester. For more information on Fish Camp and to learn how to register, please visit our website.

Howdy Camp

<http://atc.tamu.edu>

Occurring in early January, Howdy Camp is a three-day, two-night extended orientation program for undergraduate students entering Texas A&M in the spring semester. Peer counselors, as well as faculty and staff, speak on topics such as student involvement, academic and campus resources, personal development, Texas A&M Core Values, and university traditions. In addition to providing educational programs, staff also lead large-group social activities and facilitate conversations within small discussion groups.

After camp, counselors and other staff will support students by providing support and helping students locate campus resources and opportunities to get involved during their first semester at Texas A&M. Program staff will also plan activities for the camps and small discussion groups throughout the spring semester.

For more information on Howdy Camp and how to register for a session, please visit the ATC website listed above.

Transition Camp (T-Camp)

<http://atc.tamu.edu>

Held annually in August, T-Camp is a three-day, two-night extended orientation program for undergraduate transfer and other non-traditional students entering Texas A&M in the summer and fall semesters. Peer counselors, as well as faculty and staff, speak on topics such as student involvement, academic and campus resources, personal development, Texas A&M Core Values, and university traditions. In addition to providing educational programs, staff also lead large-group social activities and facilitate conversations within small discussion groups.

After camp, counselors and other staff will support students by providing support and helping students locate campus resources and opportunities to get involved during their first semester at Texas A&M. Program staff will also plan activities for the camps and small discussion groups throughout the fall semester.

For more information on T-Camp and how to register for a session, please visit the ATC website listed above.

Venture Camp Programs

<https://recsports.tamu.edu/programs/outdoor-adventures/venture-camp/>

The Extended Orientation Team in the Department of Student Activities has partnered with the Outdoor Adventures Program in the Department of Rec Sports to welcome first year students, transfer students, and other undergraduate student populations through the Venture Camp Programs. Program offerings change from year to year depending on various factors, so we recommend you visit our website to learn more about the programs available each year. Past programs have included 9 day backcountry backpacking trips in Eastern New Mexico, weeklong paddling trips along the Buffalo River in Arkansas, as well as a weeklong base camp program where participants will stay in a common location at night and take part in different activities like rock climbing, hiking, and paddling each day. On all of our programs, participants can expect to meet other incoming students, current students and staff, learn about the traditions and core values of Texas A&M, hear about campus resources to

help them in their transition to Texas A&M, and to challenge themselves in new ways through different activities.

Previous outdoor experience is not required for any of these programs, but a willingness to be an active participant and a team player is very important!

To learn more about these programs and how to register, please visit our website listed above.

Aggie Honor Code

Integrity is a fundamental core value of Texas A&M University.

Academic integrity requires a commitment by all faculty, students, and administrators to:

- Remain constantly focused on the quality of the academic programs
- Achieve and maintain academic excellence in all courses and programs to assure the value of Texas A&M University degrees
- Demand high academic standards from all members of the Aggie community
- Actively promote academic integrity
- Confront instances of academic misconduct through engagement in the Aggie Honor System Office rules and procedures

All Texas A&M University students, graduate and undergraduate, part-time or full-time, in residence or in distance education, are expected to follow the guiding rule of the Aggie Honor Code:

"An Aggie does not lie, cheat or steal, or tolerate those who do."

Upon accepting admission to Texas A&M University or one of its branch campuses, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning, and to follow the philosophy and rules of the Honor System. A student will be required to state his/her commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the Texas A&M community from the requirements or the processes of the Honor System.

The Honor System Office is charged with promotion of the honor code and administration of academic misconduct cases. The Honor Council, comprised of students and faculty from colleges and offices across the University, will investigate all such infractions of the honor code and recommend appropriate sanctions. The website, <http://aggiehonor.tamu.edu>, defines the types of infractions and the possible consequences. Students are urged to review this information.

In addition to adherence to the Honor Code, a student (graduate students in particular) who is completing a thesis, record of study, dissertation, and publication may fall under the additional federal requirements promulgated by the Office of Research Integrity (Scientific Misconduct Regulations — 42 CFR part 50), as well as Texas A&M System Regulations and Texas A&M University Rules (Texas A&M System Regulations — Ethics in Research, Scholarship and Creative Work — 15.99.03 (<https://www.tamus.edu/legal/policy/policy-and-regulation-library/>), and Texas A&M University rules and standard administrative procedures — Responsible Conduct in Research and Scholarship — 15.99.03.M1, 15.99.03. M1.01-06 (<http://rules-saps.tamu.edu/TAMURulesAndSAPs.aspx#15>)).

Contact information for each campus can be found at the following:

- Texas A&M University website - <http://aggiehonor.tamu.edu>
- Texas A&M at Galveston website - <https://www.tamug.edu/HonorSystem/>
- Texas A&M at Qatar website - <https://www.qatar.tamu.edu/students/academic-services/aggie-honor-system/>

Aggie Honor System Office

<http://aggiehonor.tamu.edu>

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Texas A&M University students are responsible for authenticating all work submitted to an instructor. If asked, students must be able to produce proof that the item submitted is indeed the work of that student.

Students must keep appropriate records at all times. The inability to authenticate one's work, should the instructor request it, is sufficient grounds to initiate an academic dishonesty case.

Office for Student Success

About Us

The mission of the Office for Student Success (<https://studentsuccess.tamu.edu/>) is to advance student success outcomes at Texas A&M University by developing programs and supporting initiatives focused on student retention, achievement, and timely graduation. To all undergraduate, first-generation, and transfer students: we are your advocates.

Initiatives

- Academic Advising (<http://tx.ag/OSSadvising/>): Our office helps undergraduate students stay on track for graduation through in-person and virtual advising sessions. Students can ask questions through our Student Success Help Desk (<https://studentsuccess.tamu.edu/academic-advising/student-success-help-desk/>) and find their academic advisors through Find My Advisor (<https://studentsuccess.tamu.edu/academic-advising/for-students/find-my-advisor/>). We also provide leadership for Academic Advisor Career Development at Texas A&M University through training and professional development for undergraduate academic advisors.
- Hullabaloo U (<http://tx.ag/OSSFYE/>): Texas A&M's first-year experience course is designed to help freshmen make a successful transition to Aggieland. Each 25-student section meets for 50 minutes a week with their faculty/staff instructor and student peer mentor to discuss topics such as adjusting to college life, taking advantage of campus resources, and developing skills to achieve personal, academic and career goals. First-year students will learn more about Hullabaloo U at their New Student Conference (<https://newaggie.tamu.edu/>).
- The Routh First-Generation Center (<https://studentsuccess.tamu.edu/routh-first-gen-center/>): The Routh First-Generation Center supports all first-generation students at Texas A&M University through high-impact experiences, student involvement opportunities, and a Gen1 Learning Community. First-gen students – students whose parents or guardians have not earned a bachelor's degree – are invited to visit the Routh First-Generation Center Lounge and get involved with our staff, resources, and events throughout their time at Texas A&M. More than 20% of Texas A&M students are first-generation and we believe that should be celebrated!
- Transfer Student Program (<http://tx.ag/OSSTransfers/>): Students transferring to Texas A&M University can find resources and support from the Transfer Student Program (TSP). TSP helps transfer students get connected with a community. TSP hosts transfer peer mentorship, a Transfer Connection Workshop series, academic and social programming, and so much more! Visit us in the Transfer Village (Hotard Hall) to get involved.
- Navigate Student (<https://studentsuccess.tamu.edu/eab-navigate-for-students/>): Make every semester count with the Navigate Student app! Designed to get you from NSC to graduation, students can view their class schedule, explore campus resources, schedule advising appointments, keep up with deadlines, and much more. Available in the App Store and Google Play.

More Information

The Office for Student Success is located in Hotard Hall – across the street from Northside Garage. Visit studentsuccess.tamu.edu (<https://studentsuccess.tamu.edu/>) or email us at studentsuccess@tamu.edu for more information about our office, mission, and initiatives. Follow us on Instagram (<https://www.instagram.com/tamuoss/?hl=en>), X (<https://twitter.com/TAMUOSS/>), YouTube (<https://www.youtube.com/channel/UCF55VU8Tb6Gqepwk-SNAerg/>), and Facebook (<https://www.facebook.com/TAMUOSS/>) for student success news, stories, and events on campus.

Services for Students

Academic Advising

Academic advising is an interactive partnership between a student and an academic advisor. Through teaching and learning experiences, the student sets goals, acquires information and services to make decisions consistent with interests, goals, abilities and degree requirements.

Academic advising at Texas A&M University is an important component of student learning and degree completion, contributing to the academic success of all students through:

- Supporting student achievement of the University Learning Outcomes and commitment to lifelong learning
- Being responsible to and respectful of the individual student
- Encouraging commitment to lifelong learning by directing students toward opportunities to interpret, reflect upon, and apply their classroom experiences in ways relevant to their careers and their lives
- Interpreting and conveying Texas A&M University's mission to students

- Supporting the educational policies, procedures and values of the department, college and university; likewise, academic advising relies on the support and resources of the university, college and department
- Involving other university programs, services and individuals, when appropriate in the advising process
- Being responsible for professional academic advising, training, development and practices to ensure knowledge and skills stay relevant.

Academic Success Center

The Academic Success Center (<http://asc.tamu.edu>) helps all Aggies achieve their academic goals and fulfill their academic potential. We provide exceptional quality academic support services and resources in a welcoming environment, including:

- Success Coaching (<https://asc.tamu.edu/success-coaching/>), personalized meetings with a professional or peer coach to help you improve your academic performance, available in person or online
- Courses and workshops (<https://asc.tamu.edu/strivingforsuccess/courses-workshops/>) on study strategies, time management, motivation, and related topics
- Supplemental Instruction (<http://asc.tamu.edu/Supplemental-Instruction/>) (SI), available in some courses, to be announced by the instructor
- Tutoring (<https://asc.tamu.edu/tutoring/>) online and in-person at Evans Library and Zachry Education Complex
- Texas Success Initiative (<http://asc.tamu.edu/TX-Success-Initiative/>) (TSI) to support students working to fulfill state requirements
- StudyHub (<http://studyhub.tamu.edu>) to help you find academic help on the College Station, Galveston, and McAllen campuses

Also check out the Academic Success Center study and learning handouts (<https://asc.tamu.edu/study-learning-handouts/>) and YouTube (<https://www.youtube.com/channel/UCF55VU8Tb6Gqepwk-SNAerg/>) channel and keep up with our events by following us on Instagram or Facebook. *Undergraduate Studies' units have modified services available to students enrolled via distance education, at branch campuses, or at other instructional locations.*

Career Center

The Texas A&M University Career Center provides comprehensive services, programs, and resources to undergraduate, graduate and former students to support you in exploring career opportunities, preparing for the job search, gaining relevant experience, developing professionally, seeking admission to graduate and professional school, and securing professional employment upon graduation. Our goal is to assist you every step of the way, from admission through graduation, and after, as a Former Student. We offer a variety of programs, services and resources:

- Career and Major Exploration, Assessment, and Planning
- Introduction to Career Readiness Goals
- Job Search, Resume Writing, and Interview Preparation Tools
- Professional Networking Resources and Events
- Campus Recruiting for Aggies seeking Full-Time Positions, Internships, Externships, and Cooperative Education
- Assistance with Professional and Graduate School Applications and Interviews

- Presentations to Classes and Student Organizations, Workshops and Panel Discussions, Career Fairs, and Webinars
- Employer, Professional School and Graduate School Contacts
- Individual Appointments, Drop-in Advising, Open Office Hours, Mock Interviews

One of the largest centralized Career Centers in the nation, the Texas A&M University Career Center has been recognized nationally and regionally for our many Best Practices. The Career Center can be found online at careercenter.tamu.edu (<http://careercenter.tamu.edu/>) and is located in the Koldus Building, Suite 209, with additional satellite offices located in Zachry, Wehner, Kleberg, Eller, Nagle, and the Texas A&M Higher Education Center in McAllen.

Department of Multicultural Services

<http://dms.tamu.edu/>

The Department of Multicultural Services (DMS) fosters meaningful student connections to campus through active, intentional, and ongoing engagement programming. The department has a mission to provide multiple developmental experiences to cultivate transition through meaningful social engagement, foster a culture where students can thrive, and develop students' capacities to work productively and collaboratively with others in preparation for an increasingly complex world. DMS connects students to and engages students while on campus with the intent to enhance their overall educational experience.

Located in the Memorial Student Center (MSC), DMS helps meet student connection, transition, collaborative teamwork, and career preparedness needs which all work together to aid in student retention, persistence, graduation, and successful transition into their professional roles. The department maintains a welcoming and engaging environment for all students.

Department of Residence Life

<http://reslife.tamu.edu/>

- Responsible for the operation of on-campus residence halls and University Apartments (White Creek and Gardens Apartments). Summer occupancy of on-campus residence halls is open to undergraduate and graduate students.
- University Apartment units (<http://reslife.tamu.edu/apartments> (<http://reslife.tamu.edu/apartments/>)) are available for graduate students, students with dependent children, veterans, international students, married students or single undergraduate students without children who are sophomores, juniors, seniors or non-traditional freshmen (The Gardens).

Disability Resources

<http://disability.tamu.edu>

- Collaborates with faculty, staff and students to achieve access for students with disabilities.
- Interacts with students to determine reasonable accommodations to remove barriers.
- Facilitates accommodations including (but not limited to): exam accommodations, sign language interpreting and transcription, assistive technology, and classroom accommodations.
- Consults with all campus entities on providing access for disabled students.

Aggie Dining

dineoncampus.com/tamu (<https://dineoncampus.com/tamu/>) | @AggieDining (<https://qrco.de/bcmPal/>)

- By cooking with heart and serving with kindness, the dining program at Texas A&M is like no other! With over 50 dining locations across more than 5,000-acres, you can explore a new menu every day! Our 3 all-you-care-to-eat dining halls offer diverse, made-from-scratch meals with vibrant, global flavors that meet your homecooked expectations. Aggie Dining also offers a variety of retail dining locations – from favorite national brands like Chick-fil-A and Starbucks, to Aggieland favorites like Copperhead Jack's, Rev's American Grill, and Houston Street Subs! For a full map of Aggie Dining locations, visit their website here (<https://dineoncampus.com/tamu/campus-map/>).
- Budget and save while dining on campus with a campus Meal Plan! Aggie Dining offers a variety of meal plan sizes and options to fit every student's lifestyle. Students living both on and off campus can sign up for a campus Meal Plan by visiting the Meal Plan website (<https://mealplans.tamu.edu/Default.aspx?ReturnUrl=%2F>). To learn more about Meal Plans and how they work, please visit Aggie Dining's website (<https://dineoncampus.com/tamu/>).

George H.W. Bush Presidential Library and Museum

<https://www.bush41.org> (<https://www.bush41.org/>)

The George H.W. Bush Presidential Library and Museum at Texas A&M University is dedicated to preserving and making available the records and artifacts of George H.W. Bush, 41st President of the United States.

We promote civic literacy and increased historical understanding of our national experience, and foster a community of public service and volunteerism. We accomplish this mission by offering:

- Rich Educational and Public Programs
- Original Museum Exhibits
- Access to our Archival Holdings
- Research Opportunities
- Special Events
- Unique Volunteer and Internship Positions
- Foundation Memberships

The George H.W. Bush Presidential Library and Museum can be found online at <https://www.bush41.org> (<https://www.bush41.org/>) and is located at 1000 George Bush Drive West, College Station, Texas 77845. For additional information on the resources the George Bush Presidential Library and Museum have to offer please call (979) 691-4000 for all Museum inquiries or (979) 862-2251 for all Foundation or Membership inquiries.

International Student and Scholar Services

<https://global.tamu.edu/iss/>

International Student and Scholar Services (ISSS) is part of the Department of Global Engagement. Established in 2022, Global Engagement spearheads internationalization at Texas A&M by offering collaborative leadership, strategic coordination, and support for the development and sustainability of global programs and services across the university. Learn more at <https://global.tamu.edu/>. International

Student and Scholar Services provides the following support services to international students (defined as students who are not U.S. citizens or lawful permanent residents):

- Pre-arrival information
- Certificates of Eligibility (Forms I-20 and DS-2019)
- New Student Check-in and Resources
- Represent the University with the Department of Homeland Security, including the Student Exchange Visitor Information System (SEVIS), and the Department of State
- Assist students with federal immigration regulation compliance
- Immigration advising
- Liaison for students, university, and community
- International student employment information
- Workshops about immigration benefits
- Provide tax software and resources
- Coordinate with the Texas A&M University System Student Health Insurance Plan provider and students
- Community involvement activities
- Acts as a liaison between the University, sponsors, and sponsored students
- Post-graduation employment support

Math Learning Center

The Math Learning Center (mlc.tamu.edu (<http://mlc.tamu.edu/>)) fosters the academic success of all Aggies by supporting the high-enrollment courses with significant mathematics, statistics, and quantitative reasoning content. Our high quality services, offered virtually and in-person, include:

- Drop-in peer-led tutoring Help Sessions in multiple locations on campus.
- Active-learning sessions for high enrollment courses.
- Workshops on a variety of topics taught throughout each semester.
- Week-in-Review sessions for large enrollment courses led by course instructors.
- Virtual Math Learning Center (vmlc.tamu.edu (<http://vmlc.tamu.edu/>)) for self-paced study through handouts, guided practice problems, and video library.

Undergraduate Studies' units have modified services available to students enrolled via distance education, at branch campuses, or at other instructional locations.

Military Education Benefits (Scholarships & Financial Aid)

<https://aggie.tamu.edu>

- The Aggie One Stop assists eligible students and their dependents in securing federal and state veteran/military education benefits and other funding including scholarships and financial aid.

MSC Programs

<http://mscprograms.tamu.edu>

- MSC Programs engages students in purposefully designed campus programs and service opportunities that prepare them to be global leaders. To this end, we are home to 17 recognized student

organizations that enrich the Aggie experience through academic, entertainment, arts, educational, and cultural programs.

- Our programs provide professional, personal, and practical engagement, supporting experiential learning and skill development in budgeting, communication, fund development, team development, program planning, logistics, meeting facilitation, public speaking, and technical skills.
- We offer a variety of interests, including student-curated art exhibitions, weekly concerts, service events, free film screenings, and world-renowned speakers discussing current events. Additionally, we host immersive travel experiences, former student engagement opportunities, and the MSC Jordan Institute for International Awareness.
- Texas A&M's Box Office in Rudder Tower provides ticketing services for student organizations, campus, and community events.

Ombuds Services

The Office of the Vice Provost for Academic Affairs provides Undergraduate Ombuds services to assist students, faculty, staff, and administrators with resolving academic conflicts on an informal and confidential basis. The Ombuds is equally open and accessible to all parties—students, faculty, staff, and administrators—in disputes that may arise when there are differing expectations or conflicting policies regarding academic issues. For more information, please visit <https://us.tamu.edu/ombuds> (<https://us.tamu.edu/ombuds/>). (<http://us.tamu.edu/Students/Undergraduate-Ombuds/>)

What does the Ombuds do?

- Assists members of the university community in solving problems and conflict.
- Serves as a neutral listener, resource, advisor, intermediary, and mediator.
- Considers all sides of a question impartially and objectively.
- Explains established policies and procedures of Texas A&M University.
- Helps visitors develop options for addressing concerns.
- Facilitates communication between students and others involved in an issue.

When would an undergraduate student need an Ombuds?

- There is an issue or a concern that cannot be resolved by the parties involved, or that one or all parties would prefer not to address through formal channels.
- There is a matter that is preferred for handling as “off the record,” or a need for an informal consultation.
- There is a problem and one or more parties are unsure of whom to speak with or what options are available to address it.
- One or more parties feel that a university policy, procedure, or regulation has been applied unfairly, or is itself unfair or ambiguous.
- There is a problem that requires an outside party to negotiate a solution or facilitate your communication with others.

What kinds of concerns could be brought to the Ombuds?

- The Ombuds can assist with any concern, but some of the issues brought to the office typically involve the following:
- Academic-related issues and appeals.

- Concerns about procedural fairness or due process.
- Questions about religious holy days.
- Misunderstandings between students, advisors, professors, or others.
- Communication breakdowns with students, advisors, professors, or others.
- Disagreements with or misunderstandings of university policies or procedures.
- Concerns over retaliation.

Undergraduate Studies' units have modified services available to students enrolled via distance education, at branch campuses, or at other instructional locations.

Pregnant and Parenting Student Services

<https://studentlife.tamu.edu/>

Resources for Pregnant and Parenting Students

- **Student Rights and Campus Resources:** A list of frequently asked questions regarding the rights of pregnant and parenting students and some of the on-campus resources available to students.
- **Lactation Rooms on Campus:** Student Life maintains a comprehensive list of lactation rooms across campus. If you need assistance locating specific buildings, visit the Aggie Map. To find lactation rooms, click on “Layers” in the menu and select “Lactation Rooms.”
- **Pre-Registration for Parenting Students:** Students who are the parent or legal guardian of a child under 18 years of age are eligible for pre-registration. Students must complete the self-certify form (<https://studentlife.tamu.edu/support/rightsandresources/#register-parenting-student-registration-self-certification>) to be considered.

Professional School Advising

<http://opsa.tamu.edu>

- Preprofessional advising for Medical, Veterinary, Dental, Physical Therapy, Physician Assistant, Occupational Therapy, Pharmacy and Nursing careers.
- PreLaw Advising Services
- Preprofessional Student Organizations

Recreational Sports

<http://recsports.tamu.edu>

- All currently enrolled Texas A&M students (with some exceptions) are automatically Rec members. All you need is your student ID to utilize the Student Recreation Center, Polo Road Rec Center, Southside Rec Center, Penberthy Rec Sports Complex, and other Rec Sports facilities. Guest passes for visitors are available for purchase. Persons with disabilities are invited to contact Member Services to inquire about accommodations. We encourage individuals to download the Rec Sports app from the Apple App Store and Google Play.
- The Student Recreation Center is Texas A&M Rec Sports' flagship facility. With more than 500,000 square feet of recreation space, the facility offers a variety of areas including an extensive strength and conditioning room, indoor walking/jogging track, handball/

racquetball courts, and indoor courts for soccer, basketball, volleyball, and badminton. It also offers an indoor rock climbing facility, bouldering wall, outdoor basketball and sand volleyball courts, dance/activity rooms, free day-use lockers, locker rooms, and a world-class natatorium featuring a dive pool, lap pool, instructional pool, and the Cain outdoor pool. Facilities may be used on a drop-in basis except when reserved for classes or university functions.

- The Southside Rec Center, located on Bizzell Street adjacent to the Texas A&M Golf Club and across from the Southside Residence Halls, is approximately 60,000 square feet of indoor recreational space with an additional 15,000 square feet of outdoor space. It features strength and conditioning areas, fitness room, multi-purpose courts, a bouldering wall, outdoor sand volleyball courts, a large outdoor turf area, free day-use lockers, and locker rooms.
- The Polo Road Rec Center, located on Polo Road near University Drive, is approximately 28,000 square feet with a large strength and conditioning space that includes an indoor turf area, a multipurpose room for group fitness classes, free day-use lockers, and locker rooms.
- The Penberthy Rec Sports Complex, located on both sides of George Bush Drive, features artificial turf playing fields, natural grass fields, softball fields, a covered pavilion, and equipment checkout.
- Rec Sports also offers aquatics classes, group exercise and specialty classes, boot camps, personal and small group training, intramural sports, sport clubs, and outdoor adventures.

Student Activities

<http://studentactivities.tamu.edu/> (<https://studentactivities.tamu.edu/>)

The Department of Student Activities fosters and supports leadership, learning, and involvement opportunities that enhance the growth and development of students and recognized student organizations. As members of the university community, we are committed to a philosophy of shared responsibility that develops leaders of character dedicated to serving the greater good, and we subscribe to the Texas A&M core values of Respect, Excellence, Leadership, Loyalty, Integrity, and Selfless Service. We are committed to helping Aggies develop in ways, both in and out of the classroom, preparing them for life beyond Aggieland. In doing so, Student Activities offers opportunities to lead, serve, participate in campus traditions, represent student voice, and make an impact at Texas A&M. The perks of getting involved on campus range from reaching leadership potential to networking with administrators and potential employers, to forming lasting friendships.

Student Assistance Services

<http://studentlife.tamu.edu>

Student Assistance Services (SAS) connects students with guidance, resources, and support for personal and academic matters. SAS serves as an initial point of contact for information on various topics. Common issues supported by Student Assistance Services include referrals, resource connections, food insecurity, crisis support including medical emergencies, behavior follow-up, student absence notifications, Silver Taps, student death, and transition-related concerns.

Student Conduct Office

<https://studentconduct.tamu.edu>

The Student Conduct Office encourages the development and well-being of all students. This is accomplished by promoting reflection,

fostering accountability, and educating students and campus partners on individual rights and responsibilities within the university community.

The Student Conduct Office offers educational presentations and workshops, including the Ethics and Decision Making Workshop (<https://studentconduct.tamu.edu/edm/>) and hazing prevention and education programs (<https://studentconduct.tamu.edu/stophazing/>), in addition to responding to cases of alleged student rule violations and referring students to appropriate resources.

The staff in the Student Conduct Office are available for consultation on conflict resolution and student behavioral concerns. Staff are also available for presentations upon request.

Student Legal Services

<http://studentlife.tamu.edu>

Student Legal Services provides free legal advice and assistance to students. They cover various topics, including landlord/tenant disputes, criminal law, expunctions, automobile accidents, traffic tickets, and consumer protection. Additionally, notary services are available as well as mediation services to help students resolve conflicts.

Student Life

<http://studentlife.tamu.edu/>

Student Life strives to enhance your opportunities as a student to participate fully in the university experience. We do this by providing students with information, services, programs, and involvement opportunities that facilitate responsible life choices and promote awareness of themselves and their community. Each of the program areas within Student Life has a specific mission, but one common goal: to provide education, outreach, and support to you.

Specific services and programs offered include:

- Alcohol and Other Drug Education
- Graduate and Professional Student Government
- Interpersonal Violence Prevention
- New Student and Family Programs
- Off Campus Student Services
- Pregnant and Parenting Student Services
- Student Assistance Services
- Student Legal Services
- Student Media (The Battalion and #Aggieland#yearbook)

Student Media

<https://studentlife.tamu.edu/> (<http://studentlife.tamu.edu/studentmedia/>)

- Student Media produces national, award-winning publications: *The Battalion*, the *Aggieland* yearbook and the *Maroon Life* magazine. All three are written, edited and produced by students and offer excellent opportunities to gain valuable experience for journalistic and related careers.
- *The Battalion*, Texas A&M's student newspaper since 1893, typically is printed weekly on Thursdays during the fall and spring and every other week during the summer sessions. Around finals and holidays, the delivery days may be changed. It is distributed to students, faculty and staff on campus and at many apartments and other high

traffic areas in College Station. *The Battalion* is also available online and on mobile devices at thebatt.com. (<http://www.thebatt.com/>)

- *Aggieland*, which dates back to 1895, is distributed in the fall but is a year-round project documenting school activities. It is one of the nation's largest college yearbooks.
- *Maroon Life* is published five times during the school year with New Students' Guide to Aggieland (distributed at New Student Conferences), Fall Sports Preview, Best of Aggieland (winter distribution), Spring Sports Preview and Housing Guide (Family Weekend) editions.

Technology Resources

<http://IT.tamu.edu>

- 1Password for Students (<https://it.tamu.edu/services/security/tools-and-resources/1password-students/>)
- Wireless Internet (TAMU_WiFi (<https://it.tamu.edu/services/network-and-internet-access/wireless-connections/tamu-wifi/>))
- Zoom (tamu.zoom.us (<https://tamu.zoom.us/>))
- Google Apps for Education (it.tamu.edu/google (<https://it.tamu.edu/google/>))
- Microsoft 365 (it.tamu.edu/microsoft-365 (<https://it.tamu.edu/microsoft-365/>))
- 24-Hour Technical Support (Help Desk Central (<https://it.tamu.edu/help/>))
- Campus Computer Labs (Open Access Labs (<http://oal.tamu.edu/>))
- Learning Management System (Canvas (<https://it.tamu.edu/services/academics-and-research/teaching-and-learning-tools/canvas/>))
- Discounted Software (software.tamu.edu (<http://software.tamu.edu/>))

The Association of Former Students

www.AggieNetwork.com

For more than 145 years, The Association of Former Students has supported programs, provided resources and cultivated experiences for Texas A&M University and Texas Aggies. The Association strives to be the premier alumni association and is the oldest organization serving Texas A&M in support of the ever-growing Aggie Network. Part of our mission is promoting the welfare of Texas A&M and serving the student body.

In 2024, The Association provided \$16.1 million in support and services to Texas A&M University and the Aggie Network, including \$6.1 million in cash support for academic programs and scholarships, student activities and faculty, staff and student recognition, and another \$10 million for engagement programs and facilities supporting current and former students.

Current student opportunities include:

- **Aggie Ring Day** – Multiple times a year, thousands of Aggies, family and friends gather at the Clayton W. Williams, Jr. Alumni Center to celebrate achieving an academic milestone by receiving their Aggie Rings.
- **Howdy Week GatheRing** – Join classmates at the Williams Alumni Center for free food and take part in the first official on-campus yell practice of the fall semester, with the Texas A&M yell leaders! tx.ag/GatheRing (<https://www.aggienetwork.com/events/gathering/>)
- **1879 Society Ambassadors** – A cohort of student leaders dedicated to selflessly serving The Association and Texas A&M through

fellowship and networking with fellow members of the Aggie Network, as well as building, perpetuating and sharing the Aggie Spirit. tx.ag/1879Ambassadors (<https://www.aggienetwork.com/studentambassadors/>)

- **Student Employment** – Explore a wide variety of student positions available at The Association of Former Students. tx.ag/AssociationJobs (<https://www.aggienetwork.com/theassociation/employment.aspx>)
- **Aggie Park** – Play games, study, listen to live music, catch a fish or just relax on this 20-acre space, which was funded through private donations raised by The Association. tx.ag/AggiePark (<https://aggiepark.tamu.edu/>)

Another pillar of The Association's mission is to strengthen the bonds that connect Aggies with each other and the university. Through generous gifts, The Association cultivates experiences for the Aggie Network by providing resources and supporting programs like Aggie Muster, A&M Clubs, Class activities, Constituent Networks, Traveling Aggies, Young Alumni, Reunions, Distinguished Alumni Gala, Find An Aggie and *Texas Aggie* magazine.

Transportation Services

Transit

The university operates an on- and off-campus transit system that can be used by anyone on campus, fare-free. The off-campus transit system serves most of the major apartment complexes and housing areas in College Station, as well as the Blinn College Campus and RELIS Campus.

All transit services are included in student registration fees and do not require a bus pass, however, passengers are required to present their Texas A&M, Blinn, or Brazos Transit District (BTD) ID when boarding at off-campus stops. Members of the general public possessing a Brazos Transit District ID may ride both on- and off-campus bus routes. In addition, students may ride The District (<http://btd.org/>) buses fare-free by showing their IDs upon entering the bus. For BTD bus route information, visit <http://btd.org> (<http://btd.org/>).

For updates about transit routes, subscribe to the RSS feed at <https://transport.tamu.edu/about/rss.aspx> or follow @aggiespiritbus (<http://twitter.com/aggiespiritbus/>) on X. For transit information, including maps and leave times, visit <https://transport.tamu.edu/transit.aspx>.

Parking

Those who choose to bring a vehicle to campus are required to purchase a parking assignment (virtual permit) or pay-by-the-hour to park in designated visitor areas. (Download the Parkmobile app, available on the AppStore, Google Play, or Windows Store, or those without a smartphone may use the mobile web app at <https://parkmobile.io/>.) See also Optional Campus Services (<https://catalog.tamu.edu/graduate/tuition-fees-financial-information/optional-campus-services/>).

Parking is at a premium on Texas A&M's campus; MOST customers are not assigned their first choice for parking. Often the available parking may not be immediately adjacent to your building or facility. Students may register for parking at <https://transport.tamu.edu/parking/faqpermit.aspx> (<http://transport.tamu.edu/parking/faqpermit.aspx>) or sign up for the wait lists at <http://transport.tamu.edu/account> (<http://transport.tamu.edu/account/>). To get the best parking available, register online by the July 7 priority deadline.

For updates about parking, traffic, and construction, subscribe to the RSS feeds at <https://transport.tamu.edu/about/rss.aspx> (<http://transport.tamu.edu/about/rss.aspx>) or follow @TAMUTransportation

(https://en-gb.facebook.com/tamutransportation/?ref=page_internal) on Facebook and Instagram.

For more information about parking or to view Parking Rules and Regulations, visit <https://transport.tamu.edu/Parking/regulations.aspx>.

Bicycles

Bicycles are a great way to get to, from, and around campus. Bike services include the bike share program, bike lease program, borrow-a-bike, bike registration, summer bike storage, and maintenance stations.

For more information visit <https://transport.tamu.edu/Alternative/bicycles/services.aspx>.

Alternatives

Don't have a car? There are plenty of alternatives, including carshare, rideshare, and break/weekend shuttles to major Texas cities. For more alternative transportation options, visit <http://transport.tamu.edu/alternative> (<http://transport.tamu.edu/alternative/>).

University Center and Special Events (UCEN)

<http://ucenter.tamu.edu/>

- University Center and Special Events features a variety of special event and meeting spaces, as well as theatrical production spaces. Our venues are ideal for student, academic, administrative, corporate, social, non-profit and arts-related events. Our spaces include: the Memorial Student Center, Rudder Theatre Complex, J. Earl Rudder Tower, Koldus Building, All Faiths Chapel, and designated outdoor spaces including Aggie Park. We also provide services in any approved facility of your choosing.
- When it comes to planning events on campus, visit the University Center and Special Events office on the 2nd floor of Rudder Tower. Our staff can assist you with reservations in any of the UCEN facilities as well as help in all aspects of planning meetings, socials or conferences. The highly skilled staff arranges event set ups; provides and operates audio/visual equipment, electricity, lighting and event staging; and assists with many of the other support details that are essential to a successful event.

University Health Services

<https://uhs.tamu.edu> (<https://uhs.tamu.edu/>)

University Health Services empowers Texas A&M students through integrated care that supports their physical and mental health. As part of Texas A&M Health—the university's comprehensive health science center—our clinicians provide the highest level of care in medicine, counseling, psychology and emergency medical services that fosters students' academic, personal and professional success.

- Counseling and Mental Health Care
 - Individual, crisis, couple and group counseling
 - Mental health assessments
 - Learning disability/ADHD screenings
 - Alcohol and other drug services
 - Workshops
 - Self-help resources
 - Career counseling and exploration

- TELUS Health Student Support app: (<https://uhs.tamu.edu/mental-health/student-support.html>) 24/7 access to professional counseling in multiple languages via phone or chat, all free and confidential
- Emergency Medical Services
 - Emergency response via 911 dispatch
 - Emergency personnel presence at events
- Prevention and Population Health (<https://uhs.tamu.edu/prevention-population-health/>)
 - Vaccine clinics
 - Suicide awareness and prevention
 - Outreach and educational programming
- Primary and Specialty Medical Care (<https://uhs.tamu.edu/medical/>)
 - Clinics
 - Medical clinics
 - Specialty clinics
 - Allied Health
 - Medical Laboratory
 - Pharmacy
 - Physical Therapy
 - Preventive Medicine
 - Radiology services
 - Registered Dietitian
 - Travel Medicine
 - Additional Services
 - Ambulance service/EMS
 - Dial-A-Nurse: (<https://uhs.tamu.edu/medical/#dial-a-nurse>) after-hours nurse advice line for non-emergent health concerns
 - Health insurance information (<https://uhs.tamu.edu/medical/insurance.html>)
 - Referral coordination

University Libraries

<https://library.tamu.edu>

- Sterling C. Evans Library (<https://library.tamu.edu/>)
- Business Library and Collaboration Commons (BLCC) (<http://wcl.library.tamu.edu>)
- Medical Sciences Library (MSL) (<http://msl.library.tamu.edu>)
- Policy Sciences and Economics Library (PSEL) (<http://psel.library.tamu.edu>)
- Cushing Memorial Library and Archives (<http://cushing.library.tamu.edu>)

University Police

<http://upd.tamu.edu>

- Law Enforcement and Criminal Investigations
- Crime Prevention Programs

University Writing Center

The University Writing Center (<http://writingcenter.tamu.edu>) helps Aggies improve their writing and public speaking. We offer the following resources:

- In-person, Zoom, and email consultations on writing and public speaking projects – Make an appointment (<https://writingcenter.tamu.edu/make-an-appointment/>) with a trained peer consultant to get feedback on your writing (papers, lab reports, resumes, cover letters, application essays, articles, or creative pieces) or speaking (speeches, presentations, English conversation practice, or research posters) during any stage of the creative process.
- Online writing and speaking guides (<https://writingcenter.tamu.edu/writing-speaking-guides/>) – resources include print, audio, and video help for writers and public speakers. Or watch videos on our YouTube channel (<https://www.youtube.com/user/tamuwritingcenter/>).
- Workshops and studios (<https://writingcenter.tamu.edu/faculty-advisors/request-a-workshop-or-studio/>) on writing and public speaking – Available for classes or organizations.

Undergraduate Studies' units have modified services available to students enrolled via distance education, at branch campuses, or at other instructional locations.

Veteran and Military Students at Texas A&M

- Office of Military Admissions – Military Admissions Counselors are housed in the VRSC to assist prospective and current veterans and military students with the undergraduate admission process, military withdrawals/re-enrollments, and readmission process. Military Admissions | Texas A&M University - Admissions (<https://admissions.tamu.edu/connect/connect-with-an-advisor/military-admissions/>)
- The Don & Ellie Knauss Veteran Resource and Support Center (VRSC) offers resources, services, and a dedicated space for veteran and military students at Texas A&M. Our center features a lounge and kitchen, study spaces w/ innovative technology, and open access labs. <http://aggieveterans.tamu.edu> (<http://aggieveterans.tamu.edu/>)
 - Veteran Aggie Leaders for Outreach, Research and Resources (VALOR²) – Peer veteran and military student leaders engage with incoming and current students to facilitate continuous, real-time feedback on experiences, and connect them with valuable programs and area resources to facilitate individual student success. (<http://aggieveterans.tamu.edu/>)<https://aggieveterans.tamu.edu/valor/>
 - Aggie Veteran Network – A private LinkedIn group that connects veteran and military students (veterans, active duty, Reserve/National Guard) with hundreds of resources and contacts. (<https://aggieveterans.tamu.edu/valor/>)<https://www.linkedin.com/groups/13846895/>
 - Academic and Student Life Support – Numerous programs and partnerships to connect students with academic assistance and student life resources to meet individual needs.
 - Textbook lending library providing free textbook rentals to veteran and military students and dependents.
 - Financial Assistance
 - Over 190 scholarship opportunities available to veteran and military students. <https://aggieveterans.tamu.edu/scholarships/>
 - In addition to scholarships, emergency funding is available for qualifying students through the Division of Student Affairs.
- VA On-Campus Partners
 - VetSuccess on Campus (VSOC) – Connect with our campus VA VSOC Counselor for educational benefit and disability related

inquiries and veteran readiness and employment program support. <https://aggieveterans.tamu.edu/vsoc/>

- VITAL Coordinator – Connect with our Veterans Integration to Academic Leadership (VITAL) coordinator for VA health services and benefit related inquiries, mental health support and connections for counseling and health resources. <https://aggieveterans.tamu.edu/vital-2/>
- First Generation Veteran Leadership Scholars - A learning community for first-generation students who are current or former military. The program is designed to support students academically, mentally, and interpersonally by providing them with the skills and resources they need to be successful as students and leaders.
- Veteran and Military Opportunities for Advanced Credentials/ Education
 - Veteran Coaching Academy <https://veterans-coaching.tamu.edu/>
 - Entrepreneurship Bootcamp for Veterans <https://mcferrin.tamu.edu/program/entrepreneurship-bootcamp-for-veterans/>

Campus Life

The Corps Experience

<http://corps.tamu.edu>

The Corps of Cadets is the largest and most visible student organization at Texas A&M. Known as the Keepers of the Spirit and the Guardians of Tradition, many of Texas A&M's most cherished traditions grew out of the Corps, including Midnight Yell Practice, Aggie Muster and Silver Taps. Currently, over 2,300 young men and women are Corps members.

Most cadet graduates pursue a career in the public and private sector; however, the Corps of Cadets consistently commissions more officers than any institution other than the service academies.

Academic excellence is the top priority of the Corps of Cadets offering scholastic advising and cadet-led support programs as well as access to state-of-the-art academic facilities.

Cadets who pursue non-military careers continue to hone their leadership skills through a rigorous progression of academic leadership courses, applied leadership experiences within the Corps and broader Texas A&M community, and personal development of an Individual Leadership Development Plan. Additional emphasis is given to the development of career readiness competencies of critical thinking, teamwork, professionalism, oral/written communication, career management, digital technology, leadership, and global/intercultural fluency.

The Corps of Cadets offers cadet organizations (The Fightin' Texas Aggie Band, a precision military band; the Ross Volunteers, the official honor guard for the governor of the state of Texas; the Fish Drill Team, a precision drill unit; and Parsons Mounted Cavalry, the only mounted ROTC unit in the United States), ROTC special units (Army's Ranger Challenge Team and Rudder's Rangers, Navy SEAL Platoon, Marine Recon Platoon and the Air Force's Arnold Air Society) and advanced course ROTC contracts.

Department of Multicultural Services

<http://dms.tamu.edu>

The Department of Multicultural Services fosters meaningful student connections to campus through active, intentional, and ongoing

engagement programming. The department has a mission to provide multiple developmental experiences to cultivate transition through meaningful social engagement, foster a culture where students can thrive, and develop students' capacities to work productively and collaboratively with others in preparation for an increasingly complex world. DMS connects students to and engages students while on campus with the intent to enhance their overall educational experience.

Located in the Memorial Student Center (MSC), DMS helps meet student connection, transition, collaborative teamwork, and career preparedness needs which all work together to aid in student retention, persistence, graduation, and successful transition into their professional roles. The department maintains a welcoming and engaging environment for all students.

Fraternity and Sorority Life (FSL)

<https://studentactivities.tamu.edu/fsl/>

- Housed in the Department of Student Activities, Fraternity and Sorority Life's mission is to provide diverse educational and developmental services that foster an inclusive learning community. We aim to enhance the collegiate experience by supporting opportunities for leadership, academic integration, civic engagement and the creation of fraternal bonds. Our office serves as a liaison between the collegiate chapters, parents, alumni, inter/national organizations, and Texas A&M University. We provide organizational guidance, educational programs, and resources while challenging members to live their fraternal values.
- Fraternities and sororities are a fundamental part of Texas A&M University. We are home to 55+ internationally affiliated or local Greek-letter organizations governed by one of four councils: Collegiate Panhellenic Council (CPC), the Interfraternity Council (IFC), the Multicultural Greek Council (MGC), and the National Pan-Hellenic Council (NPHC). Our fraternities and sororities collectively constitute the largest membership-based and multi-faceted community on campus.
- Representing 11 percent of the undergraduate student population, fraternity and sorority members are committed to their academics, developing and strengthening their leadership skills, volunteering time in the community and continually forming a campus and cultural support network for current and incoming Aggies.

Intercollegiate Athletics

www.12thman.com (<http://www.12thman.com/>)

- Texas A&M is a member of the National Collegiate Athletic Association (NCAA) and the prestigious Southeastern Conference (SEC), which also includes the University of Alabama, University of Arkansas, Auburn University, University of Florida, University of Georgia, University of Kentucky, Louisiana State University, University of Mississippi, Mississippi State University, University of Missouri, University of South Carolina, University of Tennessee and Vanderbilt University.
- Texas A&M sponsors 20 intercollegiate athletics teams. The nine men's programs are football, basketball, baseball, golf, indoor track and field, outdoor track and field, cross country, swimming and diving, and tennis. The 11 women's programs are basketball, cross country, golf, indoor track and field, outdoor track and field, softball, swimming and diving, tennis, volleyball, soccer, and equestrian.

- Texas A&M has won 19 national championships in eight varsity sports, including football, women's basketball, softball, men's indoor track and field, men's outdoor track and field, women's outdoor track and field, men's golf, and equestrian. The Aggies have amassed 25 Southeastern Conference Championships since joining the league in the 2012-13 academic year, and boast some of the most decorated programs across all of intercollegiate athletics.
- Aggie athletes have earned more than 900 All-American selections and hundreds have gone on to successful careers in their respective sports. In addition, Texas A&M has produced a number of Olympic athletes, including a record number of 26 Aggies who competed in the 2020 Summer Olympic Games.
- MISSION: To create opportunities through championship athletics.
- VISION: The HOME OF THE 12TH MAN is the pinnacle in opportunities realized through sport: championships won, diplomas earned, leaders equipped and launched to impact the world.
- CORE VALUES: Respect, Excellence, Leadership, Loyalty, Integrity, Selfless Service

MSC Programs

<http://mscprograms.tamu.edu>

- MSC Programs engages students in campus programs and service opportunities that prepare them to be global leaders. To this end, we provide academic, entertainment, arts, political, and cultural awareness programs that enrich the Aggie experience. Our programming and service opportunities provide next-level professional, personal, and practical engagement that supports experiential learning and skill development in the areas of budgeting, communication, fund development, team development, program planning and logistics, meeting facilitation, public speaking, and technical skills such as running sound for a concert or installing an art exhibit.
- Our programs represent a wide variety of interests including student-curated art exhibitions in the MSC Reynolds Gallery, weekly concerts, service events, free film screenings, and the hosting of world-renowned speakers to discuss current events, national affairs, and other relevant topics of today. MSC Signature Events include the annual Reverend Dr. Martin Luther King, Jr. Breakfast, MSC Open House, MSC Student Conference On National Affairs, MSC Student Conference On Latinx Affairs, MSC Spencer Leadership Conference, MSC Wiley Lecture Series, and Kyle Field Day, among others.
- The MSC Box Office, located in Rudder Tower, also offers ticketing services for student organizations, campus, and community events and programs.

Music Activities (MUSA)

<http://musa.tamu.edu> (<http://musa.tamu.edu/>)

Band Opportunities

- Fightin' Texas Aggie Band – The Fightin' Texas Aggie Band is nationally known for its precision military marching formations on the football gridiron and is the largest military marching band in the nation. This Corps of Cadets unit is the official marching band of Texas A&M University. Corps of Cadets membership is required as well as an audition with the directors. Please refer to our website (<http://musa.tamu.edu/>) for more information.
- University Concert Bands – Wind Symphony, Symphonic Winds, Symphonic Band, and Concert Band. These ensembles consist of outstanding wind and percussion players from all areas of the Texas

A&M campus. Literature performed by the bands is chosen from the best of traditional and contemporary band works. The bands perform at least two concerts per semester and occasionally participate in off-campus concerts and tours. Students from all majors are welcome in the band, and Corps of Cadets membership is not required. An audition is required to participate in the bands. Please refer to our website (<http://musa.tamu.edu/>) for more information.

- **University Jazz Ensembles** – These two groups utilize standard 17-piece, large jazz ensemble instrumentation for 13 winds and 4 rhythm section instruments. The bands perform select literature from the best traditional and contemporary big band jazz repertoire. The ensembles perform at least two concerts each semester, including campus and community performances. An audition is required to participate in the jazz ensembles. Please refer to our website (<http://musa.tamu.edu/>) for more information.
- **Hullabaloo Band** – The Hullabaloo Band is housed in the Athletic Department and is a sponsored student organization, consisting of 100 student musicians that support Texas A&M Volleyball, and Men's and Women's Basketball. The band regularly travels to tournaments with the teams during postseason play. An audition is required to participate in the Hullabaloo Band. Please refer to our website (http://www.12thman.com/sports/2015/3/23/GEN_20140101165.aspx) for more information.

Choral Opportunities

- **Singing Cadets** – Membership in the Corps of Cadets is NOT required. The purpose of the Singing Cadets is to enhance the public relations of Texas A&M University through musical presentations as deemed appropriate by the Director and to develop disciplined leaders of character as defined by the Singing Cadet Handbook. The four pillars of the Singing Cadets are Purpose, Unity, Spirit, and Honor. Together, these four pillars have formed the solid foundation that has inspired and enabled our organization to succeed in carrying out its purpose for over a century. An audition is required to participate in the Singing Cadets. Please refer to our website (<http://musa.tamu.edu/>) for more information.
- **Century Singers** – The Century Singers is a recognized student organization and close-knit family that connects through a shared passion for music. Members also have the opportunity to participate in events throughout the year including overnight retreats and activities such as ice-skating, movie nights, and group dinners. Involvement in both social gathering and formal rehearsals brings members together as Aggies, musicians, and friends. This creates a truly unique and rewarding experience that will be remembered for a lifetime. An audition is required to participate in the Century Singers. Please refer to our website (<http://musa.tamu.edu/>) for more information.
- **Women's Chorus** – The Texas A&M Women's Chorus is a recognized student organization that strives to promote excellence in the fine arts and to encourage cultural expansion at Texas A&M. They also aim to provide entertainment for the campus community, and to enhance the perception of the ensemble at all levels. The choir travels throughout Texas, beyond our state borders, and internationally, and performs a varied repertoire of sacred and secular classical selections. An audition is required to participate in the Women's Chorus. Please refer to our website (<http://musa.tamu.edu/>) for more information.

Orchestral Opportunities

- **University Orchestras** – The orchestra program at Texas A&M consists of two orchestras; the Chamber Orchestra and the

Philharmonic Orchestra. Both of these groups are comprised of students from all majors at the university. Both orchestras provide students with outstanding musical experiences while allowing time for academics and other interests. Students in the orchestras perform the best of both string and symphony orchestra literature at a high level of artistic achievement in a focused and supportive environment. An audition is required to participate in the orchestras. Please refer to our website (<http://musa.tamu.edu/>) for more information.

Recreational Sports

<http://recsports.tamu.edu>

- All currently enrolled Texas A&M students (with some exceptions) are automatically Rec members. All you need is your student ID to utilize the Student Recreation Center, Polo Road Rec Center, Southside Rec Center, Penberthy Rec Sports Complex, and other Rec Sports facilities. Guest passes for visitors are available for purchase. Persons with disabilities are invited to contact Member Services to inquire about accommodations. We encourage individuals to download the Rec Sports app from the Apple App Store and Google Play.
- The Student Recreation Center is Texas A&M Rec Sports' flagship facility. With more than 500,000 square feet of recreation space, the facility offers a variety of areas including an extensive strength and conditioning room, indoor walking/jogging track, handball/racquetball courts, and indoor courts for soccer, basketball, volleyball, and badminton. It also offers an indoor rock climbing facility, bouldering wall, outdoor basketball and sand volleyball courts, dance/activity rooms, free day-use lockers, locker rooms, and a world-class natatorium featuring a dive pool, lap pool, instructional pool, and the Cain outdoor pool. Facilities may be used on a drop-in basis except when reserved for classes or university functions.
- The Southside Rec Center, located on Bizzell Street adjacent to the Texas A&M Golf Club and across from the Southside Residence Halls, is approximately 60,000 square feet of indoor recreational space with an additional 15,000 square feet of outdoor space. It features strength and conditioning areas, fitness room, multi-purpose courts, a bouldering wall, outdoor sand volleyball courts, a large outdoor turf area, free day-use lockers, and locker rooms.
- The Polo Road Rec Center, located on Polo Road near University Drive, is approximately 28,000 square feet with a large strength and conditioning space that includes an indoor turf area, a multipurpose room for group fitness classes, free day-use lockers, and locker rooms.
- The Penberthy Rec Sports Complex, located on both sides of George Bush Drive, features artificial turf playing fields, natural grass fields, softball fields, a covered pavilion, and equipment checkout.
- Rec Sports also offers aquatics classes, group exercise and specialty classes, boot camps, personal and small group training, intramural sports, sport clubs, and outdoor adventures.

Speech and Debate Team

<http://speech.tamu.edu>

- Compete at national level while impacting the community and the world at a grassroots level.

- Compete in debate, public address events, individual limited preparation events and oral interpretation events.
- Student-run, student-funded and student-oriented organization.

Student Activities

<http://studentactivities.tamu.edu>

- The Department of Student Activities fosters and supports leadership, learning, and involvement opportunities that enhance the growth and development of students and recognized student organizations. At Texas A&M, we care about helping Aggies develop in ways, both in and out of the classroom, that will prepare them for life beyond Aggieland. To do so, Student Activities offers opportunities to lead, serve, participate in campus traditions, represent student voice, and make an impact at Texas A&M. The perks of getting involved on campus range from reaching your leadership potential, to networking with administrators and potential employers, to forming lasting friendships.
- The Department of Student Activities houses key involvement opportunities, including 1300+ recognized student organizations, as well as 55+ fraternity and sorority chapters that can be found through Fraternity and Sorority Life (<https://studentactivities.tamu.edu/fsl/>). The Student Government Association (<https://sga.tamu.edu/>) and the Texas A&M Class Councils (<https://classcouncils.tamu.edu/>) offer opportunities for those who are passionate about representing the student voice and hosting Texas A&M traditions.
- At Texas A&M, Aggies are held to a high standard of leadership and selfless service. To help reach your leadership potential, visit our Student Organization Leadership and Development team - providing valuable services to recognized student organizations and housing several service-based organizations such as The Big Event (<https://bigevent.tamu.edu/>) and the 12th Can Food Pantry (<https://12thcan.tamu.edu/>) - or consider getting involved in an Extended Orientation (<https://studentactivities.tamu.edu/eo/>) program to help welcome new students to Aggieland.

Student Government Association (SGA)

<http://sga.tamu.edu>

- SGA is comprised of the executive, legislative, and judicial branches. Members of these branches include the Texas A&M Student Body President and Student Senators who work to advocate for student needs and help better the Texas A&M campus.
- SGA has four commissions – development, election, diversity, and legislative relations. Each of these serve to carry out the goals of the Student Body President from fundraising money for all of SGA to advocating for students at the state level.
- Finally, SGA houses 13 programming committees including The 12th Can Food Pantry, The Big Event, Traditions Council, Aggie Muster, and more. These committees strive to enhance the student body through their leadership, programming, conferences, and traditions and they directly have an impact on the student body and community.

Student Life

<http://studentlife.tamu.edu>

Student Life strives to enhance your opportunities as a student to participate fully in the university experience. We do this by providing students with information, services, programs, and involvement opportunities that facilitate responsible life choices and promote

awareness of themselves and their community. Each of the program areas within Student Life has a specific mission, but one common goal: to provide education, outreach, and support to you.

Specific services and programs offered include:

- Alcohol and Other Drug Education
- Graduate and Professional Student Government
- Interpersonal Violence Prevention
- New Student and Family Programs
- Off Campus Student Services
- Pregnant and Parenting Student Services
- Student Assistance Services
- Student Legal Services
- Student Media (The Battalion and Aggieland yearbook)

Student Affairs Planning, Assessment and Research

<http://sapar.tamu.edu/> (<https://sapar.tamu.edu/>)

- Student Affairs Planning, Assessment & Research provides leadership in assessment and planning to the Division of Student Affairs and to student organizations, maximizing program effectiveness, emphasizing student learning and contributing to the knowledge of the student experience at Texas A&M.

Student Life - Student Media

<http://studentlife.tamu.edu/studentmedia>

- Student Media produces national, award-winning publications; *The Battalion* newspaper, the *Aggieland* yearbook and the *Maroon Life* magazine. All three are written, edited and produced by students and offer excellent opportunities to gain valuable experience for journalistic and related careers.
- *The Battalion*, Texas A&M's student newspaper since 1893, is typically printed weekly on Thursdays during the fall and spring and every other week during the summer sessions. Around finals and holidays, the delivery days may be changed. It is distributed to students, faculty and staff on campus and at many apartments and other high traffic areas in College Station. *The Battalion* also is available online and on mobile devices at thebatt.com.
- The *Aggieland*, which dates back to 1895, is distributed in the fall but is a year-round project documenting school activities. It is one of the nation's largest college yearbooks.
- *Maroon Life* is published five times during the school year with New Students' Guide to Aggieland (distributed at New Student Conferences), Fall Sports Preview, Best of Aggieland (winter

distribution), Spring Sports Preview and Housing Guide (Family Weekend) editions.

University Art Galleries

<http://uart.tamu.edu>

The Texas A&M University Art Galleries (UART) department actively engages students, faculty, staff, and the surrounding community by offering thoughtful visual arts experiences that inspire dialogue, creativity, and collaboration. Through exhibitions, educational initiatives, and outreach programs, UART serves as a bridge between the university and the broader region, inspiring an appreciation for the arts. As dedicated stewards of the collections, UART promotes arts advocacy and cultivates an inclusive cultural environment that enriches learning, strengthens community connections, and supports Texas A&M University's educational mission.

Officing in the Memorial Student Center, UART organizes art exhibitions for the Forsyth and Stark galleries; advises on the selection, display and management of visual art objects on campus; collaborates with other university art collections; and provides guidance and support to university's relevant endeavors. To promote an appreciation for public art, the department oversees the preservation and maintenance of the university's outdoor sculpture collection.

University Center and Special Events (UCEN)

<http://ucenter.tamu.edu>

- University Center and Special Events (UCEN) is a highly skilled team of professionals committed to creating extraordinary guest experiences. We provide exceptional event management and technical support in state-of-the-art facilities that are well maintained, safe and clean. Through our facilities and services, we enhance the educational, business, social and cultural experiences of students, faculty, staff and visitors of Texas A&M University.
- Event Services – located on the second floor of Rudder Tower, the Event Services team assists in the booking, coordination, setup and staffing of meetings and events held in the Memorial Student Center (MSC), J. Earl Rudder Tower, John J. Koldus Building, All Faiths Chapel, and the surrounding outside event spaces including Aggie Park.
- Rudder Theatre Complex – our Rudder Theatre Complex team assists with the booking of space in Rudder Auditorium, Rudder Theatre, Rudder Forum, and the Exhibit Hall. Additionally, our team provides AV technical support, event setup, equipment rental, and event consultation for events held outside of UCEN facilities.
- Aggie Park - located just east of Kyle Field, is the premiere green space on campus with over 20 acres of outdoor areas for study, relaxation, tailgating, entertainment and recreation for students, staff, faculty, and visitors. To host events in Aggie Park, visit our team in Rudder Tower 103, email us at aggiepark@tamu.edu, or call 979.862-PLAY(7529).

Vice President for Student Affairs

<http://studentaffairs.tamu.edu>

The Office of the Vice President for Student Affairs (OVPSA) serves and supports 13 different departments within the Division of Student Affairs that are critically engaged in all aspects of students' lives and

the delivery of key services and support. In alignment with the mission, values, and policies of Texas A&M University, the OVPSA promotes collaboration and coordinating efforts that affect the entire division, such as strategic planning, budgeting, staff and community development, research, assessment, fundraising, public relations, and technology.

Furthermore, the OVPSA supports the division's community of talented and dedicated professionals who provide exceptional programs, services, and facilities that create a supportive campus environment where students feel a sense of community and have the opportunity to develop as leaders. The OVPSA works to ensure that the division and its staff maintain a student-centered approach to engagement, learning, leadership development, and well-being, in order to instill a commitment to critical thinking, lifelong learning, and the Aggie Core Values amongst our 79,000+ students.

TUITION, FEES AND OTHER FINANCIAL INFORMATION

General Information

Educational expenses for nine months will vary according to personal needs and course of study. The estimated cost to attend Texas A&M is approximately \$30,608 for in-state residents which includes tuition and fees, housing and food, books, transportation and miscellaneous expenses. The estimated cost to attend for non-resident or international students is about \$58,976. All tuition and fees amounts provided herein represent the most accurate figures available at the time of publication and are subject to change without notice. University Rules in place at the time of publishing are reflected here. All are subject to change. The most current information available will be maintained on the Aggie One Stop (<https://aggie.tamu.edu/>) website. Student Business Services online tuition and fee estimate calculator can be found at the Student Business Services (<http://sbs.tamu.edu/>) website.

Payment of Tuition and Fees

Students must meet all financial obligations to the University by their due dates to avoid late penalties. Failure to pay amounts owed may result in cancellation of the student's registration, barring from future enrollment and non-issuance of official transcripts. State law requires that tuition and fees be paid prior to the first day of classes. Students who wish to pay fees in installments can search for the Payment/Refund card on the Howdy (<http://howdy.tamu.edu>) Portal.

Obligation to Pay Tuition, Required Fees, Other Fees and Charges for Optional Services

By registering for classes, students agree to pay all tuition and required fees associated with their registration, optional services and other fees, whether paying in full or utilizing the installment payment option. Failure to pay tuition, fees and other charges may result in penalties, late registration fees and/or possible cancellation.

Tuition and Fees Deferment Option for Recipients of Military-Related Financial Assistance

In accordance with Public Law 115-407 and Texas Education Code 56.0065, Texas A&M University will not impose additional fees, obligations, or burdens concerning payment or registration because of the student's inability to meet financial obligations to the University on time as the result of the delayed disbursement of a state or federal military-related student financial assistance program covering tuition and fees.

Eligible students may request deferment for payment of tuition and fees if the military-related financial assistance is delayed. Requests for deferment should be requested prior to the first bill due date. Deferment will be permitted for up to 60 days from the first day of the semester for students receiving Post 9/11 G.I. Bill Ch.33 Benefits or Veteran Readiness and Employment Ch.31 benefits; all other forms of military-related financial assistance will receive a maximum of 60 days for deferment from the first due date. Should penalties be inadvertently assessed, eligible students may seek assistance from the Aggie One Stop or

Scholarships & Financial Aid to request reversal of fees. These offices will in turn collaborate with Student Business Services to manage the student account until receipt of the benefit payment.

Financial Obligation for Graduating Students

According to Texas A&M University Student Rules and Chapter § 54.007 (c) of the Texas Education Code, all financial obligations to the University must be paid by the end of the semester. Failure to settle all financial obligations will result in a hold being placed preventing access to certain privileges that include registering for future classes or receiving a diploma.

Citations

- Section 14.15 of the Texas A&M University Student Rules states "The student must have settled all financial obligations to the University."
- Chapter § 54.007 (c) of the Texas Education Code states "A student who fails to make payment prior to the end of the semester may be denied credit for the work done that semester."

Tuition

Texas A&M Tuition and Required Fees per Semester Credit Hour

A tuition calculator is provided on the Student Business Services (SBS) website to assist students in estimating their tuition and fee costs based on enrolled semester credit hours. Tuition and fee explanations can also be found at sbs.tamu.edu.

All rates are the most current available at the time of printing and are subject to change.

Nonresident Tuition Waiver

If you have any questions concerning your eligibility for a waiver of nonresident tuition, please visit our website (<https://aggie.tamu.edu/financial-aid/types-of-aid/tuition-waivers-and-exemptions/>) or contact Student Business Services by email at ssb@tamu.edu.

University Advancement Fee

The University Advancement Fee is a required fee charged to all Texas A&M University students. The University Advancement Fee funds services such as advising, the Career Center, University Writing Center, technology and libraries as well as administrative services such as ID services, the campus bus system, billing and refunds, access for students to discounted software and many of the services provided through the Division of Student Affairs.

CEHD Teacher Preparation Program

Undergraduate students enrolled in the professional phase of teacher preparation programs incur a differential tuition charge of \$300 in each of the remaining fall and spring semesters. This differential tuition helps support field experiences, supervision, scholarships and international/urban experiences in culturally diverse settings.

Distance Education Administration Fee

This \$30 per semester credit hour administrative fee is assessed to Non-Funded Out-of-State students taking distance education courses.

Distance Education Differential Tuition

The rate to be charged for distance education courses will range from a minimum of \$40/SCH to a maximum of \$550/SCH. Each academic department will have an individual rate that will be approved annually by the President of Texas A&M University. For more information regarding Distance Education Differential Tuition, please visit <https://sbs.tamu.edu/billing-payments/billing-fee-explanations/index.html> (<https://sbs.tamu.edu/billing-payments/billing-fee-explanations/>).

TAMUHSC Tuition and Required Fees

Texas A&M University Health Science Center tuition and fees are approved by The Texas A&M University System Board of Regents within guidelines established by the Texas Legislature. Fees are subject to change by the Board of Regents.

A tuition calculator is provided on the SBS website to assist students in estimating their tuition and fee costs based on enrolled semester credit hours. Tuition and fee explanations can also be found at sbs.tamu.edu (<https://sbs.tamu.edu/>).

TAMUHSC Fees

Distance Education Administration Fee

This \$30.00 per semester credit hour administrative fee is assessed to Non-Funded Out-of-State students taking distance education courses.

Field Trip Fees

Field trip fees are assessed to cover the cost of providing trips and vary depending on the course taken and expected expenses.

Group Hospital Fee

The group hospital fee supports the provision of medical services to students to access services at the academic locale.

ID card (1-time flat rate)

This additional ID fee covers the College of Dentistry badge, which also serves as an access card to secure locations of the college in addition to being an identification card.

Matriculation Fee (1-time flat rate)

This is a setup fee for first-year dental students related to a college-specific file set up with the college.

Drug Testing Fee (1-time flat rate)

All dental students pay this fee to cover drug testing for students, and this is a one-time assessment.

Lab Fee

The University is required to assess and collect a laboratory fee not less than \$2 nor more than \$30.00 for each laboratory course to cover in general the cost of laboratory materials and supplies used by a student.

Medical Liability

Medical Liability Insurance is required by students interacting and treating patients. This fee covers medical malpractice required for this type of activity.

Equipment Usage

This fee supports costs associated with instruments used during dental education.

Clinic Simulation Fee

This fee covers costs associated with Clinical Learning Resources Center to include specialized simulation technology, equipment, materials, and supplies related to the operating of the simulation center.

Professional Activity Fee

The Professional Activity Fee supports various professional activities for pharmacy students such as participation in clinical partnerships enhancing experiential education, financial resources to ensure these clinical experiences meet pharmacy education expectations, support of student travel to professional meetings/conferences, and other professional activities.

Professional Development Fee

One-third of the pharmacy curriculum is experiential education, which consists of the Introductory Pharmacy Practice Experiences (IPPE) and the Advanced Pharmacy Practice Experiences (APPE). This fee supports clinical site payments for student rotations. In addition to clinical site payments, the Professional development Fee supports service learning activities and other professional development services and programs.

Environmental Service Fee

This fee supports distribution, maintenance and pickup of recycle bins and materials from each building located on the Texas A&M University-Kingsville campus. Only pharmacy students located at Kingsville are assessed this fee.

Career Services and Professional Services Fee

This fee will support efficient and effective support services for professional career development services. Various operational costs associated with the provision of professional career development services.

Advising Services Fee

This fee will provide advising support services for all graduate degree programs not provided by members of the faculty. This fee includes, but is not limited to Graduate Studies, Professional School Advising, and Admission Services related to student enrollment. Various operational costs associated with the delivery of services noted in programmatic justification.

Transportation Fee

This \$70 per semester fee (\$35 for a 5-week summer term and \$70 for a 10-week summer semester) is assessed to provide unlimited fare-free access to all students to on-campus and off-campus services, and expanded service and revenue for a long-term bus replacement plan. In addition, revenue will pay for operating expenses and the enhancement of bus facilities on campus. Fee subject to change.

Locked and Variable Rate Tuition Plans

Beginning with the Academic Year 2018-2019, incoming undergraduate Texas resident students at Texas A&M University will be offered the choice between a variable rate tuition plan or a locked-rate (fixed) tuition plan allowing students and their parents to better plan and budget for college expenses. You will need to select the best option for you and your

family prior to registration. Incoming Non-Resident Students will default to the Variable Rate Plan.

Locked rates are guaranteed for a period of time-based on college and/or major.

All majors in the College of Engineering: 4.5 years from the time freshmen first enter college after high school.

Landscape Architecture: 5 years from the time freshmen first enter college after high school.

All Other Majors: 4 years from the time freshmen first enter college after high school.

HSC: Health Science Center (HSC) programs are upper-division programs with separate budgeted rates of two-year time frames. Upon transfer/entrance to an HSC major, you will be reassigned to their current-year locked-rate cohort for two years, or your remaining time left if you are originally in a main-campus locked-rate cohort.

Once you have completed the length of time in your locked rate cohort you will automatically be moved to the current year Variable Rate Cohort Non-Resident Students: Because the State of Texas does not fund "non-resident" tuition, mandates issued by the state for the fixed-rate tuition plan do not apply to non-resident students. Therefore, non-resident students will default to the variable-rate plan.

Options

Variable rate plan: Tuition and fees could increase each year, using the Higher Education Price Index.

Locked-rate (fixed) plan: Tuition and fees are locked into a per semester rate for 12 consecutive semesters, or 4 years, from the point of initial enrollment at a public or private institution.

Entering Freshman Texas Resident Students: Will choose either the variable rate or the locked-rate (fixed) associated with their first term of enrollment.

Entering Transfer or Readmit Texas Resident Students: Have three options to choose from

- Variable rate, which will vary each academic year
- Locked rate(fixed), based on their first term of enrollment in college after high school, which will expire at the end of 12 consecutive semesters, or 4 years from that first term of enrollment
- The current academic year's tuition and fee rate which will be locked in for 12 consecutive semesters or 4 years

Presumptions

Students will enroll in 30 hours an academic year for 4 years allowing completion of most degree plans. Some majors such as engineering and architecture are offered 1-2 additional semesters at the locked rate.

Where do I select my tuition rate?

All incoming freshmen, admitted transfer, and readmit applicants must select a tuition rate code prior to registration. Tuition rate code selections can be made by going to the Howdy Portal at howdy.tamu.edu (<http://howdy.tamu.edu>), searching Registration Readiness, and logging in. This will take you to the My Dashboard where Action Items are displayed. The Tuition Rate Plan Selection is towards the bottom of the list. The choice will be offered only once and cannot be changed in future semesters.

Tuition estimates can be found on the Student Business Services website at sbs.tamu.edu/ (<http://sbs.tamu.edu/>).

Texas A&M University meets requirements of the Texas Education Code, Section 54.017 regarding fixed tuition for undergraduate students.

Fees

Application Fees

Graduate: \$65; Undergraduate: \$75; International: \$90

Cooperative Education Fee

A fee of \$75 is charged to all participants of the Cooperative Education program.

Field Trip Fees

Field trip fees are assessed to cover the cost of providing trips and vary depending on the course taken and expected expenses.

Greek Dues Fee

This \$25 due fee provides members of fraternities and sororities with a sustainable advising and programming model to create a membership experience that is congruent with both the university's and the organizations' mission, purpose and values.

Laboratory Fees

The University is required to assess and collect a laboratory fee not to exceed \$30 for each laboratory course to cover in general the cost of laboratory materials and supplies used by a student.

Late Penalties

Students who fail to pay fees and installments when due are assessed a late payment fee for each payment or installment paid late.

Late Registration/Add Penalties

The Late Registration Charge is assessed to students who register on or after the first class day. A charge of \$100 for registration between the 1st and 12th class day and \$200 for registration after the 12th class day also applies to students who have not paid 100% of tuition and fees or submitted adequate Installment Plan payments by the semester census date. Registration after the 12th class day is by exception only and requires Dean's approval.

Students who add classes after the 12th class day that result in a net increase in hours enrolled are assessed a \$50 late add fee.

Microfilming, Binding and Collating

Binding, collating, microfilming theses and dissertations—Masters: \$110, Doctoral: \$170

Musical Activities Performance Fee

The \$100 Musical Activities Facility Performance Fee is a per semester fee that is charged to each participant in a Music Activities affiliated vocal or instrumental program and supports programming, performance, and operational costs. This charge is not Title IV eligible.

New Student Conference Fee

A non-refundable new student orientation fee of \$225 is charged to all freshmen students and \$153 to transfer students. An additional fee of \$35 is required of all international students to cover additional costs associated with orientation programs.

ROTC Uniform Rental

Qualifying cadets enrolled in Army, Air Force or Naval ROTC will be reimbursed the cost of basic cadet uniforms. Cadets who are not enrolled in ROTC (Drills and Ceremonies Cadets) are required to pay for use of uniforms.

Certificate Processing and Service Charge

A non-refundable document and processing charge is assessed for each certificate awarded. Students will incur this charge when an application for the certificate to be awarded is submitted.

Diploma/Graduation Fee

A non-refundable fee per degree sought is assessed the semester a student applies for graduation. This fee is payable each time a student applies for graduation. A late fee of \$50, in addition to the diploma/graduation fee, may be charged to those who apply for graduation after the published deadline.

Health Center Fee

This \$75.00 per semester fee (\$25 for a 5-week summer term and \$75.00 for a 10-week summer term) is required of all students for the purpose of operating, maintaining and equipping the University Health Center and entitles the student to its services. These services do not include surgical operations or charges for consultations with outside physicians.

Identification Card (Aggie Card)

Every student is required to have a student ID card - Aggie Card. Aggie Cards are permanent and students are responsible for maintaining a working ID throughout their career at the University. The Aggie Card is used for residence hall access, dining halls, athletic event and recreational sports admittance as well as library privileges and printing station access. Faculty/Staff will ask for your Aggie Card when responding to questions about registration, tuition and fees and financial aid disbursement. Replacement ID cards are \$12. Students who lose their IDs can submit a form for a new Aggie Card online at <http://myaggiecard.tamu.edu>.

Student Business Services

Aggie Card Office, General Services Complex

aggiecard@tamu.edu

8 a.m. – 5 p.m., Monday through Friday

International Student Health Insurance

The Texas A&M University System requires all international students in F-1 or J-1 status to be covered under the Texas A&M University System Student Health Insurance Plan (SSHIP) or have equivalent insurance coverage that meets the waiver criteria. The System Student Health Insurance Regulation is located at <http://policies.tamus.edu/26-99-01.pdf>.

For more information regarding the health insurance and waiver processes, please visit the International Student and Scholar Services website at <https://global.tamu.edu/iss/>.

International Student Orientation Fee

This \$70 fee is charged to cover the cost of resources for newly admitted international students.

International Student Services Fee

This \$150 fee is required of all students who are not U.S. Citizens or Lawful Permanent Residents to offset the cost of specialized services provided to these students from International Student and Scholar Services, the Center for Teaching Excellence - English Language Proficiency Program, and the University Writing Center.

International Student Administrative Fee

An administrative fee of \$415 per semester or summer session (all or part thereof) is required to support international, sponsored students whose tuition and fee payments are coordinated through Specialized Student Billing, unless these fees are waived as part of negotiated contractual agreements.

International Student Post Enrollment Maintenance Fee

This three-tiered fee will be required of F-1 students who are applying for Post-Completion Optional Practical Training (OPT) and the 24-month STEM Extension of OPT as well as J-1 students who are applying for Academic Training that will occur post-completion of studies. Within the applicable requests, the student will be required to upload evidence that they have paid the required fee. This fee will only apply to new or extended authorization requests for Post-Completion OPT, STEM OPT, and Post-Completion Academic Training. Additional information about this fee can be found on the ISSS website.

Recreational Sports Fee

The Recreational Sports fee is assessed to all undergraduate and graduate students (with a few exceptions) attending the University for use of the Student Recreation Center, Southside Rec Center, Polo Road Rec Center, Penberthy Rec Sports Complex, and all other Recreational Sports facilities. The fee is \$145 per semester (\$72.50 for a 5-week summer term and \$145 for a 10-week summer semester).

Reinstatement Fee

If a student is removed from the rolls of the University, has access blocked or is withdrawn for failure to pay amounts owed the University, a reinstatement fee of \$200 will be assessed, in addition, to any other late fees or penalties already incurred.

Supplementary Fee for Courses Attempted More than Twice

Certain courses that are attempted by a student more than twice at a public institution of higher education in Texas may not be reported for state funding. As a result, the institution must either pass the non-funded portion to all students, or charge a supplementary fee to the student who is repeating the course. Texas A&M has chosen to assess a supplementary fee to those students attempting a course more than twice.

A student attempting certain courses more than twice at Texas A&M will be subject to a supplementary fee of \$125 per semester credit hour (\$375 for a 3 hour course) for the repeated course, in addition to tuition and required fees associated with the course.

Students will be notified at the time they register for a course that it has been taken twice at Texas A&M and is subject to the supplementary fee.

Student Center Complex Fee

This \$100 fee (\$50 for a 5-week summer term and \$100 for a 10-week summer semester) is required of all students for operating, maintaining, improving and equipping the Student Center Complex.

The TEA Teacher Ed Prep Program Fee

The TEA Teacher Ed Prep Program Fee is mandated by the Texas Education Agency for all candidates seeking educator certification in the State of Texas TAC 229.9 (https://texas-sos.appianportalsgov.com/rules-and-meetings/?interface=LANDING_PAGE). This fee is assessed based on information provided by the School of Education and Human Development.

Optional Services

Athletic Events

Sports Pass are available for purchase. For more information, please visit <https://www.12thmanfoundation.com/tickets/student-tickets/index.html> (<https://www.12thmanfoundation.com/tickets/student-tickets/>).

Installment Payment Option

Students who choose to pay using the installment plan pay an installment payment service charge per semester. This charge is non-refundable. You may add the installment plan by selecting the installment option through the online bill payment system at <https://howdy.tamu.edu> (<https://howdy.tamu.edu/>).

MSC OPAS Tickets

Special Discounted Student OPAS tickets are available through the MSC Box office. For more information, please contact MSC OPAS at (979) 845-1661 or visit their website (<https://www.opastickets.org/>).

Yearbook

There are three ways to order a yearbook.

- 1. Click on yearbook.tamu.edu (<https://yearbook.tamu.edu/>).
- 2. Call the business office at (979) 845-2697, and order one by telephone with a credit card.
- 3. Come by the office in Suite L400 of the Memorial Student Center and pick up an order form.

Aggie Dining

Aggie Dining offers a variety of Meal Plans to help students budget and save while dining on campus! Meal Plans are available to all students enrolled at Texas A&M University, whether they live on- or off-campus.

On-campus, “New First Time Freshmen” (regardless of the number of college credit hours) living in campus residence halls are required to have a minimum Meal Plan for both the Fall and the Spring semesters (or

remainder of the year for those that apply for housing after the beginning of the Fall semester).

All Corps of Cadets members are required to have a minimum Meal Plan as designated by the Office of the Commandant in order to meet requirements of mandatory March-In Meals with the Corps. March-In Meals are automatically deducted at the beginning of each semester from meal plans.

Non-Corps Upperclassmen and Off-Campus students are not required to purchase a Meal Plan, but the option is available to them to aid in budgeting and provide dining discounts.

To learn about Meal Plan requirements/options, visit new.dineoncampus.com/tamu/ (<https://new.dineoncampus.com/tamu/>).

General Dining Information

- More information about Meal Plans/Dining can be found at new.dineoncampus.com/tamu/ (<https://new.dineoncampus.com/tamu/>).
- All Meal Plans are loaded onto the Student ID to make access and use easy. Students must have their Aggie ID to utilize their Meal Plan.
- Fees for the selected Meal Plan will be added to the student’s Texas A&M University student fee, and are separate from housing fees. For questions about billing, email dining@tamu.edu.
- Meal Plans can be upgraded/downgraded up to specific deadlines during the semester. These deadlines are available at new.dineoncampus.com/tamu/ (<https://new.dineoncampus.com/tamu/>).
- Students can use their Retail Swipes and Dining Dollars on the Transact Mobile Ordering app to order food ahead of time at locations such as Houston Street Subs. More information can be found at new.dineoncampus.com/tamu/ (<https://new.dineoncampus.com/tamu/>).

Parking Assignments

Vehicles parked on the Texas A&M University campus are required to have a valid parking assignment (virtual permit) or pay by the hour to park in designated visitor areas. Costs of virtual permits are prorated and subject to change.

For more information or to purchase parking, visit [transport.tamu.edu/](https://transport.tamu.edu/permitreg) (<http://transport.tamu.edu/parking/faqpermit.aspx>).

Surface Lot	\$379
Night Permit (only valid 5 p.m. - 6 a.m.)	\$189.50
Night+ (includes garage access to UCG, CCG, SBG or PRG 5 p.m. - 6 a.m. Garage assignments will be determined at the time of purchase)	\$289.50
Garage Non-Reserved Space (Polo Rd. Garage is \$679)	\$711
Motorcycle Permit - including mopeds and scooters	\$189.50

Residence Hall and White Creek Apartment Rates

All students living in residence halls and White Creek Apartments are required to pay room/apartment rent. Rooms are furnished with beds, mattresses, desks, chairs and dressers. Students are expected to furnish their own pillows, blankets and linens. Room/apartment rates include utilities, high-speed internet, cable tv, and electricity. Rates are for the semester and are subject to change.

For more information, please see Residence Life (<http://reslife.tamu.edu>).

Application Fee for Pay by Semester Properties: Residence Halls and White Creek Apartments

There is a \$75 non-refundable application fee that is required to complete the housing application and sign a contract for the residence halls and university apartments. Students applying for our Residence Halls, White Creek Apartments, or Corps of Cadet Halls have until May 1st to cancel their housing for the Fall term, or December 1st for the Spring term.

Any cancellation after that date is considered a late cancellation and cancellation penalties apply. Freshmen classified as U1 with less than 30 hours will be required to have a dining plan if they live on campus.

Payments

Scholarships, Grants and Loans

All financial aid or loans must be accepted and requirements completed before it can be applied toward a student's account.

Payment Methods

Texas A&M utilizes online statements and electronic payments in its efforts to provide timely financial information to students and to control costs. Student account payment options include:

Electronic/Online

Students can view their account and make online payments using E-Checks, American Express, Discover Card, MasterCard, Visa, International Payments and wire payments by searching for the Payment/Refund card on the Howdy portal. Payments made with credit cards will incur a service fee charged at the time of payment. Additional forms of payment accepted include personal checks, cashier's checks, and money orders. (Please Note: Once online payment transaction has occurred, the Service Fee is non-refundable). E-check payments incur no charge.

Paper

- Checks – Students may still use paper checks for payments. The University reserves the right to utilize check conversion technology to convert paper checks into electronic format.
- Cashier's checks
- Money orders

Cash

- Cash is not accepted.

Flywire

- All bank wire transfers are accepted using our partner, Flywire. Texas A&M University does not accept direct wire transfers and will not provide our banking information.

Returned Payments

Any payment that is rejected for payment by the paying bank, credit card company or other financial institution is subject to returned item charges of \$30 or more. Rejected payments may also result in cancellation of the student's registration and additional late registration penalties if the student is required to re-register on or after the first day of classes.

Payment Plans

Tuition, required fees, room, board and parking are payable in full, or in installments. A service charge, to cover the cost of handling, will be assessed to each student who chooses to use the payment plan each semester. Students may pay their account in full any time during a semester; however, the service fee will not be refunded once a payment is made under the payment plan or after the first payment due date. See the Student Business Services website (<http://sbs.tamu.edu>) for information on installment plans.

Deposits

General Deposit

A deposit of \$100 is required of every student to ensure the institution against losses, damages, and breakage for which the student is responsible, or to be used to offset in part amounts owed by the student to the institution. General deposits are returned to students, less any such amounts owed to the institution, within a reasonable period after the date of the student's withdrawal or graduation from the institution, not to exceed 180 days. The deposit retention period provides the University sufficient time to identify all amounts owed and to determine if the student intends to enroll in the semester or summer session immediately following the student's withdrawal or graduation or, if the student withdraws or graduates in the spring semester, in the next fall semester. If a student leaves the University without graduating or officially withdrawing, they must submit a written request to Student Business Services to receive a refund of their deposit. Deposits for students that do not graduate, withdraw or otherwise request a refund remain on file for four years. Those deposits are forfeited to the University's General Deposit Scholarship Fund, after deducting any amounts owed the University.

Penalties and Late Fees

Late Payment Penalty

There are severe penalties for failure to pay student account balances and installments by their specified due dates. If a payment is delinquent when a semester ends, the student will be blocked and may not receive credit for academic work performed. Students will not be readmitted to the University until all past due balances, including late charges, are paid. A late fee of \$25 for A&M students and \$50 for HSC students will be assessed for each payment not received on or before it is due. If a student is removed from the rolls of the University or is withdrawn for failure to pay amounts owed the University, a reinstatement fee of \$200 will be assessed in addition to any other late fees or penalties already incurred. Current due dates can be found online at the Student Business Services website (<http://sbs.tamu.edu>).

Late Registration Fees

Students who register on or after the first day of classes are assessed a late registration fee of \$100 for A&M students and \$200 for HSC students. Students who register after the official census date (12th class day for fall or spring and 4th class day for summer) are assessed a late

registration fee of \$200 for A&M students and \$250 for HSC students. Students who add classes after the official census date are assessed a late add fee of \$50 for A&M students and \$100 for HSC students. Note: Penalties, late registration and late add fees also apply to students who are required to re-enroll because their registrations were canceled for nonpayment. Registrations are subject to cancellation and/or financial penalties if sufficient payment is not received before 5:00 p.m. on the semester due date.

Use of Collection Agencies and Credit Bureau

If amounts become past due, the University reserves the right to report the account to the Credit Bureau. This will also initiate internal collection efforts and could cause the University to employ an outside collection agency to recover the debt. If any collection efforts must take place, the student will be required to reimburse the University for the fees of any collection agency which may be based on a percentage at a maximum of 30% of the debt. All costs and expenses, including reasonable attorney's fees the University, incur in such collection efforts.

Canceling Registration

Once students have registered for classes, they must select one course of action from the following to remain in good standing with the University:

- pay all amounts due by the specified due date;
- use the online registration to drop all classes prior to the first day of classes; or
- initiate the withdrawal process online in Howdy to begin the process to withdraw from the University after the first day of classes.

Following this procedure is especially important for students who have been awarded scholarships or financial aid since the aid may automatically pay tuition and fees and cause the registration to be held even though the student has decided not to attend. Failure to request cancellation of an unwanted registration may result in grades of F or I in all courses for the semester. The student will be required to reimburse the University for scholarships and other financial aid applied to their account and will be held responsible for paying all fees for the semester, regardless of whether they attended classes.

Cancellation for Nonpayment of Tuition or Fees

The University reserves the right to cancel registrations not paid by their due date, or the official census date for a semester or summer term, to comply with state laws requiring payment of tuition and fees, to free the classroom spaces for other students, and to ensure the most efficient use of university resources.

Refunds and Adjustments

Fee Adjustments for Courses Dropped

A student may drop individual courses during the first five days of a fall or spring semester (first four days of a summer term). Students also may drop individual classes with special permission of the dean between the 6th and 12th class days. Full refunds will be given for the individually dropped courses during these periods provided the student remains enrolled in at least one class and has not withdrawn from the university. Refunds will not be issued for classes dropped after the 12th class day.

As of the first day of the semester, students may not drop all of their courses through the drop/add process, but instead must begin the official withdrawal process online through Howdy (<https://howdy.tamu.edu>) (see **Withdrawal from the University** below for additional information regarding the withdrawal process). A student may add courses during the first five days of a fall or spring semester.

Adjustments for Withdrawal–Tuition and Fees

Tuition and fee adjustments shall be made to students officially withdrawing from the University for charges listed below according to the following refund schedule: Tuition and Required Fees, Residence Hall Rent, and Meal Plans.

Fall and Spring Semester and 10-Week Summer Semester

By 5 p.m. on the last business day before the first day of class	100%
During the first five class days	80%
During the second five class days	70%
During the third five class days	50%
During the fourth five class days	25%
After the fourth five class days	None

Summer Term of More Than 5 Weeks But Less Than 10 Weeks

By 5 p.m. on the last business day before the first day of class	100%
During the first, second or third class day	80%
During the fourth, fifth or sixth class day	50%
Seventh day of class and thereafter	None

Summer Term of 5 Weeks or Less

By 5 p.m. on the last business day before the first day of class	100%
During the first class day	80%
During the second class day	50%
During the third class day or thereafter	None

Athletic Refunds

Refunds are not allowed for individual games or games missed. A prorated refund is permitted until the option is used to pick up a ticket for any one game. Once a ticket option has been used, prorated refunds will be given only in the event of withdrawal from the University. For information on refunds, contact the Athletic Business Office at (979) 846-8892.

Reductions in Rates for Late Entry to the University

No reduction will be made in the charge of room rent and board in case of entrance within 10 days after the opening of a semester or summer term, nor will a refund be made in case of withdrawal during the last 10 days of a semester or summer term, or the last days for which payment is made.

Refund Delivery

Texas A&M and Flywire have joined forces to deliver financial aid and other refunds to students faster through the University's refund delivery process. You will receive information from the University at your new student conference and in your official University email account, which will explain the process for signing up for direct deposit of refunds.

Tuition Insurance

Texas A&M University has teamed up with GradGuard™ (<https://gradguard.com/tuition/tamu/>) to offer tuition insurance to Aggie students and families. This protection strengthens our existing refund policy (<https://sbs.tamu.edu/billing-payments/withdrawing/>) and can provide reimbursement for tuition, housing, and other fees if a student withdraws for a covered medical reason at any time during the covered semester.

Yearbook Refunds

Yearbook charges are refundable in full during the semester in which payment is made. Thereafter, no refunds will be made on orders canceled in subsequent semesters. Yearbooks must be picked up during the academic year in which they are published. Students who will not be on campus when the yearbooks are published must pay a mailing and handling fee. Yearbooks will not be held, nor will they be mailed, without payment of the mailing and handling fee. Refunds will not be made on books not picked up within one semester of the publication date. Refunds will not be made before 21 days from the date of payment. Refund policies contained herein reflect policies in effect at the time of publication and are subject to change.

Aggie Dining Meal Plan Adjustment/Cancellation/Transfer Policies

Aggie Dining's information is based on information available at the time of publishing and are subject to change.

Students may purchase a Meal Plan through Aggie Dining by visiting mealplans.tamu.edu. Students can upgrade/downgrade their chosen Meal Plan until a designated date in the semester, as listed on our website (<https://mealplans.tamu.edu/Default.aspx?ReturnUrl=%2F>). The appropriate fee is to be paid to the Office of Student Business Services.

Meal Plans are valid for one semester within dates designated on [dining.tamu.edu](https://dineoncampus.com/tamu/) (<https://dineoncampus.com/tamu/>). Check with Aggie Dining for posted dates for Meal Plan access. Location hours may vary during class breaks and meal availability may exclude official University holidays.

Following University policy, no one is authorized to use or borrow a student's identification card (Aggie Card); therefore, Meal Plans are not transferable between students. The Aggie Card must be presented to Aggie Dining cashiers for Meal Plan participation. If an Aggie Card becomes lost, report it immediately by calling (979) 845-4661 or go to <http://myaggiocard.tamu.edu> (<https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fmyaggiocard.tamu.edu%2F&data=04%7C01%7Caaallensworth%40tamu.edu%7Ccacbfde525e840deb5d908da1320916d%7C68f381e346da47b9ba576f322b8f0da1%7C1%7C0%7C637843327854600402%7CUnknown%7CTWFpbGZsb3d8eyJWljiMC4wLjAwMDAiLCJQIjoiV2luMzliLjBtIl6Ik1haWw%3D&reserved=0>) to deactivate the card.

Aggie Dining follows the University's refund schedule for Tuition and Fee Adjustments. Refunds are given on the percentage basis listed for students dropping fee options or officially withdrawing from the University. To submit a cancellation request, visit Aggie Dining's website here. (<https://dineoncampus.com/tamu/get-answers-now/>)

- **On-Campus Freshmen:** All students identified by Texas A&M as "New First Time Freshmen" (regardless of credit hours) living in on-campus residence halls are required to have a minimum designated Meal Plan for both the Fall and the Spring semesters. On-campus freshmen looking to cancel their campus Meal Plan must first cancel their housing contract through Residence Life. It is the student's responsibility to reach out to Aggie Dining about their canceled housing contract and request to cancel their Meal Plan. A canceled housing contract must be present before Meal Plan cancellation approval. To submit a cancellation request, visit Aggie Dining's website here. (<https://dineoncampus.com/tamu/get-answers-now/>)
- **Corps of Cadets:** All members of the Corps of Cadets are required to have a minimum designated Meal Plan for both the Fall and the Spring semesters. Cadets seeking to cancel their campus Meal Plan must first present their Corps resignation/withdrawal form before approval. To submit a cancellation request, visit Aggie Dining's website here. (<https://dineoncampus.com/tamu/get-answers-now/>)

For questions and assistance, please visit Aggie Dining's "Get Answers Now" webpage at <https://dineoncampus.com/tamu/get-answers-now> (<https://dineoncampus.com/tamu/get-answers-now/>).

Residence Hall and White Creek Apartment Cancellation Policy and Refunds

Any cancellation after May 1st for the Fall (regardless of when the student applies) is subject to the following cancellations penalties: 1) Prior to May 1st - no penalty, 2) May 2nd to May 30th - \$500, 3) June 1st to August 14th - \$1000, 4) August 15th (or after move) - 100% of fall semester rent and 5) Students who cancel their housing assignment after the student has moved in for the fall is subject to 100% of the spring semester rent.

Exceptions to the housing charge/refund schedule may be granted for students who graduate at the end of the fall semester, enlist in the Armed Forces of the United States, are accepted into one of the Service Academies, or participate in a cooperative education/internship, student teaching (not in the local area), or a student abroad program for the spring semester if written notification and verification of the aforementioned condition is received in the Housing Assignments Office, Corps Housing Office, or University Apartments Office (as applicable) by November 15th. Exceptions may also be made for students who are academically restricted from re-enrollment or who become medically unable to return for the spring (or summer if a 12 month contract) semester if written notification is received prior to the beginning of classes for the spring (or summer if a 12 month contract). Students who withdraw or transfer to a different college/university for personal reasons would not meet any of the above exemptions.

Withdrawal from the University

Once a student is considered officially enrolled, unless otherwise restricted from enrolling, stopping or cancelling payment for tuition and fees will not constitute official withdrawal.

Before the first class day of the semester, in accordance with the Academic Calendar, you may go online to Howdy (<http://howdy.tamu.edu/>) and drop your courses and options for the semester.

After the first class day of the semester, you must complete a Student Withdrawal in Howdy (<http://howdy.tamu.edu/>) in order to cancel your registration for the semester. Failure to complete the withdrawal process will result in forfeiture of any tuition and fee adjustments, and course work may be recorded as incomplete or failed.

Failure to follow procedures for withdrawing from the University may result in financial penalties and delays with future enrollment. Once a student registers, they are responsible for the total fees assessed regardless of whether the installment option is used. Refund percentages are applied to total fees assessed and not the amount paid. This means that students who withdraw before paying all installments may, in the event of withdrawal, still owe the University.

International students must visit with an advisor in International Student and Scholar Services before withdrawing to determine if doing so will affect visa status.

Student athletes should visit with an academic advisor in Athletics before initiating the withdrawal process.

Recipients of financial aid should visit with an Enrollment Services Advisor before withdrawing. Students receiving funds awards by Scholarships & Financial Aid should be aware that federal regulations require a return calculation for all students who receive Title IV federal aid and withdraw during a semester. These regulations stipulate that students who withdraw prior to the end of a semester may be required to return disbursed funds not earned if at the time of their withdrawal they have not completed 60 percent of the days they were scheduled to complete.

Scholarship & Financial Aid will notify and provide instructions to students for whom aid has been adjusted due to the return calculation. Eligibility for state and institutional funds may also be impacted with withdrawing from the university. More details can be found on our Maintaining Eligibility website (<https://aggie.tamu.edu/financial-aid/apply-for-aid/maintaining-eligibility/>).

Additionally, students who do not successfully complete courses for the semester may be considered unofficially withdrawn and could be subject to the same return calculation described above based on their last date of academic engagement as reported by their instructor(s). Academic engagement includes, but is not limited to, attending an in person or synchronous course lecture, or submitting an academic assignment or taking an exam. All disbursed funds may be returned if academic engagement cannot be documented in any course.

For aid recipients, course drops and withdrawals are considered to be unsuccessfully completed coursework when determining Satisfactory Academic Progress (SAP) and will impact completion rate. This can affect future aid eligibility. More details can be found on our Maintaining Eligibility website (<https://aggie.tamu.edu/financial-aid/apply-for-aid/maintaining-eligibility/>).

Allocating Returned Title IV Funds (Federal Aid)

Funds returned to the federal government due to student withdrawal are used to reduce the outstanding balances in individual federal programs.

Financial aid returned (by the University and/or the student or parent) must be allocated in the following order:

1. Unsubsidized Federal Direct Loan
 2. Subsidized Federal Direct Loan
 3. Direct Graduate PLUS (Student) Loan
 4. Federal Direct PLUS (Parent) Loan
 5. Federal Pell Grant
 6. Federal Supplemental Educational Opportunity Grant (FSEOG)
 7. TEACH Grant

Returns of state and institutional aid (when applicable) will be calculated using the same percentage proration used by Student Business Services to determine the amount of tuition and fees to be charged to a withdrawn student.

Unclaimed Title IV Refunds

According to federal law, the university is required to return Title IV funds that have not been claimed (i.e., refund check that has not been cashed) within 240 days of issue. These funds will be returned to the federal financial aid program from which they were disbursed.

Rebates

Tuition Rebates After Graduation

Certain undergraduate students who attempt no more than three hours in excess of the minimum number of semester credit hours required to complete the degree under the catalog under which they were graduated may be entitled to a \$1,000 tuition rebate after graduation. Several conditions apply and students must meet all of the specified criteria. If you wish to try and qualify for this program, please see the Office of the Registrar website (<http://registrar.tamu.edu>) for a complete set of student and institutional responsibilities and other criteria.

Scholarships & Financial Aid

We want to partner with you to help pay for your college expenses. There are different options to assist with cost.

Need-based financial aid programs are designed for students who have a demonstrated financial need as defined by their financial aid application, such as the Free Application for Federal Student Aid (FAFSA). All financial aid is contingent upon you enrolling and making Satisfactory Academic Progress (SAP), as defined by Scholarships & Financial Aid or the specific aid program.

Financial aid has two forms: Gift Aid (not repayable) and Self-Help (may be repayable, such as with a loan)

Gift Aid	Self-Help
Grants (Federal, State, Institutional)	Loans (Federal, State, Institutional, Alternative)
Scholarships	Student Employment (Work Study, Part-time Employment, Internships, Assistantships)

Waivers

There is limited gift aid available to undergraduate students. Gift aid is offered on a first-come, first-served basis based on priority dates

published on the Scholarships & Financial Aid Planner Dates website (<https://financialaid.tamu.edu/planner-dates/>).

To apply for financial aid, you must submit a financial aid application. The Free Application for Federal Student Aid (FAFSA) becomes available on October 1 each year for the next academic year. Students are encouraged to submit their FAFSA online at the Federal Student Aid website (<https://studentaid.gov/h/apply-for-aid/fafsa/>) as soon as possible. Students who do not meet the citizenship eligibility requirements to complete the FAFSA may be eligible to submit the Texas Application for State Financial Aid (TASFA) or the International Student Financial Aid Application (ISFAA). Information on these applications can be found on the Aggie One Stop Apply for Aid website (<https://aggie.tamu.edu/financial-aid/apply-for-aid/>). You must be admitted to Texas A&M, have a FAFSA, TASFA or ISFAA (whichever is applicable to you) on file with Texas A&M and have submitted all other requested documents to Scholarships & Financial Aid to receive a financial aid offer.

Financial aid offers for incoming students beginning in the fall semester are made early in the preceding spring semester. Financial aid offers for incoming students beginning in the Spring semester are made late in the preceding fall semester. Financial aid offers to continuing students (those who have completed at least one semester at Texas A&M) for the upcoming academic year are made after spring semester grades have been submitted. Summer financial assistance is offered to students with a FAFSA or other financial aid application on file who enroll at least half-time in Summer coursework at Texas A&M.

Financial aid offers are made based on the assumption that you will enroll full-time in the fall and spring semesters. Cost of attendance and offered financial aid amounts will be adjusted if you are enrolled less than full-time at Texas A&M University or through the Texas A&M-Blinn TEAM Program, the Texas A&M Engineering Academy at Blinn-Bryan or another approved consortium program.

You may receive federal financial aid only for courses that count towards your program of study/degree plan. State and institutional aid are not subject to the same regulatory restrictions. Regardless of the type(s) of aid offered, the cost of attendance will be reduced for courses that are not counting towards your program of study, which may result in a lower amount of federal, state and institutional aid eligibility. Financial aid offers may also be adjusted if you do not begin attendance in all courses for which you are registered.

If you are attending the College Station campus and have questions related to scholarships and financial aid, please visit the Aggie One Stop Contact Us website (<https://aggie.tamu.edu/resources/contact-us/>).

If you are attending a Galveston, McAllen, School of Law or Health Science Center program, please visit the Scholarships & Financial Aid Contact Us website (<https://financialaid.tamu.edu/about/contact-us/>) to locate the contact information for your campus or site.

Please visit the Aggie One Stop website (<https://aggie.tamu.edu/>) for the most current information on programs and any associated deadlines.

Grants

The Federal Pell Grant is available to undergraduate students who have not received a baccalaureate degree and who have demonstrated financial need as determined by the FAFSA. The Federal Pell Grant provides a foundation of financial assistance to which aid from other sources may be added.

The Federal Supplemental Educational Opportunity Grant (FSEOG) and the Texas Public Education Grant (TPEG) are offered to students based on financial need as determined by the FAFSA. These funds are offered on a first-come, first-served basis.

The Towards EXcellence, Access and Success (TEXAS) Grant is available to eligible Texas residents who have met certain levels of financial need according to the results of their financial aid application and have met the remaining program criteria, which may be reviewed on the Aggie One Stop Grants website (<https://aggie.tamu.edu/financial-aid/types-of-aid/grants/>). The TEXAS Grant is also subject to funds availability and eligibility guidelines as defined by the Texas Higher Education Coordinating Board.

Additionally, Texas A&M provides institutional grant aid to eligible students to assist with educational expenses. Student grants are subject to fund availability and may be single-year or renewable.

Scholarships

School/College/Department Level Scholarships

Several schools/colleges and departments at Texas A&M award scholarships to students interested in particular major fields of study based on academic record, service, activities and demonstrated leadership. The value of the awards varies, and the term of scholarships range from one to four years. Awarding schools/colleges and departments select recipients based upon predetermined criteria. Completed scholarship applications must be received no later than the specified deadlines. Awards are typically announced mid-spring for the following academic year.

For more information, please review the opportunities that may be available within your school/college and department at the Aggie One Stop Additional Scholarships website (<https://aggie.tamu.edu/financial-aid/types-of-aid/scholarships/additional-scholarships/>).

Incoming Freshmen Scholarship Programs

Opportunity Award: awarded to freshman students based on academic achievement, leadership roles, community/extracurricular participation during high school and, in some cases, financial need.

Achievement Scholarship: available to incoming freshman students who attended and graduated from targeted high schools in the State of Texas. Scholarships include the President's Achievement Scholarship and Century Scholars. Awards are based on academic achievement, leadership roles and community/extracurricular participation during high school.

Academic Scholarship: available to incoming freshman students admitted in the fall (only). Scholarships include the President's Endowed Scholarship, Lechner Scholarship and McFadden Scholarship. Awards are based on academic achievement, leadership roles and community/extracurricular participation during high school.

For more information, please visit the Aggie One Stop Undergraduate Scholarships website (<https://aggie.tamu.edu/financial-aid/types-of-aid/scholarships/undergraduate-scholarships/>).

Continuing Student Scholarships (students who have completed at least one semester at Texas A&M)

The University Scholarship Application is available to students with at least one semester completed at Texas A&M. Awards range in value from \$500 to \$7,500 and are available to undergraduate, graduate and

professional students currently enrolled at Texas A&M. Some awards are limited to certain fields of study and to individuals who have attained a necessary academic classification, while others are unrestricted. Awards are made to outstanding students based on a combination of University academic achievement, campus/community involvement, campus leadership roles and, for some scholarships, financial need. In addition to scholarships offered through Scholarships & Financial Aid, many colleges, departments, the Corps of Cadets and the Texas A&M Foundation use the University Scholarship Application for award consideration. Students are encouraged to complete the University Scholarship Application (<https://uwide.tamu.edu/>) beginning in October. The deadline for submitting applications is February 1, prior to the academic year for which the student will be awarded.

For more information, please visit the Aggie One Stop Undergraduate Scholarships website (<https://aggie.tamu.edu/financial-aid/types-of-aid/scholarships/undergraduate-scholarships/>).

Transfer Student Scholarships

Aggie Transfer student scholarships are designed to recognize outstanding students who transfer to Texas A&M. Scholarships are awarded based on a combination of college academic achievement, extracurricular activities, campus involvement at their current institution, leadership, major and, in some instances, financial need. In addition to scholarships offered through Scholarships & Financial Aid, many schools/colleges, departments, the Corps of Cadets and the Texas A&M Foundation use the transfer admissions application for award consideration.

For more information, please visit the Aggie One Stop Undergraduate Scholarships website (<https://aggie.tamu.edu/financial-aid/types-of-aid/scholarships/undergraduate-scholarships/>).

Scholarship Recipients and Non-Resident Tuition Waivers

The Competitive Scholarship waiver, authorized under Texas Education Code 54.213a, is an optional state waiver that institutions may offer. In this, an eligible non-resident student who holds competitive scholarships of a specified minimum dollar amount may be eligible to pay the fees and charges required of Texas residents without regard to the length of time the student has resided in Texas. The student must have applied for and competed with other students (including Texas residents) for the scholarships and the scholarships must be offered by a Texas A&M University school/college or department scholarship committee or authorized university representative.

The Texas Education Code requires that all male students (both registered and exempt) receiving state funding, waivers, or exemptions provide a one-time Selective Service Statement of Registration Status. Eligible students will be prompted to provide this documentation in the Financial Aid Portal in Howdy.

More information is available at the Aggie One Stop Competitive Scholarship Non-Resident Tuition Waiver website (<https://aggie.tamu.edu/financial-aid/types-of-aid/scholarships/competitive-scholarship-non-resident-tuition-waiver/>).

Loan Programs

The Federal Direct Loan Programs are available to students who have submitted a FAFSA. Students will be notified of their eligibility for the Direct Loan program(s) through a financial aid offer.

Students and parents seeking the Parent Loan for Undergraduate Students (PLUS) may obtain information from the Aggie One Stop Federal Direct Parent PLUS Loans website (<https://aggie.tamu.edu/financial-aid/types-of-aid/loans/federal-direct-parent-plus-loans/>). This program requires the FAFSA to be on file with Scholarships & Financial Aid.

Short-term loans are available to assist students who experience temporary financial difficulties with educationally-related expenses. Funding for this program is provided by The Association of Former Students, the Class of 1926, and other University resources. This program is not intended to provide long-term assistance or to replace other assistance available through Scholarships & Financial Aid. Students must be degree-seeking and enrolled at least half-time to be eligible for short-term loans.

The Emergency Tuition and Required Fees loan program is available to help students pay their Texas A&M tuition and required fees. The loan is applied directly to the student's tuition and fee account.

Please refer to the Aggie One Stop website (<https://aggie.tamu.edu/>) for detailed information on all of these loan programs and more.

Changes in Status that Impact Financial Aid

Dropping or Q-dropping a course affects a student's enrollment status. In turn, enrollment status may impact certain funding sources as described in the below sections.

- **Enrollment Status** – A student's enrollment status continues to be adjusted throughout the semester when a student drops or Q-drops a course. The change in enrollment status may or may not have immediate impact, depending on timing. Falling to less than half-time enrollment will impact student loan repayment. Federal financial aid can pay only for courses included in the student's degree plan. Enrolling in courses not on the degree plan may result in reduced financial aid eligibility.
- **Scholarships & Financial Aid** – Financial aid checks enrollment status on two occasions – when a student's aid is released to their billing account and on the 12th class day of a fall or spring semester. A student's aid amount can be adjusted if the student's enrollment status changes between the time funds are disbursed to the billing account and the 12th class day. However, after the 12th class day, enrollment status is not a factor for aid that has already disbursed, unless a student withdraws or drops all courses. Instead, any changes in enrollment status will be reviewed through financial aid's satisfactory academic progress standards for subsequent semesters and will not impact current semester aid. If aid has not been disbursed prior to the 12th class day, then enrollment status is checked on the date the aid is disbursed. In the Summer semester, enrollment status is officially checked on the 4th class day of the Summer session(s) in which the student is enrolled.
- **Student Loan Repayment** – Students must maintain at least half-time enrollment throughout the semester for student loans to remain in an in-school deferred status. Dropping below half-time enrollment at any time during the semester will trigger student loans to enter any applicable grace period, with repayment required after the grace period has elapsed. Changes in enrollment status from full-time to half-time have no consequence on student loans. Half-time enrollment for an undergraduate student is defined as 6 hours for the fall and spring semesters.

The Federal/Texas College Work Study Programs

Federal and state programs provide part-time employment for U.S. citizens, permanent residents and eligible non-citizens (within fund limitations) who have an established financial need and desire on-campus employment. Off-campus employment may also be considered if it is at a Texas A&M System member institution, with a Community Service Program partner or for the Reads & Counts Program. Students seeking part-time job opportunities on campus and in the Bryan/College Station area may search the Jobs for Aggies (<https://employees.tamu.edu/jobsforaggies/>) job board.

To qualify for the Federal/Texas College Work Study Programs, a student must have submitted a financial aid application, have financial need, be eligible to work in the United States, be enrolled at least half-time or are accepted for enrollment and plan to enroll at least half-time and be making Satisfactory Academic Progress if enrolled. On a case-by-case basis, work study can be offered to students who are enrolled less than half-time through professional judgment.

The Community Service Program allows students who qualify for the Federal Work Study Program to work part-time with participating local non-profit, governmental and community-based organizations. This program is designed to improve the quality of life for community residents, particularly low-income individuals, or to solve problems related to community needs.

The Texas A&M University Reads and Counts Program is a partner of the national Every Student Succeeds Act (established initially as a part of the No Child Left Behind initiative). It is based on the philosophy that children are our nation's greatest asset. It calls on all Americans to support teachers and help ensure that every child can read well by the end of the third grade. Eligible and dedicated college students are called to serve as reading and math tutors, as well as mentors and role models for area elementary and middle school students.

All work study students are paid minimum wage or higher, work an average of 20 hours per week and are not eligible for paid holidays, retirement, vacation or sick leave. For more information on Federal/Texas College Work Study, the Community Service Program or Texas A&M University Reads and Counts, visit Jobs for Aggies (<https://employees.tamu.edu/jobsforaggies/>) or Aggie One Stop (<https://aggie.tamu.edu/>).

UNIVERSITY POLICIES

Aggie Honor Code

Integrity is a fundamental core value of Texas A&M University. Academic integrity requires a commitment by all faculty, students, and administrators to:

- Remain constantly focused on the quality of the academic programs
- Achieve and maintain academic excellence in all courses and programs to assure the value of Texas A&M University degrees
- Demand high academic standards from all members of the Aggie community
- Actively promote academic integrity
- Confront instances of academic misconduct through engagement in the Aggie Honor System Office rules and procedures

All Texas A&M University students, graduate and undergraduate, part-time or full-time, in residence or in distance education, are expected to follow the guiding rule of the Aggie Honor Code:

"An Aggie does not lie, cheat or steal, or tolerate those who do."

Upon accepting admission to Texas A&M University or one of its branch campuses, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning, and to follow the philosophy and rules of the Honor System. A student will be required to state his/her commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the Texas A&M community from the requirements or the processes of the Honor System.

The Honor System Office is charged with promotion of the honor code and administration of academic misconduct cases. The Honor Council, comprised of students and faculty from colleges and offices across the University, will investigate all such infractions of the honor code and recommend appropriate sanctions. The website, <http://aggiehonor.tamu.edu>, defines the types of infractions and the possible consequences. Students are urged to review this information.

In addition to adherence to the Honor Code, a student (graduate students in particular) who is completing a thesis, record of study, dissertation, and publication may fall under the additional federal requirements promulgated by the Office of Research Integrity (Scientific Misconduct Regulations – 42 CFR part 50), as well as Texas A&M System Regulations and Texas A&M University Rules (Texas A&M System Regulations – Ethics in Research, Scholarship and Creative Work – 15.99.03 (<https://www.tamus.edu/legal/policy/policy-and-regulation-library/>), and Texas A&M University rules and standard administrative procedures – Responsible Conduct in Research and Scholarship – 15.99.03.M1, 15.99.03. M1.01-06 (<http://rules-saps.tamu.edu/TAMURulesAndSAPs.aspx#15>)).

Contact information for each campus can be found at the following:

- Texas A&M University website - <http://aggiehonor.tamu.edu>
- Texas A&M at Galveston website - <https://www.tamug.edu/HonorSystem/>
- Texas A&M at Qatar website - <https://www.qatar.tamu.edu/students/academic-services/aggie-honor-system> ([https://](https://www.qatar.tamu.edu/students/academic-services/aggie-honor-system/)

www.qatar.tamu.edu/students/academic-services/aggie-honor-system/)

Intellectual Property

Intellectual Property includes patentable or unpatentable inventions, discoveries, works of authorship, software, plant varieties, trademarks, mask works, and trade secrets. The ownership, management, and commercialization of such Intellectual Property is set forth in System Policy 17.01 (<https://policies.tamus.edu/17-01.pdf>)– *Intellectual Property Management and Commercialization*. This policy is based on three fundamental principles: enhancing academic freedom, protecting all interested parties, and providing a clear pathway for pursuing technology commercialization.

The Texas A&M University System (TAMUS) recognizes and affirms the traditional academic freedom of its faculty, staff, and students to publish pedagogical, scholarly, or artistic works. In keeping with this philosophy, the System does not claim copyright to pedagogical, scholarly, or artistic works, regardless of their form of expression, except in certain circumstances. See System Regulation 17.01.01 – (<https://policies.tamus.edu/17-01-01.pdf>) *Ownership of Intellectual Property and Tangible Research Property* for more details. Such works include, but are not limited to, copyrightable works of students created in the course of their education, such as dissertations, theses, papers, and journal articles. Furthermore, the System does not claim ownership in popular nonfiction, novels, poems, musical compositions, or other works of artistic imagination that do not constitute significant use of resources and/or are not considered works for hire. Authors of copyrightable works not owned by the System, its members, or another party such as a research sponsor, own the copyright in their works and are free to publish them, register the copyright, and receive any revenues that may result.

As to other types of Intellectual Property, the determination of ownership of such Intellectual Property would generally include the following factors:

1. was the Intellectual Property conceived or developed as a result of activities related to an individual's employment (graduate students who receive a stipend from a member or accept a graduate assistant position at a member are generally considered employees) responsibilities and/or with support from university-administered funds, facilities, or personnel;
2. was the intellectual property conceived or developed in the course of, or resulting from, research supported by a grant or contract with the Federal Government, state government, a nonprofit, or for-profit nongovernmental entity; or
3. was there significant use of System's and/or a member's resources to create or develop the Intellectual Property.

For more information, see System Regulation 17.01.01, Section 2.2 (<https://policies.tamus.edu/17-01-01.pdf>).

Any Intellectual Property that is owned by the System will be disclosed to Texas A&M Innovation. Texas A&M Innovation will review the disclosure and make a determination if it will file for protection and commercialize such Intellectual Property. See System Regulation 17.01.02 – (<https://policies.tamus.edu/17-01-02.pdf>) *Evaluation and Protection of Intellectual Property*. The System will share in any income received that is associated with the licensing of that Intellectual Property with the individual(s) that created or authored such Intellectual Property. For more information on the distribution of such income, please see System Regulation 17.01.04 –

(<https://policies.tamusc.edu/17-01-04.pdf>) *Distribution of Royalties, License Fees and Sale Proceeds from Licensing*.

Responsible Conduct of Research

Texas A&M University is committed to supporting responsible and ethical conduct of research and scholarship among its faculty, staff, and students. As such, the university follows federal, state, and university guidelines regarding Responsible Conduct of Research (RCR). A campus-wide environment pertaining to responsible conduct of research requires researchers to have the knowledge, skills, and tools that enable them to be responsible for their research conduct.

The requirements outlined in University SAP 15.99.99.M0.04 (<https://rules-saps.tamu.edu/PDFs/15.99.99.M0.04.pdf>) apply to any graduate student, postdoctoral researcher, or undergraduate student participating in research. The specific requirements will depend on the *type of student* and the *type of funding* supporting the research.

Requirements for Graduate Students

Education and training in the ethical and responsible conduct of research are integral elements of research for all graduate students, postdoctoral researchers, and undergraduate students who engage in research in any field or who pursue advanced degrees at university facilities. The requirements for graduate students depend on whether the graduate student is participating in research funded internally, by research gift(s), or externally sponsored research. Internally funded research is not funded via an agreement with a sponsor, but is instead funded through internal sources that may or may not be restricted to research. Graduate students enrolled in a course, such as 685 (Directed Studies), 691 (Research), etc., that includes research as an integral element are also subject to these RCR requirements (e.g., any student conducting research as part of a course, honors thesis, master's thesis, or doctoral dissertation).

Graduate students participating in research through a course or funded internally or by research gift(s) *must complete the CITI RCR training within sixty (60) days from their commencement of the research activity*.

Graduate students participating in externally funded research *must complete the CITI RCR training and an additional four hours of face-to-face Core training*. The CITI training must be completed *within sixty (60) days following initiation of such support and the Core training must be completed within the first six months of the student's involvement in externally funded research*.

Additional Information

Additional information, including the specifics on how to complete the training, may be found on the VPR RCR website (<https://vpr.tamu.edu/manage-research/responsible-conduct-of-research/faqs/>). Questions related specifically to graduate students, please contact rcr.grad@tamu.edu.

Student Grievances and Appeals Procedures

Specific procedures at Texas A&M University allow students to pursue a grievance for any of the problems, issues, or concerns listed in the table below. **BEFORE** initiating a grievance, students are strongly encouraged to seek clarification and advice regarding appropriate procedures. The Office of the Vice Provost for Academic Affairs provides Undergraduate Ombuds services (p. 89) to assist students, faculty, staff, and administrators with resolving academic conflicts on an informal and

confidential basis. These are valuable resources for questions regarding grievances and appeals.

Type of Grievance/Issue	A&M Student Rule	University Panel Handling Appeals	Appeals Panel Preliminary and Formal Resolution Procedures
Discrimination and Discrimination Appeals	45 (http://student-rules.tamu.edu/rule45/)	See SAP 08.01.01.M1 (http://rules-saps.tamu.edu/PDFs/08.01.01.M1.pdf)	56 (http://student-rules.tamu.edu/rule56/)
Disability Accommodations in Academic Programs	46 (http://student-rules.tamu.edu/rule46/)	See SAP 08.01.01.M1 (http://rules-saps.tamu.edu/PDFs/08.01.01.M1.pdf)	56 (http://student-rules.tamu.edu/rule56/)
Sexual Harassment, Sexual Violence, Dating Violence, Domestic Violence, and/or Stalking	47 (http://student-rules.tamu.edu/rule47/)	See SAP 08.01.01.M1 (http://rules-saps.tamu.edu/PDFs/08.01.01.M1.pdf)	58 (http://student-rules.tamu.edu/rule58/)
Grade Disputes	48 (http://student-rules.tamu.edu/rule48/)	Undergraduate Academic Appeals Panel	57 (http://student-rules.tamu.edu/rule57/)
Unexcused Absences	49 (http://student-rules.tamu.edu/rule49/)	Undergraduate Academic Appeals Panel	57 (http://student-rules.tamu.edu/rule57/)
Academic Suspension and Blocks	50 (http://student-rules.tamu.edu/rule50/)	Undergraduate Academic Appeals Panel	57 (http://student-rules.tamu.edu/rule57/)
Student Conduct Separation and Appeal	51 (http://student-rules.tamu.edu/rule51/)	University Disciplinary Panel	58 (http://student-rules.tamu.edu/rule58/)
Academic Misconduct	52 (http://student-rules.tamu.edu/rule52/)	Aggie Honor System Office	http://aggiehonor.tamu.edu
Financial Assessments by the University	54 (http://student-rules.tamu.edu/rule54/)	Head of Department or Unit Involved	Student Fiscal Appeal Process (https://sbs.tamu.edu/documents/tamu_fiscal-appeals-form_4.26.2024.pdf)
Parking Citations	55 (http://student-rules.tamu.edu/rule55/)	Student Parking Appeals Board	http://transport.tamu.edu/Parking/appeal.aspx

Undergraduate Studies' units have modified services available to students enrolled via distance education, at branch campuses, or at other instructional locations.

University Statement for Individuals with Disabilities

Texas A&M University (TAMU) is committed to providing reasonable accommodations to qualified students, faculty, staff and visitors and to maintaining an accessible campus community, including making its web sites accessible and usable. Texas A&M University does not discriminate on the basis of an individual's disability and complies with Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act (ADA) as amended.

Students are protected from discrimination regarding access to and participation in Texas A&M's programs and activities. #Texas A&M provides academic adjustments and auxiliary aides to accommodate the needs of students with disabilities, as defined under the law, who are otherwise qualified to meet the institution's academic requirements.

Students with disabilities who would like to request accommodations may contact the following resources based on their campus location:

- Texas A&M University, College of Nursing, College of Dentistry, Irma Lerma Rangel College of Pharmacy-College Station, Naresh K. Vashisht College of Medicine, School of Public Health, Institute of Biosciences and Technology, EnMed Program, Bush School in Washington DC, Mays Business School – CityCentre, TAMU Engineering Academies, TAMU Higher Education Center at McAllen, and Texas A&M University at Galveston should contact Disability Resources (<https://disability.tamu.edu/>) at (979) 845-1637 or disability@tamu.edu.
- Texas A&M University School of Law should contact the Office of Student Affairs at (817) 212-4111 or law-disability@law.tamu.edu to request accommodations.
- Irma Lerma Rangel College of Pharmacy in Kingsville should contact the Disability Resource Center at Texas A&M University - Kingsville at (361) 593-3024 or drc.center@tamuk.edu to request accommodations.
- Texas A&M University College of Veterinary Medicine and Biomedical Sciences in Canyon should contact the Office of Student Accessibility at West Texas A&M University – Canyon at (806) 651-2335 or osa@wtamu.edu.
- Texas A&M University at Qatar (TAMUQ) should contact the campus psychologist, Dr. Steve Wilson +974-4423-0047 or stephen.wilson@qatar.tamu.edu.

Students with a disability who believe they have experienced discrimination may contact Jennifer Smith, Associate Vice President and Title IX Coordinator in the Office of Civil Rights and Title IX, at YMCA Building Ste 108, 365 Houston St. #108, College Station, TX 77843, civilrights@tamu.edu, or at (979) 458-8407. Students can also contact Julie Kuder, the Texas A&M ADA Coordinator, at (979) 845-8116 or ADA.Coordinator@tamu.edu. The office address is YMCA Building Ste 108, 365 Houston St. #108, College Station, TX 77843. Allegations of discrimination will be immediately forwarded to the Office of Civil Rights and Title IX for review, investigation, or resolution.

For more information about disability accommodations, see TAMU Student Rule 46, Disability Accommodations in Academic Programs (<http://student-rules.tamu.edu/rule46/>) or

TAMUG Student Rule 46, Disability Accommodations in Academic Programs (https://www.tamug.edu/studentrules/Student_Grievance_Procedures/46_Disability_Accommodations.html).

University Statement on Harassment and Discrimination

Texas A&M University is committed to providing a safe and non-discriminatory learning, living, and working environments for all members of the University community. The University provides equal opportunity to all employees, students, applicants for employment or admission, and the public regardless of race, color, sex (including pregnancy and related conditions), religion, national origin, age, disability, genetic information, and veteran status. Texas A&M University will promptly and equitably investigate and resolve all complaints of discrimination, harassment (including sexual harassment and sex-based misconduct), and related retaliation in accordance with applicable federal and state laws, University rules and standard administrative procedures.

The University's response to allegations of discrimination, harassment, and related retaliation will be 1) prompt and equitable, 2) intended to stop and prevent the recurrence of any harassment, and 3) intended to remedy discriminatory effects, as appropriate. A substantiated allegation of such conduct will result in disciplinary action, up to and including separation from the University. The University's student sanctioning guidance for substantiated allegations of discrimination on the basis of sex, including sexual harassment, sexual violence and related retaliation, can be found here: Title IX Cumulative Sanctioning Matrix. (<https://titleix.tamu.edu/wp-content/uploads/2019/03/title-ix-sanctioning-matrices.pdf>)

Students who have questions or believe they have experienced discrimination, harassment, sexual harassment/sex-based misconduct, and/or related retaliation are encouraged to contact Jennifer Smith, Associate Vice President and Title IX Coordinator, at YMCA Building Ste 108, 365 Houston St. #108, College Station, TX 77843, civilrights@tamu.edu, or at (979) 458-8167. The Office of Civil Rights & Title IX website can be found at titleix.tamu.edu (<https://titleix.tamu.edu/>).

To report incidents, request accommodations, or inquire about discrimination based on disability, you may contact Julie Kuder, ADA Coordinator, at (979) 845-8116 or ADA.Coordinator@tamu.edu. The office address is YMCA Building Ste 108, 365 Houston St. #108, College Station, TX 77843, or see the ADA website at <https://orec.tamu.edu/ada/>. Reported allegations of discrimination will be immediately forwarded to the Office of Civil Rights and Title IX for review, investigation, or resolution.

University Statement on Pregnancy and Related Conditions

Title IX prohibits discrimination on the basis of sex, including pregnancy and parental status in educational programs and activities. This includes harassment and discrimination against a student based on pregnancy, childbirth, false pregnancy, or recovery from any of these conditions.

The university is required to provide reasonable accommodations due to pregnancy and related conditions, including excused absences or alternative participation options when accommodations are medically necessary. Students seeking accommodations should contact Julie Kuder, Pregnancy Accommodations Coordinator, at YMCA Building Ste 108, 365 Houston St. #108, College Station, TX 77843 or (979) 845-8116 or email address TIX.Pregnancy@tamu.edu, or Jennifer Smith, Associate

Vice President and Title IX Coordinator, at the YMCA Building Ste 108, 365 Houston St. #108, College Station, TX 77843. Her telephone number is: (979) 458-8167 and email address is civilrights@tamu.edu. For more information, go to <https://titleix.tamu.edu/>.

Students who have questions or believe they have experienced discrimination and/or harassment based on pregnancy, pregnancy related conditions, or parenting status are encouraged to contact Jennifer Smith, Associate Vice President and Title IX Coordinator, at the YMCA Building Ste 108, 365 Houston St. #108, College Station, TX 77843. Her telephone number is: (979) 458-8167 and email address is civilrights@tamu.edu. The Office of Civil Rights & Title IX website can be found at titleix.tamu.edu (<https://titleix.tamu.edu/>).

University Student Rules

Each student enrolled at Texas A&M University is responsible for being fully acquainted with and complying with the Texas A&M University Student Rules. Specific rules, information and procedures may be found in publications pertaining to each particular service or department. Students are encouraged to reference the website at <http://student-rules.tamu.edu> (<http://student-rules.tamu.edu/>) for current published rules and regulations.

For information concerning federal and state policies, please reference the appendices (p. 1411) in this catalog.

INTERNATIONAL OPPORTUNITIES FOR STUDENTS

Education Abroad

<https://global.tamu.edu/ea> (<https://global.tamu.edu/ea/>)

Texas A&M University is committed to providing access to high-impact international opportunities for all students. The ability to engage successfully across cultures and the development of international leadership skills and global awareness are crucial for success as graduates enter the workforce and commit to lifelong learning.

Texas A&M Education Abroad is part of the Department of Global Engagement <https://global.tamu.edu/>. Established in 2022, Global Engagement spearheads internationalization at Texas A&M by offering collaborative leadership, strategic coordination, and support for the development and sustainability of global programs and services across the university.

Education Abroad provides access for all Texas A&M students to a broad range of transformational and international experiences lasting from one week to an academic year. Typically, over 5,000 students each year participate in study, intern, volunteer, and research opportunities in over 100 different countries. Our office also contributes to the development of on-campus experiences that foster cultural awareness.

Students are encouraged to make an in-person or virtual appointment with an Education Abroad Advisor by visiting <https://global.tamu.edu/ea/students/advisor> (<https://global.tamu.edu/ea/students/advisor/>). Education Abroad, located on the 1st floor of the Pavilion, weekdays from 8 a.m. – 5 p.m. for additional information.

Faculty-led and Field Trip Programs

Programs led by a Texas A&M faculty member designed around specific A&M courses. To find the most recent offerings, visit <https://global.tamu.edu/ea/students/programs> (<https://global.tamu.edu/ea/students/programs/>).

Exchange Programs

Pay tuition at Texas A&M but “switch places” with counterparts at one of our foreign partner universities. Students can learn more about our exchange partners at <https://global.tamu.edu/ea/students/programs> (<https://global.tamu.edu/ea/students/programs/>).

Affiliate Provider Programs

Pursue a study, intern, volunteer, or research program through one of our third-party affiliate providers. Learn more at <https://global.tamu.edu/ea/students/programs> (<https://global.tamu.edu/ea/students/programs/>).

Intern and Volunteer

Students have a variety of options for credit or non-credit intern or volunteer abroad programs through Texas A&M offices and student organizations as well as third-party affiliate providers. Visit Education Abroad to learn more.

Research and Conferences

Texas A&M faculty engage in research around the world. Students who join faculty to research overseas, who develop independent research opportunities, or attend conferences, must also register with Education Abroad. Learn more at <https://global.tamu.edu/ea/students/programs> (<https://global.tamu.edu/ea/students/programs/>).

Other Opportunities

Students going abroad on a program not organized by a Texas A&M office or department or through an affiliate provider must complete the <https://global.tamu.edu/ea/students/programs> (<https://global.tamu.edu/ea/students/programs/>) if one or more of the following applies:

- Receiving credit (TAMU or transfer) for the experience
- Receiving any support from a TAMU entity (e.g. funding or arranging experience)
- Satisfying a degree or graduation requirement (e.g. thesis or dissertation research)
- Representing Texas A&M University in any way

Funding to Go Abroad

Federal and other financial aid may be adjusted to accommodate for extra costs associated with credit-bearing international experiences.

Students interested in exploring funding options should discuss this with your academic department, your education abroad advisor, and Scholarships & Financial Aid. Learn about funding available through Texas A&M, locally and nationally, and from affiliate providers at <https://global.tamu.edu/ea/funding> (<https://global.tamu.edu/ea/funding/>).

University Locations Abroad

Texas A&M has a research and education center in Costa Rica.

Soltis Center for Research and Education

The Soltis Center for Research and Education in north-central Costa Rica was established in January 2009 to support research, education, and outreach throughout Central America. The unique physical and cultural setting of the center provides students and faculty with research and educational opportunities in tropical ecology, civil engineering, ecosystem sciences, geosciences, public and rural health and agricultural economics.

On-Campus Engagement

Students don't have to go abroad to take advantage of international opportunities offered by Texas A&M. Students who remain on campus are encouraged to participate in many options available including the following:

- Center for International Business Studies (<http://cibs.tamu.edu/>)
- Corps Global Leadership Initiatives (<http://corps.tamu.edu/global/>)
- Global Career Accelerator (<https://www.globaltech.tamu.edu/>)
- Halliburton Engineering Global Programs (<http://engineering.tamu.edu/global/>)
- MSC L.T. Jordan Institute for International Awareness (<http://ltjordan.tamu.edu/>)
- MSC SCOLA (<https://scola.tamu.edu/>)
- MSC SCONA (<http://scona.tamu.edu/>)
- Norman Borlaug Institute for International Agriculture (<http://borlaug.tamu.edu/>)

- Public Policy Internship Program (<http://ppip.tamu.edu/>)
- Scowcroft Institute of International Affairs (<http://bush.tamu.edu/scowcroft/>)
- Student Organizations (<https://studentactivities.tamu.edu/>) – To find internationally focused student organizations, visit <https://getinvolved.tamu.edu/> and search international.
- Undergraduate Research (<http://ugr.tamu.edu/>)

Students should consult their department and college advisers for additional opportunities to engage in global education on or off campus.

HONORS, UNDERGRADUATE RESEARCH AND NATIONAL FELLOWSHIPS

Honors Academy

The Honors Academy provides a university-level Honors experience open to undergraduates from all majors through the minor in Honors. The Honors Academy mission is to challenge high-achieving undergraduate students to develop the personal, professional, and intellectual skills they will need to address tomorrow's multifaceted problems.

Admission to the Honors Academy

Students are admitted to the Honors Academy curriculum on a competitive basis. Incoming freshmen apply as part of their application for admission to the university. Continuing students may apply each spring for entry in the fall prior to completing 60 credit hours at Texas A&M. Transfer students are invited to apply as part of the continuing student application (for summer and fall entrants) or via a transfer student application in the late spring (for spring entrants).

Applications are evaluated on the basis of the student's record of academic achievement and demonstrated potential for creativity, intellectual ability, imagination, curiosity, willingness to try new things and self-awareness. Once admitted to the Honors Academy curriculum, students are designated as "Honors Students" and may then access specific privileges and resources, including additional advising, priority registration, professional development opportunities, contracting non-honors courses for Honors credit, and enrolling in graduate-level courses for undergraduate Honors credit. Honors Students also receive priority for the Honors Housing Community.

To remain in the program, all students (freshman and continuing students) must make progress toward the Honors Fellows distinction and meet minimum co-curricular participation requirements. See the section on Maintaining Honors Status (p. 116).

Continuing students with a minimum 3.5 cumulative GPA who have not applied or not been accepted to the Honors Academy may enroll in major- and major-aligned Honors course work during their assigned registration time. Students who would like to meet with an Honors Academy advisor may sign up for an appointment through our online appointment system (<https://launch.tamu.edu/honors/advising> (<https://launch.tamu.edu/honors/advising/>)). All students interested in Honors opportunities are encouraged to sign up for the Honors weekly email bulletin.

Honors Minor Curriculum

The minor in Honors requires 18 hours of Honors course work including 5 hours of Aggie Core Values Seminars and 13 hours of Honors course work in the student's major or major-aligned courses. Students will complete 2 hours of introductory seminars, 3 hours of 300-level seminars with at least 2 hours in the same topic, and a Culminating Experience. For more details, see Honors Minor (p. 124).

To graduate with the minor in Honors, students must be in good standing with the university at the time of graduation distinction audit and through graduation, must not have an F* on the transcript and not have been found responsible for an Honor Code violation as an Upper Division student. Upper Division status is defined as having earned 60 or more credit hours (including transfer hours and advanced placement credits)

on the date of the violation. This sanction is automatic upon a finding of responsibility and is imposed without regard to the severity of other sanctions imposed by the Aggie Honor System Office. (see Student Rule 16 (<https://student-rules.tamu.edu/rule16/>)).

Required Culminating Experience

To complete Honors Academy curriculum requirements, Honors Students must complete a culminating experience. The requirement may be met by engaging an academic research project in the Undergraduate Research Scholars Program (<https://launch.tamu.edu/undergraduate-research/urs/>), by preparing and teaching a seminar or adding enriching material to an existing course as part of the Undergraduate Teacher Scholars Program subject to approval by their school/college, by undertaking a community service project as a participant in the Undergraduate Service Scholars Program, creating an artistic performance through the Undergraduate Performance Scholars program, or by completing a capstone project designated by their home department that meets expectations described at <http://tx.ag/Capstones> (<http://tx.ag/Capstones/>). Students should consult with a Honors Academy advisor in the planning stages to seek approval for their capstone experience. Students should register for HONR 497 in the first semester of their capstone.

Honors Courses

The Honors Academy works with academic departments across the university to ensure that appropriate Honors courses are offered. Honors courses have limited enrollment and encourage participatory learning. Coursework in Honors courses is intended to provide increased breadth, depth, and complexity, not simply more work or greater difficulty. Honors classes may be special sections of regularly offered courses or courses developed specifically for Honors Students. Students are encouraged to visit regularly with Honors Academy advisors to ensure that their course selection meets Honors Fellows Minor curriculum requirements, as they would confer with a departmental advisor to ensure degree requirements are met.

Honors students are afforded other avenues to earn Honors credit in addition to regularly offered Honors courses. Honors students may contract for Honors credit or take graduate courses that count toward undergraduate degree requirements. Honors students should consult with Honors Academy advisors about these opportunities.

Maintaining Honors Status

To remain in the Honors Academy, Honors Students must:

1. Maintain a 3.5 cumulative GPA,
2. Maintain a 3.25 GPA in honors coursework,
3. Make progress toward curriculum requirements by taking at least 6 Honors credits per year,
4. Submit three reflections each year on professional development engagement.

Honors Students who fail to meet any of these requirements will be given a semester of probation to correct any deficiencies. Honors Students who fail to meet requirements after a semester of probation will be dismissed from the program. Students who are found responsible for an Aggie Honor Code violation that makes them ineligible to graduate with Latin Honors will be removed from the program.

Honors Student Services

Honors Students have access to numerous special services and programs. Throughout the academic year, the Honors Academy coordinates recreational and community-building events, lectures and workshops. Honors Students are invited to engage in leadership opportunities and contribute to the development of the Honors Academy through Honors Student Council and as members of the Honors Housing Community.

Honors Students can take advantage of supplemental advising to help them identify ways to enrich their college experience and complete the requirements for the prestigious Honors Fellows distinction. Throughout their time in the Honors Academy, students are encouraged to take on challenging and enriching experiences such as undergraduate research, study abroad, service learning, capstone experiences, and application to nationally-competitive scholarships and fellowships. This program is uniquely designed to make Honors Students good candidates for opportunities coordinated through the Office of National Fellowships. These include scholar programs such as the Rhodes, Truman, and Goldwater Scholarships. They also include other prestigious opportunities such as the Fulbright Program for U.S. Students and the National Science Foundation Graduate Research Fellowship Program.

Information about upcoming opportunities for Honors Students appear regularly in our email bulletins.

Graduation with Honors

All Honors courses are designated on a student's transcript demonstrating to future employers or graduate and professional admissions committees that the student has engaged with an enriched, challenging curriculum. Students who complete the Honors Academy curriculum and/or complete the Undergraduate Research Scholars program have these distinctions noted on their transcripts.

Undergraduates in some academic colleges and departments may pursue additional transcript distinctions (See <http://honorsprograms.tamu.edu> (<http://honorsprograms.tamu.edu/>)). These distinction requirements work in parallel with the Honors Academy minor but are separate and distinct from the Honors Academy. Many students elect to graduate with multiple distinctions from the Honors Academy, college, or departmental offerings. In general, all Honors transcript distinctions require that the student complete a substantial body of Honors coursework, hold a minimum cumulative Texas A&M GPA of 3.5, and a cumulative Honors course GPA of 3.25, and meet other program participation requirements. Students are encouraged to work through their college and/or departmental advisor to ensure satisfactory completion of the distinction requirements.

These Honors transcript distinctions are separate and distinct from "Latin Honors" such as *cum laude*, *summa cum laude* or *magna cum laude* which are conferred by the Office of the Registrar and are based upon cumulative GPA and residency requirements (See <https://aggie.tamu.edu/graduation/graduation-with-honors/#a-undergraduatestudents-v6rwHm> (<https://aggie.tamu.edu/graduation/graduation-with-honors/#a-undergraduatestudents-v6rwHm>)).

Undergraduate Research

The Office of Undergraduate Research at Texas A&M University enhances the undergraduate experience for all students across campus. Our initiatives foster connections between students, faculty, staff, as well as promote interdisciplinary collaboration and professional development.

Our office meets the evolving needs of students, faculty, and staff by helping shape campus-wide policies for undergraduate research, building programs that empower the Texas A&M community to engage in meaningful scholarly work, and expanding access to information and opportunities for undergraduates to engage in research activity.

Being involved in undergraduate research allows students to participate in a scholarly community of students with common interests, to learn more about their future professional field, and to develop a close working relationship with acclaimed faculty. Research experiences make students more competitive for scholarships, internships, jobs, international opportunities, and admission to top graduate and professional programs. Perhaps most importantly, engaging in undergraduate research allows students to experience the excitement of working collaboratively to create new knowledge, solve cutting-edge problems, and communicate more effectively—life skills that are increasingly valued in our world.

Campus-wide programs coordinated by the Office of Undergraduate Research include the Undergraduate Research Scholars thesis program, the Undergraduate Research Ambassadors outreach, and the publication of *Explorations: the Texas A&M Undergraduate Journal*. The office offers informational sessions and workshops for undergraduate students on getting started in research, finding summer research opportunities, developing research presentations, and organizing thesis writing, as well as workshops for faculty and graduate students on mentoring undergraduate researchers.

The Office of Undergraduate Research also works with groups across campus to promote and facilitate activities that support undergraduate research opportunities, such as Summer Undergraduate Research Experiences, National Science Foundation Research Experiences for Undergraduates (REU) programs, the Undergraduate Research Expo, and the Undergraduate Research Scholars Symposium. Lastly, the office provides assistance for developing externally-funded proposals and implementation of funded projects that have undergraduate research involvement, such as National Science Foundation REU, Beckman Scholars, and Howard Hughes Medical Institute Education grants.

Workshops and Events

The Office of Undergraduate Research hosts informational sessions and workshops on undergraduate research for undergraduate students, graduate students, and faculty. We also coordinate public events that celebrate and promote undergraduate research, providing venues for students to present their research projects, for faculty to recruit new student researchers, and for recognition of research efforts by both students and faculty.

Grant, Proposal, and Project Assistance

The Office of Undergraduate Research provides a wide variety of support services for undergraduate research programs, proposal development, and implementation. Please contact the office directly for more information.

Undergraduate Research Scholars Thesis Program

Completion of the Undergraduate Research Scholars thesis program confers a stand-alone, university-level Honors distinction upon graduation regardless of whether the participant is a member of any Honors program. The two-semester (fall-spring) experience requires undergraduates to engage in an independent research project that culminates in a written undergraduate thesis to be published in

the Undergraduate Research Scholars Capstone Collection in the Texas A&M OAKTrust Repository (<http://oaktrust.library.tamu.edu/handle/1969.1/3367/>).

Students can apply as individuals or as a team up to five members. Students must secure a project supervised by an eligible Texas A&M faculty member prior to applying, as faculty advisor approval is required upon application and upon completion of the project. Check the program page on the Office of Undergraduate Research website (<https://ugr.tamu.edu>) for eligibility requirements. Students are selected for this program based on the quality of their project proposals and their academic records.

The thesis or scholarly product may be a traditional research thesis, a professional report approved by the faculty advisor, or an accepted article in a professional journal. Theses may also include documentation of an exhibit, a performance, or other product as determined by the faculty advisor in collaboration with the Office of Undergraduate Research Office. Students are required to complete a public presentation of their work, such as at the Undergraduate Research Scholars Symposium, Student Research Week, or other venues. Students in the program must also meet specified thesis installment deadlines and formatting requirements.

Staff within the Office of Undergraduate Research support the students and faculty who participate in the program. While staff do not review research content, which is the responsibility of faculty advisors, they do provide students with thesis templates and formatting support, as well as other professional guidance and resources.

Explorations: The Texas A&M Undergraduate Journal

Explorations is an interdisciplinary, student-led journal guided by faculty and administrators that selects and publishes student-authored research, scholarly, and creative pieces of general interest in any area. *Explorations* is composed of an editorial board made of students that work to accomplish the many facets of editing, publishing, and marketing the journal while representing departmental diversity, critical thought, and creativity. The call for new board members is early in the fall semester each year. The call for submissions begins in the fall semester and extends into the early spring semester.

Manuscript submissions go through a two-stage, double-blind, peer-reviewed process. First, synopses of prospective manuscripts are reviewed by faculty-student teams; second, full-length manuscripts are evaluated in another round of peer review. Authors of accepted pieces are paired with student board members who provide editorial assistance and formatting guidance. *Explorations* hosts a journal release event every fall to recognize all who were involved in the making of the latest volume.

Acceptance to the journal is highly competitive—less than 20% of submitted synopses result in published articles. Published articles include a wide range of academic fields, including music, creative poetry, forensics, cancer biology, astrophysics, nanomedicine, computer algorithms, business, geosciences, sociology, aerospace engineering, cultural anthropology, and architecture. The target audience includes faculty, staff, and students of Texas A&M University, other institutions of higher learning, as well as parents, former students, and current high school seniors. To review recent volumes and to find upcoming deadlines, visit explorations.tamu.edu (<http://explorations.tamu.edu/>).

Undergraduate Research Ambassadors

The Undergraduate Research Ambassadors represent the Office of Undergraduate Research and work to inspire broader engagement in undergraduate research by educating and serving the Texas A&M University community and beyond. Undergraduate Research Ambassadors are available to share advice with fellow undergraduates on how to get started in research and help their peers find research projects, talk to faculty advisors, and make the most of their undergraduate research experience at Texas A&M.

The Office of Undergraduate Research seeks Ambassadors that will represent diverse academic disciplines across campus, including science, engineering, arts, humanities, business, social sciences, and more. Undergraduates with a background in research, a GPA of 3.0 or higher, outstanding oral communication skills, and the ability to describe research to a general audience are encouraged to apply to the program. They are trained in presentation and leadership skills, and participate in a variety of activities, including meeting with highly-placed members of the University Administration, distinguished faculty, outstanding alumni, prospective students, and parents.

Students in the Undergraduate Research Ambassadors program will gain knowledge in networking, public speaking, leadership opportunities, and will have increased competitiveness on graduate and professional school applications. Ambassadors often receive additional grant opportunities and other professional development experiences as a result of their involvement.

Capstones

Capstones provides a year-long integrative experience that allows students to combine their career goals, majors, and interests in faculty-mentored independent projects that focus on leadership, research, community service, teaching, or performance.

The Honors Academy offers one year Capstone experiences to any junior or senior with a cumulative Texas A&M GPA of 3.0 or above. A listing of capstone options can be found at <http://tx.ag/Capstones> (<http://tx.ag/Capstones/>).

The Undergraduate Teacher Scholars program allows students to collaborate closely with a Texas A&M University faculty member to create a one-credit hour seminar or to improve an existing course in collaboration with a faculty expert. The Teacher Scholar will have the opportunity to research, design, and arrange the content of the seminar. The Teacher Scholar will be responsible for the presentation of class material under the supervision of the Texas A&M University supporting faculty member.

The Undergraduate Service Scholars program pairs students with community leaders to develop and carry out projects that benefit the greater community. The Undergraduate Service Scholars capstone allows the student to draw upon their undergraduate education to plan, coordinate, and execute a project aimed at improving the community while learning about issues that affect that community.

The Undergraduate Performance Scholars program allows students to explore the impact of art on their academic career. Under the supervision of a working artist, students will create a performance project that creatively synthesizes their art and experience.

All capstones require a proposal and timeline, two semesters engaging with the project, supervision by a faculty member or similar expert, a

public presentation, regular reflection, and a scholarly project appropriate for the field. Students are selected for participation in these programs based on the quality of their proposals, their academic record and the recommendation of their faculty or community advisor.

The Office of National Fellowships

The Office of National Fellowships at Texas A&M University supports students in pursuing nationally and internationally competitive awards. Our office provides guidance throughout the application process, from identifying opportunities to developing strong application materials. We collaborate with faculty, staff, and campus partners to create an environment where students can excel in their academic and professional aspirations. Through mentorship, advising, and tailored resources, we help Texas A&M University students maximize their potential and achieve their goals.

About National Fellowships

National Fellowships provide students with the opportunity to reflect on their accomplishments and goals, synthesize their thoughts into a coherent whole, and achieve national recognition with access to unparalleled opportunities around the world.

We are eager to assist all Texas A&M students with the National Fellowships process. However, we also have awards that we emphasize in terms of our facilitation. We distinguish between two types of awards, namely, “core awards” and “non-core awards.”

Core Awards

Core awards are National Fellowships that require a campus nomination. For these awards, students need to apply through our internal campus process. These are awards that involve campus deadlines and review committees. These awards include the following National Fellowships:

- Rhodes Scholarship
- Marshall Scholarship
- Churchill Scholarship
- Truman Scholarship
- Barry Goldwater Scholarship
- Boren Scholarship and Boren Fellowship
- Fulbright U.S. Student Program
- Gilman Scholarship
- James C. Gaither Junior Fellows Program
- Udall Scholarship
- Freeman ASIA
- Astronaut Scholarship

Non-core Awards

Non-core awards are National Fellowships that do not require a campus nomination. Students have the ability to apply for these awards independently. While we are happy to assist students with these processes, core awards take priority in terms of the usage of our resources. These awards include, but are not limited to:

- Critical Language Scholarship
- Knight Hennessy Fellowship
- Pickering Fellowship
- SALAM Study Abroad Scholarship
- Yenching Academy Fellowship

- Payne Fellowship
- NSF Graduate Research Fellowship

Becoming a candidate

Becoming a competitive National Fellowship Candidate takes time, dedication, focus and ability. Some National Fellowships require Texas A&M to convene a selection committee and choose only a few students to receive an official nomination. It is highly unlikely that you will be able to walk in the door to the Office of National Fellowships for the first time and have an application that is competitive, especially for those National Fellowships that require Texas A&M to endorse you. Tips for becoming a competitive candidate include:

- Start Early
 - You will need an average of six months to create a competitive application, provided that you have all the experiences, qualifications, and skills required by the selection criteria of these National Fellowships. As soon as you find that you are interested in a National Fellowship, you should contact the National Fellowship advisor (natlfellows@tamu.edu (natlfellows@tamu.edu?subject=National%20Fellowships%20Inquiry))
- Know the requirements
 - Many fellowships have eligibility criteria based on factors such as GPR, citizenship, or major. It is your responsibility to know whether or not you are eligible for an award. If you have questions about the eligibility criteria, the National Fellowship advisor can help you determine whether or not there is an issue.
- Have a backup plan
 - No matter how strong of a candidate you are, there is no guarantee that you will win the award. You should have a contingency plan for what you will do if you are not selected.
- Do your research
 - A National Fellowship that is extremely prestigious or has a large monetary award may not necessarily be a good fit for you. You should research the fellowship to understand what qualities they are looking for in an applicant and what the awarding body hopes to accomplish by providing this opportunity.
- Be honest
 - Never exaggerate or lie about your accomplishments and/or activities. “Honesty is the best policy.”
- Be prepared to work
 - Preparing a strong application will require many hours of hard work. You will be researching, writing, editing, and revising your application throughout the process. Make sure to take advantage of resources like the University Writing Center and Career Center. In applying for a National Fellowship, you gain knowledge of not only the fellowship, but also deeper knowledge of yourself.
- National Fellowship Candidates often come with strengths in a particular group of areas.
 - Academics
 - It is unlikely that your application will look competitive without a successful academic record. Different fellowships have different requirements
 - Service
 - Leadership
 - Research
 - Foreign Language
- Value the process

- Since it is not guaranteed that you will receive a national fellowship, learn to value the process of applying for one. These are the skills you will hone while applying for national fellowships:
 - Writing and Communication Skills
 - Crafting compelling personal statements and research proposals
 - Writing concisely and persuasively
 - Tailoring messages to different audiences
 - Articulating academic and career goals clearly
 - Research and Analytical Skills
 - Conducting thorough background research on fellowship opportunities
 - Developing well-reasoned arguments and justifications for projects
 - Synthesizing complex ideas in an accessible way
 - Critical Thinking and Self-Reflection
 - Evaluating personal strengths, weaknesses, and long-term aspirations
 - Demonstrating intellectual curiosity and originality
 - Connecting past experiences to future goals in a meaningful way
 - Leadership and Initiative
 - Demonstrating leadership experiences through written narratives
 - Showcasing initiative in academic, extracurricular, and community work
 - Advocating for oneself and one's ideas in a compelling manner
 - Time Management and Organization
 - Balancing application preparation with academic and personal responsibilities
 - Meeting multiple deadlines for essays, recommendations, and interviews
 - Strategically planning coursework and experiences to align with selection criteria
 - Interview and Presentation Skills
 - Answering questions concisely and thoughtfully in high-stakes interviews
 - Engaging with interviewers confidently and authentically
 - Thinking on one's feet and adapting responses to different scenarios
 - Networking and Relationship-Building
 - Seeking mentorship and feedback from faculty and advisors
 - Building relationships with recommenders and potential collaborators
 - Learning to present oneself professionally in formal and informal settings
 - Resilience and Adaptability
 - Handling constructive criticism and revising application materials accordingly
 - Learning from setbacks and reapplying if necessary
 - Navigating uncertainty in competitive selection processes

TRANSITION ACADEMIC PROGRAMS

Transition Academic Programs

Transition Academic Programs (TAP) provides academic advising and administrative support for students transitioning between majors, as well as programming for students transitioning from high school to college. Campus-wide TAP programs include: the Texas A&M-Blinn TEAM co-enrollment partnership with Blinn College (TEAM), the Aggie Gateway to Success provisional admission program (Gateway), the university's transitional major (General Studies), a program and course for students to investigate academic majors (Explore), and a personalized, directed advising program for at-risk students (Aggies Thrive).

Academic Advising for Students in TAP Programs

Students in the TEAM and Gateway programs are supported by TAP academic advisors for the length of those programs. Continuing students approved to enter TAP to qualify for entry to a different degree-granting major are temporarily classified as "General Studies" (GEST) majors. The degree-granting major the student is pursuing is posted in the university's database so scholarships and financial can be applied to the student's costs of enrollment. A TAP academic advisor will help each General Studies and TEAM student develop a realistic academic plan for transitioning into a specific major and progressing toward timely graduation.

Aggie Gateway to Success

Qualified students are selected for provisional admission by the Office of Admissions to participate in the Aggie Gateway to Success (AGS or Gateway) program as General Studies major students. Students participating in this mandatory on-campus program are assigned 6 hours of University Core Curriculum courses plus a study skills class during the second summer session (July-August) prior to their first fall semester at Texas A&M University. They participate in peer-mentor led groups. Students are expected to live on-campus while participating in the program. Participating students must attend a designated New Student Conference prior to the start of the summer session. Gateway students may apply for summer Financial Aid.

Students who pass all assigned summer courses with at least a 2.0 grade point average and no failing grades earn the right to continue as fully admitted students for the fall semester. They gain the opportunity to earn acceptance into any major program for which they meet regular change of curriculum requirements. Gateway students are advised by Transition Academic Programs advisors about the best way to complete these requirements.

The Texas A&M-Blinn TEAM Program

The Texas A&M-Blinn TEAM Program (TEAM) is a two-year collaborative, co-enrollment partnership between Texas A&M University and Blinn College. To be considered for selection to the TEAM program, a prospective student must apply for regular freshman admission and meet all admission criteria. Participating TEAM students enroll in a minimum of 12 total credit hours per semester, divided between Texas A&M and Blinn. TEAM students are able to transition into degree-granting majors at Texas A&M via the change of major process when they satisfy

benchmark credit and grade point criteria at both schools, and complete departmental entry requirements. It is sometimes possible for TEAM students to transition to full enrollment at A&M in less than two years. TEAM students are able to access student services and programs on both campuses, to include participation in the Corps of Cadets and Greek Life. They may apply for on-campus housing at A&M, as well as financial aid (based upon their combined credit hours from both schools).

Undergraduate Studies' units have modified services available to students enrolled via distance education, at branch campuses, or at other instructional locations.

INTERDISCIPLINARY PROGRAMS

Minors

- Entrepreneurship Minor (p. 122)
- Honors Minor (p. 124)
- Leadership Minor (p. 124)

Masters

- Master of Agribusiness in Agribusiness (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/interdisciplinary/mab/>)
- Master of Biotechnology in Biotechnology (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/interdisciplinary/mbiot/>)
- Master of Science in Data Science (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/interdisciplinary/data-science-ms/>)
- Master of Science in Ecology and Evolutionary Biology (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/interdisciplinary/ecology-evolutionary-biology-ms/>)
- Master of Science in Energy (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/interdisciplinary/energy-ms/>)
- Master of Science in Genetics and Genomics (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/interdisciplinary/genetics-genomics-ms/>)
- Master of Science in Molecular and Environmental Plant Sciences (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/interdisciplinary/molecular-environmental-plant-sciences-ms/>)
- Master of Science in Neuroscience (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/interdisciplinary/neuroscience-ms/>)
- Master of Science in Toxicology (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/interdisciplinary/toxicology-ms/>)
- Master of Science in Water Management and Hydrological Science (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/interdisciplinary/water-management-hydrological-science-ms/>)

Doctoral

- Doctor of Philosophy in Ecology and Evolutionary Biology (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/interdisciplinary/ecology-evolutionary-biology-phd/>)
- Doctor of Philosophy in Genetics and Genomics (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/interdisciplinary/genetics-phd/>)
- Doctor of Philosophy in Molecular and Environmental Plant Sciences (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/interdisciplinary/molecular-environmental-plant-sciences-ms/>)
- Doctor of Philosophy in Neuroscience (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/interdisciplinary/neuroscience-phd/>)
- Doctor of Philosophy in Toxicology (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/interdisciplinary/toxicology-phd/>)

- Doctor of Philosophy in Water Management and Hydrological Science (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/interdisciplinary/water-management-hydrological-science-phd/>)

Entrepreneurship - Minor

This program fosters development of a creative, visionary mindset and spirit and prepares students to be opportunity seekers and creators that identify, evaluate, and implement innovative, value-added solutions.

The Entrepreneurship minor includes discipline-specific course clusters intended to aid students' course selection. Course clusters are not restrictive. Students may select courses within a single cluster or across multiple clusters to best meet their interests and professional goals.

Program Requirements

Code	Title	Semester	Credit Hours
Foundational Courses			
Select 6 hours from the following: ¹			6
AGEC 105	Introduction to Agricultural Economics		
AGEC 223	Establishing Agribusiness Entrepreneurship Networks I		
AGEC 285	Directed Studies ^{2,3}		
AGEC 315	Food and Agricultural Sales ²		
AGSM 289	Special Topics in... (Faulkner Entrepreneurship Lecture Series)		
BAEN 289	Special Topics in... (Faulkner Entrepreneurship Lecture Series)		
BIOL 492	Biomedical Therapeutics Development		
BIOL 496	Ethics in Biological Research		
MARA 345	Maritime and Marine Entrepreneurship Ventures ²		
MARA 346	Maritime and Marine Business Plans ²		
MGMT 470	Entrepreneurial Small Business ²		
MKTG 322	Consumer Behavior		
MKTG 335	Professional Selling ²		
MKTG 442	Innovation and Product Management ²		
SOCI 376/ MGMT 376	Entrepreneurial Perspectives		
SOCI 476/ MGMT 476	Entrepreneurship Practice		
Discipline-specific Courses			
Select 6 hours from the following: ⁴			6
Agriculture and Life Science Cluster			
AGEC 324	Agribusiness Entrepreneurship – Budgeting ²		
AGEC 424	Agribusiness Entrepreneurship – Economic Analysis ²		
AGEC 425	Agribusiness Entrepreneurship – Financial Analysis ²		

AGSM 439 Management of Agricultural Systems I ²

BAEN 479 Biological and Agricultural Engineering Design I ²

Business Cluster

ACCT 210 Survey of Managerial and Cost Accounting Principles

MGMT 424 Organizational Design, Change and Development ²

MGMT 440 Creativity and Innovation in Business ²

MGMT 460 Managing Projects ²

MKTG 323 Marketing Research ²

Liberal Arts Cluster

COMM 320 Organizational Communication ²

COMM 324 Communication Leadership and Conflict Management ²

COMM 489 Special Topics in... (Humanities and Social Science Innovation)

ECON 425 The Organization of Industry ²

ECON 433 Energy Markets and Policy ²

ECON 449 Economics of Decision-Making Strategy ²

ENDS 101 Design Process

ENGL 210 Technical and Professional Writing

ENGL 304 Topics in Digital Research ²

ENGL 320 Technical and Professional Editing ²

HIST 361 From Gutenberg to Google - International History of Technology and Innovation

HIST 364 From Axes to iPads - History of Innovation and Technology in America

HIST 470 American Business History

PBSI 352 Organizational Psychology ²

PBSI 354 Conflict and Negotiation ²

POLS 229 Introduction to Comparative Politics

POLS 308 Game Theoretic Methods in Political Science ²

SOCI 335 Sociology of Organizations

SOCI 377 Entrepreneurial Thought Leaders Seminar

SOCI 445 Sociology of Law

Texas A&M University at Galveston Cluster

HMG 302 Application of Tourism Principles

HMG 426 Sustainable Tourism ²

MARA 347 Launch a Startup ²

MARA 348 Maritime Service Operations

MARA 401 Brokerage and Chartering ²

MARA 402 Inland Waterways ²

MARA 424 Intermodal Transportation ²

MARA 445 Lean Start Up ⁵

MART 205 Marine Surveying ²

MART 212 Marine Dry Cargo Operations ²

Texas A&M University at Qatar Cluster ⁶

CHEN 410 Humanitarian Engineering

MTDE 311 Enterprise Basics for Technical Entrepreneurs

MTDE 312 Sales, Operations and Manufacturing for Technology Companies

MTDE 421 Technology Company Management, Leadership, and Corporate Culture

MTDE 461 Product Lean Launch for Engineers

MTDE 333 Project Management for Engineers

PETE 453 Petroleum Entrepreneurship

Capstone Courses

Select 3 hours from the following:

3

Agriculture and Life Sciences Cluster

AGEC 425 Agribusiness Entrepreneurship – Financial Analysis ²

AGSM 440 Management of Agricultural Systems II ²

BAEN 480 Biological and Agricultural Engineering Design II ²

MGMT 477 Entrepreneurship: The Lean Startup Approach ²

Internship ^{2,3,7}

Research ^{2,3,7}

Business Cluster ⁸

MGMT 432 Managing the Nonprofit Organization ²

MGMT 457/Global Entrepreneurship IBUS 457

MGMT 477 Entrepreneurship: The Lean Startup Approach ²

SOCI 450 Social Entrepreneurship

Liberal Arts Cluster ⁹

ENGL 489 Special Topics in... (Narrative and Digital Technology)

MGMT 432 Managing the Nonprofit Organization ²

MGMT 477 Entrepreneurship: The Lean Startup Approach ²

SOCI 404/ Sociology of the Community ²
RPTS 404

SOCI 450 Social Entrepreneurship

Texas A&M University at Galveston Cluster ¹⁰

MARA 446 Entrepreneurship Greenhouse ^{2,11}

MARA 461 Disciplined Entrepreneurship ¹¹

Texas A&M University at Qatar Cluster

ENGR 410 Global Engineering Design

Total Semester Credit Hours

15

¹ Choose 2 three-hour courses or 1 three-hour course plus 3 one-hour courses. Students following the Texas A&M University at Qatar cluster may substitute up to six credit hours transfer coursework from another Education City institution with advisor approval.

- ² Course has prerequisites; student should consult with academic advisor or instructor before enrolling.
- ³ Approval required.
- ⁴ Choose at least three hours at 300- to 400-level.
- ⁵ MARA 445 is for business majors only.
- ⁶ Students following the Texas A&M University at Qatar cluster may substitute up to 3 credit hours transfer coursework from another Education City institution with advisor approval.
- ⁷ Department code appropriate to research or internship focus; departmental approval required.
- ⁸ Qualifying undergraduates may complete MGMT 632 Technology Commercialization to meet this requirement; approval required.
- ⁹ Qualifying undergraduates may complete MGMT 632 Technology Commercialization or SOCI 689 Social Entrepreneurship to meet this requirement; approval required.
- ¹⁰ Capstone courses must be taken in residency at Texas A&M University at Galveston, no substitutions from outside universities will suffice this requirement.
- ¹¹ Students enrolled in the Texas A&M University at Galveston cluster must choose their capstone course based on their chosen degree to satisfy this requirement. MARA 446 is for business majors only, while MARA 461 is for non-business majors.

Honors - Minor

This program provides students the opportunity to refine personal goals, develop professional skills, and pursue intellectual challenge as part of an interdisciplinary community.

The Honors minor focuses on the Aggie Core Values as a framework for understanding personal motivation and opportunities to impact the greater good. The coursework and extracurricular requirements for the minor provide opportunities for values discernment, critical thinking, and practical application.

Program Requirements

Code	Title	Semester Credit Hours
Aggie core values		
Select one of the following:		2
HONR 101	Honors Seminar in Respect, & HONR 102 Excellence, and Leadership and Honors Seminar in Loyalty, Integrity, and Selfless Service ¹	
HONR 103	Honors Seminar in Aggie Core Values ²	
Select three of the following: ³		3
HONR 301	Honors Seminar in Respect	
HONR 302	Honors Seminar in Excellence	
HONR 303	Honors Seminar in Leadership	
HONR 304	Honors Seminar in Loyalty	
HONR 305	Honors Seminar in Integrity	
HONR 306	Honors Seminar in Selfless Service	
General education ⁴		4
Major or Major-aligned ⁵		9
HONR 497	Honors Culminating Experience ⁶	0

Extracurricular activities ⁷	
Total Semester Credit Hours	
18	
¹	Sequence intended for first and second semester, first time in college students.
²	Intended for transfer and continuing students admitted to the program.
³	At least two seminars must focus on the same core value.
⁴	Select from Honors designated courses used to fulfill general education requirements (e.g. University Core Curriculum (p. 26), Cultural Discourse (p. 48), International and Cultural Diversity (p. 49), W- (writing) and C- (communication) (p. 34)).
⁵	Select from any 200-499 major-specific Honors designated courses. At least 3 hours must be from the 400-level. At least 3 hours must be from the 300-level or above.
⁶	Requires the application of acquired knowledge and regular reflection (e.g. existing Capstones (https://catalog.tamu.edu/undergraduate/honors-undergraduate-research/), major capstone classes).
⁷	Three professional development activities each academic year in the program are required with reflections submitted in an associated Canvas community.

Leadership - Minor

This program focuses on leadership practice with a grounding in leadership theory.

The university-level leadership minor provides students the skills and knowledge needed to become leaders demonstrated by an ability to apply ethical frameworks to varied settings and situations, respect others, and do what is right even if it is more difficult. The minor's curriculum consists of foundational courses in leadership theory, practice-focused courses that allow students to develop depth or breadth in areas that support their professional goals, a capstone experience that requires a leadership practicum, and a required reflection.

Program Requirements

Code	Title	Semester Credit Hours
Foundational Courses		
Select 3 hours from the following:		3
ALED 202	Introduction to Leadership	
NVSC 210	Leadership and Management I	
SOMS 280	Fundamentals of Peer Leadership	
SOMS 281	Fundamentals of Intentional Leadership	
Depth and Breadth Courses		
Select 9 hours from the following: ¹		9
AERS 303	Leading People and Effective Communication I	
AERS 304	Leading People and Effective Communication II	
AFST 209/ PBSI 209	Psychology of Culture and Diversity	
ALED 301	Personal Leadership Education	
ALED 340	Survey of Leadership Theory	
ALED 419	Followers and Followership	
ALED 424	Applied Ethics in Leadership	

ALED 440	Leading Change
COMM 210	Group Communication and Discussion
COMM 315	Interpersonal Communication
COMM 324	Communication Leadership and Conflict Management
COMM 335	Intercultural Communication
COMM 343	Communication in a Diverse World
EHRD 374	Organizational Development
EHRD 405	Principles and Practices of Leadership in Human Resource Development and Technology Management
EHRD 413	Conflict Management and Dialogue
MLSC 221	Tactics and Leadership Theory I
MLSC 222	Tactics and Leadership Theory II
MLSC 321	Adaptive Leadership and Tactical Operations I
MLSC 322	Adaptive Leadership and Tactical Operations II
PBSI 209/ AFST 209	Psychology of Culture and Diversity
PBSI 330	Personality
PBSI 354	Conflict and Negotiation
PHIL 111	Contemporary Moral Issues
PSAA 303	Leadership in Public Service
PHIL 482	Ethics and Engineering
SOCI 335	Sociology of Organizations
SOCI 411	Social Psychology
SOMS 380	Workshop in Leadership Education
SOMS 381	Workshop in Leadership Education II
SOMS 481	Seminar in Executive Leadership
Capstone Courses	
Select 3 hours of the following:	
ALED 400	Public Leadership Development
ALED 401	Advanced Professional Leadership Development
ALED 485	Directed Studies in Agricultural Leadership Development ²
NVSC 402	Leadership and Ethics
SOMS 486	Seminar in Executive Organizational Leadership
SOMS 487	Seminar in Ethical Organizational Leadership
Total Semester Credit Hours	

3

15

Courses used to fulfill requirements of the leadership minor may not be used to fulfill area of concentration requirements for university studies degrees.

¹ At least 3 of the 9 Depth and Breadth hours must be completed at the 300-400 level.

² Departmental approval required.

A grade of C or better is required in all courses. A grade of S cannot be used to meet the program requirements.

COLLEGE OF AGRICULTURE AND LIFE SCIENCES

Administrative Officers

Vice Chancellor and Dean - Jeffrey W. Savell, PhD

Executive Associate Dean - Patricia E. Klein, PhD

Associate Dean for Academic Affairs - Mary Bryk, PhD

Associate Dean for Programmatic Success - Craig Coates, PhD

Associate Vice Chancellor for Producer Relations and Associate Dean for Student Development - Chris L. Skaggs, PhD

Associate Dean for Faculty Affairs - Kim Dooley, PhD

Assistant Dean for Student Success - Jenna Kurten, PhD

General Statement

The College of Agriculture and Life Sciences is widely recognized as a leader in the academic programs offered by its departments. The students we educate and the scientific advancements we make and share improve the lives of Texans and people around the world through agriculture. Our faculty members and students are breeding crops to help conserve water, unlocking genetic mysteries to cure diseases, fostering best practices in environmental stewardship, and improving the safety, healthfulness, and abundance of the world's food supply. Through innovative curricula, we prepare students for careers as scientists, business leaders, engineers, educators, physicians, affiliated health professionals, sales representatives, and other professionals.

Our academic programs focus on high-impact learning experiences and the science, technology, engineering, and math (STEM) courses that prepare students for a variety of careers. Students gain technical expertise, learn to think creatively and critically, solve problems, make decisions, communicate effectively, and learn how to work effectively with people of varied backgrounds. Faculty members who teach undergraduate classes include many who are recognized nationally and internationally for research and other accomplishments in their disciplines. Undergraduate students also have opportunities to participate in research themselves.

All students are encouraged to participate in at least three high-impact experiences before graduation, such as undergraduate research, field study, an internship, or international experience. The college has study abroad programs in the Americas, Asia, Europe, Oceania, Africa, and the Caribbean. Honors programs are available in many of the college's academic departments. There are numerous student organizations sponsored by departments or the college, such as the College of Agriculture and Life Sciences Student Council. Participation in student organizations promotes interaction among students with similar interests and fosters the development of leadership skills.

The College of Agriculture and Life Sciences and its departments offer a variety of scholarships to students on a competitive basis. Many are reserved for incoming freshmen or transfer students. Additional information and application forms for college-level scholarships for current students can be obtained from the Scholarships & Financial Aid

Office. Information about departmental scholarships can be obtained from the departments directly.

College of Agriculture and Life Sciences Baccalaureate Degree Programs

Each major can be arranged to prepare students for graduate study or admission to professional schools in medicine, dentistry, veterinary medicine, other health professions, and law. Students in programs, such as biochemistry, genetics, and nutritional sciences, are highly recruited for medicine, nursing, and other health professions. Animal science and wildlife management are among several excellent choices for students interested in veterinary medicine. Students with a background in natural resources, the agricultural industry, forensics, or life sciences can use that knowledge to their advantage if they choose to enter law school. An environmental lawyer with a degree in a natural resource area is better equipped to integrate science with the law.

Advising is provided for each student in the college through advising centers based on academic discipline. Professional academic advisors assist with course selection and other academic issues. Along with departmental faculty, our academic advisors also serve as mentors for career planning and admission to graduate or professional school. Advisors serve as professional consultants for students in the College with the objective of avoiding problems if possible and solving problems if needed.

Requirements for Graduation

Requirements for graduation are listed in the Texas A&M University Student Rules and this catalog. With the exception of general elective requirements, courses taken to satisfy degree requirements must be taken for letter grades.

Internships

Internships provide real-world experience in industries related to a student's education and professional career preparation. Students return to campus with a broader perspective and more intense interest in their education. The experiences are so valuable that many students complete more than one internship. Most departments in the College offer academic credit for the satisfactory completion of an internship. In fact, an internship is required for graduation in some degree programs.

The Agricultural and Natural Resources Policy (ANRP) Internship Program places students from the College of Agriculture and Life Sciences in policy-based internships in Austin, TX, Washington, D.C. and Rome, Italy for a semester or summer. Selection for the program is based upon factors such as academic performance, leadership, and a student's general interest in learning the policy process.

Graduate Study

All departments in the College of Agriculture and Life Sciences offer graduate degrees at the masters and doctoral levels. Many departments offer courses and programs online.

Students are encouraged to contact the department in which they wish to obtain information about graduate study. Information on admission, programs available, etc., can be found in the *Texas A&M University Graduate and Professional Catalog*.

Teacher Certification

Texas teacher certification in agricultural science is available through the Department of Agricultural Leadership, Education, and Communications. Certification is granted through the State Board of Educator Certification (SBEC) upon a student's completion of the course of study administered by the department. The undergraduate major in agricultural education includes all coursework required for teacher certification. The requirements can be completed with any major in the College of Agriculture and Life Sciences. See an advisor in Agricultural Education, Department of Agricultural Leadership, Education, and Communications, for more information.

Majors

Department of Agricultural Economics

- Bachelor of Science in Agribusiness (p. 134)
- Bachelor of Science in Agricultural Economics, Finance and Real Estate Option (p. 135)
- Bachelor of Science in Agricultural Economics, Food Marketing Systems Option (p. 137)
- Bachelor of Science in Agricultural Economics, Policy and Economic Analysis Option (p. 138)
- Bachelor of Science in Agricultural Economics, Rural Entrepreneurship Option (p. 139)
- Bachelor of Science in Agricultural Economics and Master of Public Service and Administration, 5-Year Degree Program (p. 141)
- Bachelor of Science in Financial Planning (p. 143)

Department of Agricultural Leadership, Education, and Communications

- Bachelor of Science in Agricultural Communications and Journalism (p. 149)
- Bachelor of Science in Agricultural Education (p. 150)
- Bachelor of Science in Agricultural Leadership and Development (p. 151)

Department of Animal Science

- Bachelor of Science in Animal Science, Production/Industry Option (p. 157)
- Bachelor of Science in Animal Science, Science Option (p. 158)

Department of Biochemistry and Biophysics

- Bachelor of Science in Biochemistry (p. 162)
- Bachelor of Science in Genetics (p. 163)

Department of Biological and Agricultural Engineering

- Bachelor of Science in Agricultural Systems Management (p. 166)
- Bachelor of Science in Biological and Agricultural Engineering (p. 167) — offered in conjunction with the College of Engineering
- Bachelor of Science in Biological and Agricultural Engineering, Agricultural Engineering Track (p. 169)
- Bachelor of Science in Biological and Agricultural Engineering, Biological Engineering Track (p. 170)

- Bachelor of Science in Biological and Agricultural Engineering, Natural Resources Engineering Track (p. 172)

Department of Ecology and Conservation Biology

- Bachelor of Science in Ecology and Conservation Biology, Ecoinformatics Track (p. 175)
- Bachelor of Science in Ecology and Conservation Biology, Ecology and Conservation Biology Track (p. 177)
- Bachelor of Science in Ecology and Conservation Biology, Forest Resources Track (p. 178)
- Bachelor of Science in Ecology and Conservation Biology, Teaching Track (p. 180)
- Bachelor of Science in Ecology and Conservation Biology, Vertebrate Zoology Track (p. 181)

Department of Entomology

- Bachelor of Science in Entomology (p. 184)
- Bachelor of Science in Forensic and Investigative Sciences, Pre-Law Emphasis (p. 187)
- Bachelor of Science in Forensic and Investigative Sciences, Science Emphasis (p. 189)

Department of Food Science and Technology

- Bachelor of Science in Food Science and Technology, Food Industry Option (p. 192)
- Bachelor of Science in Food Science and Technology, Food Science Option (p. 194)

Department of Horticultural Sciences

- Bachelor of Arts in Horticulture (p. 198)
- Bachelor of Science in Horticulture (p. 200)

Department of Hospitality, Hotel Management and Tourism

- Bachelor of Science in Hospitality, Hotel Management and Tourism, Business Hospitality Track (p. 203)
- Bachelor of Science in Hospitality, Hotel Management and Tourism, Event, Tourism and Recreation Management Track (p. 204)
- Bachelor of Science in Hospitality, Hotel Management and Tourism, Hotel and Resort Management Track (p. 205)

Department of Nutrition

- Bachelor of Science in Nutrition, Didactic Program in Dietetics Track (p. 211)
- Bachelor of Science in Nutrition, Human Health Track (p. 212)

Department of Plant Pathology and Microbiology

- Bachelor of Science in Bioenvironmental Sciences (p. 215)
- Bachelor of Science in Environmental Studies (p. 217)

Department of Poultry Science

- Bachelor of Science in Poultry Science, Industry Emphasis (p. 219)
- Bachelor of Science in Poultry Science, Technical Emphasis (p. 220)

Department of Rangeland, Wildlife and Fisheries Management

- Bachelor of Science in Rangeland, Wildlife and Fisheries Management, Aquaculture and Fisheries Management Track (p. 222)
- Bachelor of Science in Rangeland, Wildlife and Fisheries Management, Natural Resources Management and Policy Track (p. 223)
- Bachelor of Science in Rangeland, Wildlife and Fisheries Management, Outdoor Enterprise Management Track (p. 225)
- Bachelor of Science in Rangeland, Wildlife and Fisheries Management, Rangeland Management Track (p. 226)
- Bachelor of Science in Rangeland, Wildlife and Fisheries Management, Wildlife Management Track (p. 227)
- Bachelor of Science in Rangeland, Wildlife and Fisheries Management and Master of Public Service Administration, 5-Year Degree Program (p. 228)

Department of Soil and Crop Sciences

- Bachelor of Science in Plant and Environmental Soil Science, Crops Emphasis (p. 232)
- Bachelor of Science in Plant and Environmental Soil Science, Soil and Water Emphasis (p. 233)
- Bachelor of Science in Turfgrass Science (p. 234)

Minors

Department of Agricultural Economics

- Agribusiness Entrepreneurship Minor
- Agricultural Economics Minor (p. 145)
- AgriFood Sales Minor (p. 145)
- Financial Planning Minor (p. 146)

Department of Agricultural Leadership, Education, and Communications

- Agricultural Communications and Journalism Minor (p. 152)
- Extension Education Minor (p. 153)
- International Agricultural Development Minor (p. 153)
- Leadership Minor (p. 154)
- Youth Development Minor (p. 154)

Department of Biochemistry and Biophysics

- Biochemistry Minor (p. 164)
- Genetics Minor (p. 165)

Department of Biological and Agricultural Engineering

- Agricultural Systems Management Minor (p. 173)
- Food Engineering Minor (p. 173)

Department of Ecology and Conservation Biology

- Ecology and Conservation Biology Minor (p. 182)

Department of Entomology

- Entomology Minor (p. 190)

Department of Horticultural Sciences

- Horticulture Minor (p. 201)

Department of Hospitality, Hotel Management and Tourism

- Recreation Management Minor (p. 207)
- Tourism Management Minor (p. 207)

Department of Nutrition

- Nutrition Minor (p. 214)

Department of Plant Pathology and Microbiology

- Bioenvironmental Sciences Minor (p. 218)

Department of Poultry Science

- Poultry Science Minor (p. 221)

Department of Rangeland, Wildlife and Fisheries Management

- Park and Natural Resource Management Minor (p. 229)
- Rangeland Management Minor (p. 230)
- Wildlife and Fisheries Management Minor (p. 230)

Department of Soil and Crop Sciences

- Agronomy Minor (p. 235)
- Environmental Soil Science Minor (p. 236)
- Plant Breeding Minor (p. 236)

Certificates

Department of Agricultural Economics

- International Trade and Agriculture Certificate (p. 146)

Department of Animal Science

- Equine Science Certificate (p. 160)
- Meat Science Certificate (p. 160)

Department of Entomology

- Public Health Entomology Certificate (p. 191)

Department of Food Science and Technology

- Coffee Processing and Quality Certificate (p. 196)
- Food Diversity Certificate (p. 197)

Department of Horticultural Sciences

- Floral Design Certificate (p. 201)
- Viticulture and Enology Certificate (p. 202)

Department of Hospitality, Hotel Management and Tourism

- Hospitality Management Certificate (p. 207)
- Professional Event Management Certificate (p. 208)
- Recreation and Park Management Certificate (p. 208)
- Tourism Management Certificate (p. 209)
- Youth Development Certificate (<https://catalog.tamu.edu/undergraduate/agriculture-life-sciences/hospitality-hotel-management-tourism/youth-development-certificate/>)

Department of Nutrition

- Culinary Health Certificate (p. 214)
- Sport Nutrition Certificate (p. 214)

Masters

Department of Agricultural Economics

- Master of Science in Agricultural Economics (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/agricultural-economics/ms/>)

Department of Agricultural Leadership, Education, and Communications

- Master of Agriculture in Agricultural Development (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/agricultural-leadership-education-communications/agricultural-development-agriculture-masters/>)
- Master of Applied Youth Development (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/agricultural-leadership-education-communications/applied-youth-development-may/>)
- Master of Science in Agricultural Leadership, Education, and Communications (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/agricultural-leadership-education-communications/ms/>)

Department of Animal Science

- Master of Agriculture in Animal Science (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/animal-science/magr/>)
- Master of Equine Industry Management in Equine Industry Management (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/animal-science/equine-industry-reproduction-ms/>)

<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/animal-science/equine-industry-reproduction-ms/>)

- Master of Science in Animal Breeding (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/animal-science/animal-breeding-ms/>)
- Master of Science in Animal Science (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/animal-science/ms/>)
- Master of Science in Physiology of Reproduction (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/animal-science/physiology-reproduction-ms/>)

Department of Biochemistry and Biophysics

- Master of Science in Biochemistry (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/biochemistry-biophysics/biochemistry-ms/>)

Department of Biological and Agricultural Engineering

- Master of Agriculture in Agricultural Systems Management (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/biological-agricultural-engineering/systems-management-magr/>)
- Master of Engineering in Biological and Agricultural Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/biological-agricultural-engineering/meng/>)
- Master of Science in Agricultural Systems Management (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/biological-agricultural-engineering/systems-management-ms/>)
- Master of Science in Biological and Agricultural Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/biological-agricultural-engineering/biological-agriculture-engineering-ms/>)

Department of Ecology and Conservation Biology

- Master of Science in Ecology and Conservation Biology (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/ecology-and-conservation-biology/ms/>)

Department of Entomology

- Master of Science in Entomology (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/entomology/ms/>)

Department of Food Science and Technology

- Master of Agriculture in Food Science and Technology (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/food-science-and-technology/magr/>)
- Master of Science in Food Science and Technology (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/food-science-and-technology/ms/>)

agriculture-life-sciences/food-science-and-technology/food-science-technology-ms/)

Department of Horticultural Sciences

- Master of Agriculture in Horticulture (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/horticultural-sciences/magr/>)
- Master of Science in Horticulture (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/horticultural-sciences/horticulture-ms/>)
- Master of Science in Plant Breeding (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/horticultural-sciences/plant-breeding-ms/>)

Department of Hospitality, Hotel Management and Tourism

- Master of Science Hospitality, Tourism and Recreation Management (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/hospitality-hotel-management-tourism/hospitality-tourism-recreation-management-ms/>)

Department of Nutrition

- Master of Clinical Nutrition in Clinical Nutrition (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/nutrition/mcn/>)
- Master of Science in Nutrition (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/nutrition/nutrition-ms/>)
- Master of Science in Nutrition and Master of Science in Kinesiology Combined Degree Program (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/nutrition/combined-ms-nutr-ms-kine/>)

Department of Plant Pathology and Microbiology

- Master of Science in Plant Pathology (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/plant-pathology-microbiology/ms/>)

Department of Poultry Science

- Master of Agriculture in Poultry Science (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/poultry-science/magr/>)
- Master of Science in Poultry Science (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/poultry-science/ms/>)

Department of Rangeland, Wildlife and Fisheries Management

- Master of Natural Resources in Natural Resources (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/rangeland-wildlife-and-fisheries-management/mna/>)
- Master of Science in Rangeland, Wildlife and Fisheries Management (<https://catalog.tamu.edu/graduate/colleges-schools->

interdisciplinary/agriculture-life-sciences/rangeland-wildlife-and-fisheries-management/ms/)

Department of Soil and Crop Sciences

- Master of Science in Agronomy (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/soil-crop-sciences/agronomy-ms/>)
- Master of Science in Plant Breeding (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/soil-crop-sciences/plant-breeding-ms/>)
- Master of Science in Soil Science (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/soil-crop-sciences/soil-science-ms/>)

Doctoral

Department of Agricultural Economics

- Doctor of Philosophy in Agricultural Economics (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/agricultural-economics/phd/>)

Department of Agricultural Leadership, Education, and Communications

- Doctor of Philosophy in Agricultural Leadership, Education, and Communication (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/agricultural-leadership-education-communications/phd/>)

Department of Animal Science

- Doctor of Philosophy in Animal Breeding (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/animal-science/animal-breeding-phd/>)
- Doctor of Philosophy in Animal Science (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/animal-science/phd/>)
- Doctor of Philosophy in Physiology of Reproduction (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/animal-science/physiology-reproduction-phd/>)

Department of Biochemistry and Biophysics

- Doctor of Philosophy in Biochemistry and Molecular Biophysics (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/biochemistry-biophysics/biochemistry-molecular-biophysics-phd/>)

Department of Biological and Agricultural Engineering

- Doctor of Philosophy in Biological and Agricultural Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/biological-agricultural-engineering/phd/>)

Department of Ecology and Conservation Biology

- Doctor of Philosophy in Ecology and Conservation Biology (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/ecology-and-conservation-biology/phd/>)

Department of Entomology

- Doctor of Philosophy in Entomology (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/entomology/phd/>)

Department of Food Science and Technology

- Doctor of Philosophy in Food Science and Technology (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/food-science-and-technology/food-science-technology-phd/>)

Department of Horticultural Sciences

- Doctor of Philosophy in Horticulture (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/horticultural-sciences/horticulture-phd/>)
- Doctor of Philosophy in Plant Breeding (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/horticultural-sciences/plant-breeding-phd/>)

Department of Hospitality, Hotel Management and Tourism

- Doctor of Philosophy in Hospitality, Tourism and Recreation Management (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/hospitality-hotel-management-tourism/hospitality-tourism-recreation-management-phd/>)

Department of Nutrition

- Doctor of Philosophy in Nutrition (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/nutrition/nutrition-phd/>)

Department of Plant Pathology and Microbiology

- Doctor of Philosophy in Plant Pathology (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/plant-pathology-microbiology/phd/>)

Department of Poultry Science

- Doctor of Philosophy in Poultry Science (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/poultry-science/phd/>)

Department of Rangeland, Wildlife and Fisheries Management

- Doctor of Philosophy in Rangeland, Wildlife and Fisheries Management (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/rangeland-wildlife-and-fisheries-management/phd/>)

[interdisciplinary/agriculture-life-sciences/rangeland-wildlife-and-fisheries-management/phd/](https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/rangeland-wildlife-and-fisheries-management/phd/))

Department of Soil and Crop Sciences

- Doctor of Philosophy in Agronomy (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/soil-crop-sciences/agronomy-phd/>)
- Doctor of Philosophy in Plant Breeding (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/soil-crop-sciences/plant-breeding-phd/>)
- Doctor of Philosophy in Soil Science (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/soil-crop-sciences/soil-science-phd/>)

Department of Agricultural Economics

The Department of Agricultural Economics offers Bachelor of Science degree programs in the fields of Agricultural Economics and Agribusiness. The BS in Agricultural Economics allows students to direct their plan of study towards their professional interests by selecting a concentration in either Finance and Real Estate, Food Marketing Systems, Policy and Economic Analysis, or Rural Entrepreneurship (course requirements for the freshman and sophomore years are identical for all concentrations). The department also offers an accelerated five-year program in association with the Bush School of Government and Public Service that provides AGECE students with the opportunity to receive a BS in Agricultural Economics and a Masters of Public Service and Administration. The BS in Agribusiness is a selective program that provides students with a comprehensive and versatile business skill set designed to address the challenges of both agribusinesses and non-agricultural companies, incorporating coursework from the Mays Business School.

Department of Agricultural Economics Honors Program

The Department of Agricultural Economics at Texas A&M University offers an enhanced learning experience to qualified, academically-talented students majoring in Agricultural Economics and Agribusiness. Participation in the AGECE Honors Program enriches a student's college experience by offering scholastically-challenging curriculum and stimulating an interest in research. As honors classes are restricted in size, students also have the opportunity to work closely with the renowned faculty at Texas A&M University while developing the vital problem solving and critical thinking skills that are valued in today's fast-paced business culture. The coursework and co-curricular activities offered through this program are specially designed to promote academic and professional success. Honors distinctions are also beneficial to students who are planning to attend graduate school or law school by demonstrating one's ability to handle a challenging course of study.

The Department of Agricultural Economics Honors Program is administered through the AGECE Undergraduate Programs Office (located in Room 214 of the Agriculture and Life Sciences Building). For more information, contact the AGECE Undergraduate Programs Office at (979) 845-4911 or visit our website at <https://agecon.tamu.edu/undergraduate-honors-program/>.

Faculty

Baffoe-Bonnie, Anthony, Assistant Professor
Agricultural Economics
PHD, University of Georgia, 2018

Boadu, Frederick O, Professor
Agricultural Economics
JD, Georgia State University, 1988
PHD, University of Kentucky, 1981

Bohnsack, John, Visiting Lecturer
Agricultural Economics
MS, North Dakota State University, 2011

Bryant, Henry L, Research Professor
Agricultural Economics
PHD, Texas A&M University, 2003

Buenger, Sarah D, Visiting Lecturer
Agricultural Economics
MS, College for Financial Planning, 2015

Capps, Oral, Executive Professor
Agricultural Economics
PHD, Virginia Tech, 1979

Carpenter, Donnie, Visiting Lecturer
Agricultural Economics
MS, Texas Tech University, 2006

Choe, Kyoungin, Lecturer
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MA1, North Carolina State University, 2024

Crowe, Ronald E., Instructional Assistant Professor
Agricultural Economics
PHD, University of Central Florida, 1997

Dharmasena, Senarath, Instructional Associate Professor
Agricultural Economics
PHD, Texas A&M University, 2010

Durden, Aaron, Visiting Assistant Professor of the Practice
Agricultural Economics
MBA, City University of Seattle, 2007

Erskine, Didine M, Visiting Lecturer
Agricultural Economics
BA, University of Maine, 2023

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Agricultural Economics
PHD, Texas A&M University, 2019

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Field, Christopher C, Visiting Assistant Professor of the Practice
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MA, Abilene Christian University, 2013

Garcia, Lucas, Instructional Assistant Professor
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PHD, Walden University, 2019

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Agricultural Economics
BS, Penn State University, 1990

Harness, Nathan J, Instructional Professor
Agricultural Economics
PHD, Texas Tech University, 2007

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PHD, Iowa State University, 2008

Johnson, Joseph A, Instructor
Agricultural Economics
MS, Texas Tech University, 2020

Kafle, Kashi Ram, Assistant Professor
Agricultural Economics
PHD, University of Illinois at Urbana-Champaign, 2017

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Agricultural Economics
PHD, Texas A & M University, 2011

Kilmer, Nicholas G, Senior Lecturer
Agricultural Economics
MBA, University of Texas at Tyler, 2011

Leatham, David J, Professor
Agricultural Economics
PHD, Perdue University, 1983

Lepper, Marissa, Assistant Professor
Agricultural Economics
PHD, University of Pittsburgh, 2023

Li, Liqing, Assistant Professor
Agricultural Economics
PHD, University of Illinois at Urbana - Champaign, 2020

Liu, Yong, Assistant Professor
Agricultural Economics
PHD, University of Guelph, 2019

Lopez Barrera, Emiliano, Assistant Professor
Agricultural Economics
PHD, Purdue University, 2021

McCarl, Bruce A, Senior Professor
Agricultural Economics
PHD, The Pennsylvania State University, 1973

Melo Guerrero, Grace, Assistant Professor
Agricultural Economics
PHD, University of Georgia, 2017

Menzies, Max D, Instructional Associate Professor
Agricultural Economics
PHD, Texas A&M University, 2017

Mjelde, James W, Professor
Agricultural Economics
PHD, University of Illinois at Urbana-Champaign, 1985

Nayga, Rodolfo, Professor
Agricultural Economics
PHD, Texas A&M University, 1991

Newcomb, Deanna, Visiting Lecturer
Agricultural Economics
BBA, Stephen F Austin State University, 1992

Ng, Desmond W, Associate Professor
Agricultural Economics
PHD, University of Illinois at Urbana-Champaign, 2001

Onder, Harun, Associate Professor
Agricultural Economics
PHD, Florida International University, 2010

Palma, Marco A, Professor
Agricultural Economics
PHD, University of Florida, 2005

Park, Doyoung, Assistant Professor
Agricultural Economics
PHD, University of Colorado Boulder, 2019

Park, John, Professor
Agricultural Economics
PHD, Texas A&M University, 1996

Peguero, Felipe E. E., Assistant Professor
Agricultural Economics
PHD, Louisiana State University, 2018

Ratzlaff, Brandon, Visiting Lecturer
Agricultural Economics
MBA, The University of Texas at Dallas, 2010

Rister, M E, Professor
Agricultural Economics
PHD, Michigan State University, 1981

Roach, David S, Lecturer
Agricultural Economics
MBA, University of Texas at Permian Basin, 2019

Rouhi Rad, Mani, Assistant Professor
Agricultural Economics
PHD, University of Illinois, 2017

Somogyi, Simon, Professor
Agricultural Economics
PHD, University of Adelaide, 2012

Springfield, Clark, Professor of the Practice
Agricultural Economics
PHD, Texas A&M University, 2008

Thompson, Troy Neal, Assistant Professor of the Practice
Agricultural Economics
MS, Texas A&M University, 1989

Vedenov, Dmitry, Associate Professor
Agricultural Economics
PHD, Ohio State University, 2001

Villavicencio, Xavier Alfredo, Instructional Assistant Professor
Agricultural Economics
PHD, Texas A&M University, 2010

Webb, Samuel C, Visiting Lecturer
Agricultural Economics
DJ, Texas Tech University School of Law, 2010

Weber, Kaitlyn Maree Dinges, Instructional Assistant Professor
Agricultural Economics
PHD, Kansas State University, 2022

Whiddon, James, Visiting Assistant Professor of the Practice
Agricultural Economics
MS, The American College, 1998

Woodward, Richard T, Professor
Agricultural Economics
PHD, University of Wisconsin, 1997

Wu, Ximing, Professor
Agricultural Economics
PHD, University of California at Berkeley, 2003

Zapata Raudale, Samuel D, Associate Professor
Agricultural Economics
PHD, Clemson University, 2012

Zhang, Yvette Yu, Professor
Agricultural Economics
PHD, Texas A&M University, 2010

Majors

- Bachelor of Science in Agribusiness (p. 134)
- Bachelor of Science in Agricultural Economics, Finance and Real Estate Option (p. 135)
- Bachelor of Science in Agricultural Economics, Food Marketing Systems Option (p. 137)
- Bachelor of Science in Agricultural Economics, Policy and Economic Analysis Option (p. 138)
- Bachelor of Science in Agricultural Economics, Rural Entrepreneurship Option (p. 139)
- Bachelor of Science in Agricultural Economics and Master of Public Service and Administration, 5-Year Degree Program (p. 141)
- Bachelor of Science in Financial Planning (p. 143)

Minors

- Agribusiness Entrepreneurship Minor (p. 144)
- Agricultural Economics Minor (p. 145)
- AgriFood Sales Minor (p. 145)
- Financial Planning Minor (p. 146)

Certificates

- International Trade and Agriculture Certificate (p. 146)

Agribusiness - BS

In this program, students learn about the nation's growing agribusiness sector and its contributions to the agriculture and natural resources industries. They also gain core business knowledge and a strong understanding of the unique institutional and managerial challenges facing agribusiness firms.

Curriculum in Agribusiness (BS)

The Bachelor of Science degree in Agribusiness combines selected Core Business Knowledge classes from a degree in business with coursework emphasizing the understanding of the unique institutional and managerial challenges facing agribusiness firms. By integrating business management principles with applied technical knowledge, students develop practical decision-making skills to address challenges facing agribusiness firms in the production, processing and distribution of food and fiber in Texas, the nation, and the world. Students in the BS Agribusiness degree program will take selected coursework in the Mays Business School.

Requirements for graduation are listed in the Texas A&M University Student Rules and this catalog. With the exception of general elective requirements, courses taken to satisfy degree requirements must be taken for letter grades. In addition, students pursuing the Agribusiness degree must have a GPA of 2.0 in the courses included in the Core Business Knowledge.

Upper-Level Entry into Agribusiness

The requirements and procedures for consideration for upper level are as follows:

1. In order to be considered for upper-level and possible admission into the program of study in agribusiness, a student must have:
 - a. Satisfactorily completed at least 60 semester credit hours.
 - b. Satisfactorily completed all of the following eight courses:

Code	Title	Semester Credit Hours
ACCT 229	Introductory Accounting	3
ACCT 230	Introductory Accounting	3
AGEC 217	Fundamentals of Agricultural Economics Analysis	3
ECON 202	Principles of Economics	3
ECON 203	Principles of Economics	3
MATH 140	Mathematics for Business and Social Sciences	3
MATH 142	Business Calculus	3

- c. Students should complete the freshman and sophomore sequence of courses as listed under Curriculum in Agribusiness. Following this sequence will allow the timely application for consideration for upper-level.
 - d. Admission, if granted, will be effective upon successful completion of the in-process courses; however, if all requirements are not met prior to the start of the next semester, admission will be revoked.
2. Transfer students: Transfer students admitted to the Agribusiness degree will be classified as AGBL (lower-level Agribusiness) students until they complete all requirements listed previously in item 1.

3. Change of curriculum students: Texas A&M students who change curriculum into the Agribusiness degree from another college or department at the University will be classified as AGBL (lower-level Agribusiness) students until they complete all requirements listed in item 1.

Program Requirements

First Year Fall

		Semester Credit Hours
AGEC 105	Introduction to Agricultural Economics ^{1,2}	3
MATH 140	Mathematics for Business and Social Sciences ²	3
	American History (p. 30) ³	3
	Communication elective (p. 27) ⁴	3
	Life and physical sciences elective (p. 27)	3
Semester Credit Hours		15

Spring

AGEC 117	Critical Thinking and Decision Making in Agricultural Economics ⁵	1
MATH 142	Business Calculus ²	3
	American History (p. 30) ³	3
	Creative arts elective (p. 30) ⁶	3
	Language, philosophy and culture elective (p. 28) ⁶	3
	Life and physical sciences elective (p. 27)	3
Semester Credit Hours		16

Second Year

Fall

ACCT 229	Introductory Accounting	3
ECON 202	Principles of Economics	3
MGMT 311	Legal and Social Environment of Business	3
	Government/Political science elective (p. 31) ³	3
	Life and physical sciences elective (p. 27)	3
Semester Credit Hours		15

Spring

ACCT 230	Introductory Accounting	3
AGEC 217	Fundamentals of Agricultural Economics Analysis	3
ECON 203	Principles of Economics	3
	Communication elective (p. 27) ⁴	3
	Government/Political science elective (p. 31) ³	3
Semester Credit Hours		15

Third Year

Fall

AGEC 340	Agribusiness Management	3
ECON 323	Microeconomic Theory	3
FINC 341	Business Finance	3
MKTG 321	Marketing	3
Select one of the following:		3

BUSN 203	Statistical Methods for Business
STAT 301	Introduction to Biometry
STAT 302	Statistical Methods

STAT 303	Statistical Methods	
Semester Credit Hours		15
Spring		
AGEC 317	Economic Analysis for Agribusiness Management	3
AGEC 429	Agricultural Policy ⁵	3
MGMT 363	Managing People in Organizations	3
SCMT 364	Operations Management	3
Directed elective-international ⁷		3
Semester Credit Hours		15
Fourth Year		
Fall		
AGEC 431	Cases in Agribusiness Finance	3
AGEC 481	Ethics in Agribusiness and Agricultural Economics	1
Technical agricultural elective ^{6,8}		3
Directed elective-international ⁷		3
General electives ^{6,9}		4
Semester Credit Hours		14
Spring		
AGEC 414	Agribusiness and Food Market Analysis	3
AGEC 440	Agribusiness Strategic Analysis	3
Select one of the following;		3
AGEC 430	Macroeconomics of Agriculture	
ECON 311	Money and Banking	
ECON 410	Macroeconomic Theory	
General electives ^{6,9}		6
Semester Credit Hours		15
Total Semester Credit Hours		120

¹ Satisfies the University Core Curriculum (p. 26) Social and Behavioral Sciences requirement.

² Must make a grade of C or better.

³ For those students under ROTC contract, see Requirement 7 of the Requirements for a Baccalaureate Degree (p. 34).

⁴ Three hours must be selected from ENGL 103 or ENGL 104.

⁵ All undergraduate students must take at least two (2) specific courses in their major designated as writing intensive (W). This course is an approved W course.

⁶ The Graduation requirements include 3 hours of cultural discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. See academic advisor.

⁷ Six hours required. A complete list of approved international electives is available in the college Undergraduate Program Office, Room 214 of the Agriculture and Life Sciences Building, or can be found on our website.

⁸ Three hours of technical agriculture electives to be selected from any course offered by the College of Agriculture and Life Sciences except 285s, 484s, 485s and agricultural economics courses. To be selected in consultation with an advisor.

⁹ Any Texas A&M or transfer course (except ASCC 001- ASCC 003; and KINE 199) not used to meet other requirements.

Agribusiness Core Business Knowledge

Code	Title	Semester Credit Hours
ACCT 229	Introductory Accounting	3
ACCT 230	Introductory Accounting	3
AGEC 217	Fundamentals of Agricultural Economics Analysis	3
AGEC 440	Agribusiness Strategic Analysis	3
AGEC 481	Ethics in Agribusiness and Agricultural Economics	1
ECON 202	Principles of Economics	3
ECON 203	Principles of Economics	3
FINC 341	Business Finance	3
MGMT 311	Legal and Social Environment of Business	3
MGMT 363	Managing People in Organizations	3
MKTG 321	Marketing	3
SCMT 364	Operations Management	3
Select one of the following:		3
BUSN 203	Statistical Methods for Business	
STAT 301	Introduction to Biometry	
STAT 302	Statistical Methods	
STAT 303	Statistical Methods	
Total Semester Credit Hours		37

BS in Agribusiness Major Field

Code	Title	Semester Credit Hours
AGEC 105	Introduction to Agricultural Economics	3
AGEC 117	Critical Thinking and Decision Making in Agricultural Economics	1
AGEC 317	Economic Analysis for Agribusiness Management	3
AGEC 340	Agribusiness Management	3
AGEC 414	Agribusiness and Food Market Analysis	3
AGEC 429	Agricultural Policy	3
AGEC 431	Cases in Agribusiness Finance	3
ECON 323	Microeconomic Theory	3
Select one of the following:		3
AGEC 430	Macroeconomics of Agriculture	
ECON 311	Money and Banking	
ECON 410	Macroeconomic Theory	
Total Semester Credit Hours		25

Agricultural Economics - BS, Finance and Real Estate Option

This program is designed to assist in the development of economic theory and quantitative analysis skills that students can apply to analyze and communicate about the real estate and finance industries in Texas, the U.S., and the world.

The Bachelor of Science degree in Agricultural Economics offers students four options: Finance and Real Estate, Food Marketing Systems, Policy and Economic Analysis, and Rural Entrepreneurship. The course requirements for the freshman and sophomore years are the same for the above Agricultural Economics options.

The Finance and Real Estate option equips students with the analytical and critical thinking skills to understand financial markets in the farm sector, corporate sector, and government sector. Students are especially prepared for work in the farm credit industry and with regional banks. Students can also choose to focus on real estate with a heavy emphasis placed on commercial real estate development, management, and appraisal. Students have high-impact activities available such as industry internships, study abroad opportunities, and the ability to directly work with faculty on research projects.

The program also prepares students for advanced degrees, such as, Master of Finance, Master of Real Estate, or Master of Business Administration. Graduates will have strong backgrounds in finance, real estate, accounting, and management. Additionally, students can earn credits through the Appraiser Qualifications Board, setting them up to become licensed appraisers via the Texas Appraiser Licensing and Certification Board. For more information on obtaining an appraisal license in Texas, students can visit the Texas Appraiser Licensing and Certification Board website.

Program Requirements

First Year

Fall		Semester Credit Hours
AGEC 105	Introduction to Agricultural Economics ¹	3
AGLS 101 or AGECE 101	Modern Agricultural Systems and Renewable Natural Resources ¹ or Concepts in Agricultural Economics - First Year Experience	1
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition or Composition and Rhetoric	3
MATH 140	Mathematics for Business and Social Sciences ¹	3
American history (p. 30) ²		3
Technical agriculture elective ^{3,4}		3
Semester Credit Hours		16
Spring		
AGEC 117	Critical Thinking and Decision Making in Agricultural Economics ⁵	1
MATH 142	Business Calculus ¹	3
American history (p. 30) ²		3
Creative Arts (p. 30) ⁴		3
Language, philosophy and culture (p. 28) ⁴		3
Life and physical sciences (p. 27)		3
Semester Credit Hours		16

Second Year

Fall		
ACCT 209	Survey of Accounting Principles	3
AGEC 217	Fundamentals of Agricultural Economics Analysis	3
ECON 202	Principles of Economics	3

Government/Political science (p. 31) ²		3
Life and physical sciences (p. 27)		3
Semester Credit Hours		15
Spring		
ACCT 210	Survey of Managerial and Cost Accounting Principles	3
ECON 203	Principles of Economics	3
Communication (p. 27)		3
Government/Political science (p. 31) ²		3
Life and physical sciences (p. 27)		3
Semester Credit Hours		15
Third Year		
Fall		
AGEC 314	Marketing Agricultural and Food Products	3
AGEC 330	Financial Management in Agriculture	3
AGEC 422	Land Economics	3
ECON 323	Microeconomic Theory	3
STAT 303	Statistical Methods	3
Directed non-agricultural economics elective ^{4,6}		3
Semester Credit Hours		18
Spring		
AGEC 317	Economic Analysis for Agribusiness Management	3
AGEC 429	Agricultural Policy ⁵	3
AGEC 481	Ethics in Agribusiness and Agricultural Economics	1
Directed agricultural economics elective ⁷		3
Directed non-agricultural economics elective ^{4,6}		3
General elective ^{4,8}		3
Semester Credit Hours		16
Fourth Year		
Fall		
AGEC 340	Agribusiness Management	3
AGEC 324	Agribusiness Entrepreneurship – Budgeting	3
Directed agricultural economics elective ⁷		3
General elective ^{4,8}		3
Semester Credit Hours		12
Spring		
AGEC 430	Macroeconomics of Agriculture	3
AGEC 432	Rural Real Estate and Financial Analysis	3
Directed agricultural economics elective ⁷		3
General elective ^{4,8}		3
Semester Credit Hours		12
Total Semester Credit Hours		120

¹ Must make a grade of C or better.

² Students under ROTC contract, see Requirement 7 of the Requirements for a Baccalaureate Degree. (p. 34)

³ Any course offered by the College of Agriculture and Life Sciences, except 285s, 484s, 485s and agricultural economics courses.

⁴ The Graduation requirements include a requirement for 3 hours of international and cultural diversity courses and 3 hours of cultural discourse courses. A course satisfying a Core category, a college/

department requirement, or a free elective can be used to satisfy this requirement. See academic advisor.

⁵ All undergraduate students must take at least two (2) specific courses in their major designated as writing intensive (W). This course is an approved W course.

⁶ Six hours to be selected in one or more departments outside of the Department of Agricultural Economics. A minimum of 3 of these hours must be at the 300- or 400-level. To be selected in consultation with an advisor.

⁷ To be selected in consultation with an advisor.

⁸ Any Texas A&M or transfer course (except ASCC 001-ASCC 003 (p. 937) and KINE 199) not used to meet other requirements.

Agricultural Economics - BS, Food Marketing Systems Option

This program is designed to assist in the development of economic theory and quantitative analysis skills that students can apply to analyze and communicate about the food marketing issues in Texas, the nation, and the world.

The Bachelor of Science degree in Agricultural Economics offers students four options: Finance and Real Estate, Food Marketing Systems, Policy and Economic Analysis, and Rural Entrepreneurship. The course requirements for the freshman and sophomore years are the same for the above Agricultural Economics options.

The Food Marketing Systems option students apply analytical skills to address operations involved in movement of agricultural commodities from farmer to consumer via several intermediaries; functions involve buying, selling, transportation, storage, financing, grading, pricing and risk bearing; agricultural supply chain or value chain is studied in detail; marketing aspects of commodities and differentiated goods. A student's educational experience is further enriched with supportive high-impact opportunities such as business and industry internships, study abroad, directed studies and research, industry professional mentorship, and participation in prestigious sales competitions such as the National Agri-Marketing Association (NAMA) student competition.

The BS in Agricultural Economics with a Food Marketing Systems option is also offered at the Texas A&M Higher Education Center in McAllen, Texas.

Program Requirements

First Year

Fall		Semester Credit Hours
AGEC 105	Introduction to Agricultural Economics ¹	3
AGLS 101 or AGECE 101	Modern Agricultural Systems and Renewable Natural Resources ¹ or Concepts in Agricultural Economics - First Year Experience	1
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition or Composition and Rhetoric	3
MATH 140	Mathematics for Business and Social Sciences ¹	3
American history (p. 30) ²		3

Technical agriculture elective ^{3,4}		3
Semester Credit Hours		16
Spring		
AGEC 117	Critical Thinking and Decision Making in Agricultural Economics ⁵	1
MATH 142	Business Calculus ¹	3
American history (p. 30) ²		3
Creative arts (p. 30) ⁴		3
Language, philosophy and culture (p. 28) ⁴		3
Life and physical sciences (p. 27)		3
Semester Credit Hours		16
Second Year		
Fall		
ACCT 209	Survey of Accounting Principles	3
AGEC 217	Fundamentals of Agricultural Economics Analysis	3
ECON 202	Principles of Economics	3
Government/Political science (p. 31) ²		3
Life and physical sciences (p. 27)		3
Semester Credit Hours		15
Spring		
ACCT 210	Survey of Managerial and Cost Accounting Principles	3
ECON 203	Principles of Economics	3
Communication (p. 27)		3
Government/Political science (p. 31) ²		3
Life and physical sciences (p. 27)		3
Semester Credit Hours		15
Third Year		
Fall		
AGEC 314	Marketing Agricultural and Food Products	3
AGEC 315	Food and Agricultural Sales	3
ECON 323	Microeconomic Theory	3
STAT 303	Statistical Methods	3
Directed non-agricultural economics elective ^{4,6}		3
Semester Credit Hours		15
Spring		
AGEC 317	Economic Analysis for Agribusiness Management	3
AGEC 330	Financial Management in Agriculture	3
AGEC 340	Agribusiness Management	3
AGEC 481	Ethics in Agribusiness and Agricultural Economics	1
Directed agricultural economics elective ⁷		3
General elective ^{4,8}		3
Semester Credit Hours		16
Fourth Year		
Fall		
AGEC 429	Agricultural Policy ⁵	3
AGEC 452	International Trade and Agriculture	3
or AGECE 453 or International Agribusiness Marketing		
Directed agricultural economics electives ⁷		6

General elective ^{4,8}	3
Semester Credit Hours	15
Spring	
AGEC 430 Macroeconomics of Agriculture or ECON 311 or Money and Banking	3
AGEC 447 Food and Agricultural Price Analysis ⁹ or AGECE 448 or Agricultural Commodity Futures	3
Directed non-agricultural economics elective ^{4,6}	3
General elective ^{4,8}	3
Semester Credit Hours	12
Total Semester Credit Hours	120

¹ Must make a grade of C or better.

² Students under ROTC contract, see Requirement 7 of the Requirements for a Baccalaureate Degree. (p. 34)

³ Any course offered by the College of Agriculture and Life Sciences, except 285s, 484s, 485s and agricultural economics courses.

⁴ The Graduation requirements include a requirement for 3 hours of international and cultural diversity courses and 3 hours of cultural discourse courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. See academic advisor.

⁵ All undergraduate students must take at least two (2) specific courses in their major designated as writing intensive (W). This course is an approved W course.

⁶ Six hours to be selected in one or more departments outside of the Department of Agricultural Economics. A minimum of 3 of these hours must be at the 300- or 400-level. To be selected in consultation with an advisor.

⁷ To be selected in consultation with an advisor.

⁸ Any Texas A&M or transfer course (except ASCE 001 - ASCE 003 (p. 937) and KINE 199) not used to meet other requirements.

⁹ AGECE 447 is a fall only class. AGECE 448 is a spring only class.

Agricultural Economics - BS, Policy and Economic Analysis Option

This program is designed to assist in the development of economic theory and quantitative analysis skills that students can apply to analyze and communicate about agricultural policy and economic issues in Texas, the nation, and the world.

The Bachelor of Science degree in Agricultural Economics offers students four options: Finance and Real Estate, Food Marketing Systems, Policy and Economic Analysis, and Rural Entrepreneurship. The course requirements for the freshman and sophomore years are the same for the above Agricultural Economics options.

The Policy and Economic Analysis option equips students with analytical skills to understand the causes, nature, and effects of government participation in agriculture; and interrelationship of the American agriculture and agribusiness sector with the political and economic system, public administration, and interest group representation. A student's educational experience is further enriched with supportive high-impact opportunities such as participation in the Agriculture and Natural Resource Program (ANRP) Congressional Internship; Texas State Government Internships, Commodity groups and Lobby internship; Study Abroad and Independent research. With the aid of faculty and staff advisors, students in the Policy and Economic Analysis option design

their plan of study reflecting their particular future goals by incorporating higher-level electives outside the department. Students interested in graduate education may focus on developing a strong background in the following areas: quantitative analysis, economic theory, and applied economics. Those interested in entering law school may focus on courses in law, political science, and technical writing. Furthermore, those students interested in careers in government and policy may focus on courses in policy, political science, and management.

Graduates are trained for a wide variety of careers in local, state, and federal governments, and also with commodity groups and lobby firms. The program prepares students to continue on to graduate school, or pursue the 5-year combined program (BS AGECE and MPS PSAA (p. 141)) with the Bush School of Government and Public Service. A good number of students have pursued this option and continued on to law school.

The BS in Agricultural Economics with a Policy and Economic Analysis option is also offered at the Texas A&M Higher Education Center in McAllen, Texas.

Program Requirements

First Year

Fall

		Semester Credit Hours
AGECE 105	Introduction to Agricultural Economics ¹	3
AGLS 101 or AGECE 101	Modern Agricultural Systems and Renewable Natural Resources ¹ or Concepts in Agricultural Economics - First Year Experience	1
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition or Composition and Rhetoric	3
MATH 140	Mathematics for Business and Social Sciences ¹	3
American history (p. 30) ²		3
Technical agriculture ^{3,4}		3
Semester Credit Hours		16

Spring

AGECE 117	Critical Thinking and Decision Making in Agricultural Economics ⁵	1
MATH 142	Business Calculus ¹	3
American history (p. 30) ²		3
Creative arts (p. 30) ⁴		3
Language, philosophy and culture (p. 28) ⁴		3
Life and physical sciences (p. 27)		3
Semester Credit Hours		16

Second Year

Fall

ACCT 209	Survey of Accounting Principles	3
AGECE 217	Fundamentals of Agricultural Economics Analysis	3
ECON 202	Principles of Economics	3
Government/Political science (p. 31) ²		3
Life and physical sciences (p. 27)		3
Semester Credit Hours		15

Spring

ACCT 210	Survey of Managerial and Cost Accounting Principles	3
ECON 203	Principles of Economics	3
Communication elective (p. 27)		3
Government/Political science (p. 31) ²		3
Life and physical sciences (p. 27)		3
Semester Credit Hours		15

Third Year**Fall**

AGEC 314	Marketing Agricultural and Food Products	3
AGEC 340	Agribusiness Management	3
ECON 323	Microeconomic Theory	3
STAT 303	Statistical Methods	3
Directed non-agricultural economics elective ^{4,6}		3
Semester Credit Hours		15

Spring

AGEC 317	Economic Analysis for Agribusiness Management	3
AGEC 330	Financial Management in Agriculture	3
AGEC 429	Agricultural Policy ⁵	3
AGEC 481	Ethics in Agribusiness and Agricultural Economics	1
Directed agricultural economics elective ⁷		3
General elective ^{4,8}		3
Semester Credit Hours		16

Fourth Year**Fall**

AGEC 344 or AGE 452	Food and Agricultural Law or International Trade and Agriculture	3
AGEC 447	Food and Agricultural Price Analysis	3
Directed agricultural economics elective ⁷		3
Directed non-agricultural economics elective ^{4,6}		3
General elective ^{4,8}		3
Semester Credit Hours		15

Spring

AGEC 350	Environmental and Natural Resource Economics	3
AGEC 430 or ECON 311	Macroeconomics of Agriculture or Money and Banking	3
Directed agricultural economics elective ⁷		3
General elective ^{4,8}		3
Semester Credit Hours		12

Total Semester Credit Hours **120**

⁵ All undergraduate students must take at least two (2) specific courses in their major designated as writing intensive (W). This course is an approved W course.

⁶ Six hours to be selected in one or more departments outside of the Department of Agricultural Economics. A minimum of 3 of these hours must be at the 300- or 400-level. To be selected in consultation with an advisor.

⁷ To be selected in consultation with an advisor.

⁸ Any Texas A&M or transfer course (except ASCC 001 - ASSC 003 (p. 937) and KINE 199) not used to meet other requirements.

Agricultural Economics - BS, Rural Entrepreneurship Option

This program is designed to provide a well-founded basis in principles, concepts and methods for students interested in owning and/or managing or otherwise being engaged in working with a rural business.

The Bachelor of Science degree in Agricultural Economics offers students four options: Finance and Real Estate, Food Marketing Systems, Policy and Economic Analysis, and Rural Entrepreneurship. The course requirements for the freshman and sophomore years are the same for the above Agricultural Economics options.

Using "real world" application, students in the Rural Entrepreneurship option engage in firm-level problem identification, analysis, decision making, and management control. Integrating ideas, numbers, and mentor interactions are central to the courses' paradigms.

The option focuses on providing students 'hands-on' opportunities to develop economic and financial numerical evaluations of their business ideas. Numerous extracurricular 'outside-the-classroom' activities are used to supplement the course curriculum, providing transformational learning experiences for the students. The capstone characteristics of the classes afford the students connectivity opportunities to relate their other coursework to pragmatic applications in entrepreneurial pursuits of their individual interests.

Courses include frequent dialogues on contemporary rural and metropolitan entrepreneurial decision situations, applied computer analyses, and development of each student's management information system to accommodate their continued learning. Students are encouraged to 'think outside the box,' with exploration of non-traditional production, marketing, financing, and management opportunities being requisite components of students' individualized business plan development.

The program's pedagogy incorporates case studies, proprietary business enterprise spreadsheets, and direct mentorship in the lectures and labs, as students identify their unique business enterprises to research and develop as business plans. 'Real-world' visiting "Professors-for-a-Day" (Profs-for-a-Day) are an integral feature of these classes, with entrepreneurs, financial lenders, industry insurance representatives, marketing professionals, and others presenting in the classes.

Students pursuing this option are afforded opportunities to participate in numerous extracurricular activities made possible through donors to the Rister '74 Agribusiness Entrepreneurship Program. Included in such activities are the Edwards '73 Agribusiness Entrepreneurship Mentoring Forum, the Alpha Painting Business Pitch, and the Texas Farm

¹ Must make a grade of C or better.

² Students under ROTC contract, see Requirement 7 of the Requirements for a Baccalaureate Degree. (p. 34)

³ Any course offered by the College of Agriculture and Life Sciences, except 285s, 484s, 485s and agricultural economics courses.

⁴ The Graduation requirements include a requirement for 3 hours of international and cultural diversity courses and 3 hours of cultural discourse courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. See academic advisor.

Credit Entrepreneurial Dreams Symposium. Objectives of the Rister '74 Agribusiness Entrepreneurship Program include the following:

- Launch new entrepreneurs.
- Enhance agribusiness entrepreneurship acumen for College of Agriculture and Life Sciences' and other Texas A&M University students; and
- Facilitate networking among current and former students and other professionals.

Program Requirements

First Year

Fall		Semester Credit Hours
AGEC 105	Introduction to Agricultural Economics ¹	3
AGLS 101 or AGECE 101	Modern Agricultural Systems and Renewable Natural Resources ¹ or Concepts in Agricultural Economics - First Year Experience	1
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition or Composition and Rhetoric	3
MATH 140	Mathematics for Business and Social Sciences ¹	3
American history (p. 30) ²		3
Technical agriculture elective ^{3,4}		3
Semester Credit Hours		16

Spring

AGEC 117	Critical Thinking and Decision Making in Agricultural Economics ⁵	1
MATH 142	Business Calculus ¹	3
American history (p. 30) ²		3
Creative Arts (p. 30) ⁴		3
Language, philosophy and culture (p. 28) ⁴		3
Life and physical sciences (p. 27)		3
Semester Credit Hours		16

Second Year

Fall		Semester Credit Hours
ACCT 209	Survey of Accounting Principles	3
AGEC 217	Fundamentals of Agricultural Economics Analysis	3
ECON 202	Principles of Economics	3
Government/Political science (p. 31) ²		3
Life and physical sciences (p. 27)		3
Semester Credit Hours		15

Spring

ACCT 210	Survey of Managerial and Cost Accounting Principles	3
ECON 203	Principles of Economics	3
Communication (p. 27)		3
Government/Political science (p. 31) ²		3
Life and physical sciences (p. 27)		3
Semester Credit Hours		15

Third Year

Fall

AGEC 314	Marketing Agricultural and Food Products	3
AGEC 340	Agribusiness Management	3
ECON 323	Microeconomic Theory	3
STAT 303	Statistical Methods	3
Directed non-agricultural economics elective ^{4,6}		3
General elective ^{4,8}		3
Semester Credit Hours		18

Spring

AGEC 317	Economic Analysis for Agribusiness Management	3
AGEC 330	Financial Management in Agriculture	3
AGEC 429	Agricultural Policy ⁵	3
AGEC 481	Ethics in Agribusiness and Agricultural Economics	1
Directed agricultural economics elective ⁷		3
Directed non-agricultural economics elective ^{4,6}		3
Semester Credit Hours		16

Fourth Year

Fall

AGEC 344	Food and Agricultural Law	3
AGEC 424	Agribusiness Entrepreneurship – Economic Analysis	3
Directed agricultural economics elective ⁷		3
General elective ^{4,8}		3
Semester Credit Hours		12

Spring

AGEC 425	Agribusiness Entrepreneurship – Financial Analysis	3
AGEC 430 or ECON 311	Macroeconomics of Agriculture or Money and Banking	3
Directed agricultural economics elective ⁷		3
General elective ^{4,8}		3
Semester Credit Hours		12

Semester Credit Hours

12

Total Semester Credit Hours

120

¹ Must make a grade of C or better.

² Students under ROTC contract, see Requirement 7 of the Requirements for a Baccalaureate Degree. (p. 34)

³ Any course offered by the College of Agriculture and Life Sciences, except 285s, 484s, 485s and agricultural economics courses.

⁴ The Graduation requirements include a requirement for 3 hours of international and cultural diversity courses and 3 hours of cultural discourse courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. See academic advisor.

⁵ All undergraduate students must take at least two (2) specific courses in their major designated as writing intensive (W). This course is an approved W course.

⁶ Six hours to be selected in one or more departments outside of the Department of Agricultural Economics. A minimum of 3 of these hours must be at the 300- or 400-level. To be selected in consultation with an advisor.

⁷ To be selected in consultation with an advisor.

⁸ Any Texas A&M or transfer course (except ASCC 001-ASCC 003 (p. 937) and KINE 199) not used to meet other requirements.

Agricultural Economics - 5-Year Bachelor of Science and Master of Public Service Administration

This program allows students to earn both a BS in Agricultural Economics and an MPSA degree with a focus on public policy analysis in five years.

The combined program between the Department of Agricultural Economics and the Bush School of Government and Public Service allows undergraduate Agricultural Economics students to enter the Master of Public Service and Administration Program at the beginning of their senior year (typically year four) at Texas A&M University.

To be considered for the 5-year combined degree program, Agricultural Economics students must have a minimum 3.25 GPA and have completed 103 of the 120 hours of course work required to receive a bachelor's degree. These courses must include all of the specific prerequisites for a BS in Agricultural Economics, as well as the courses required by the College of Agriculture and Life Sciences and by Texas A&M University for an undergraduate degree.

Students in the combined program will submit the same materials as other MPSA applicants; the one exception to this is the submission of a 2-page application found on the Bush School website rather than the application at the Texas A&M UniCAS application portal, hence no application fee. Students whose records are judged to be competitive by the mid-January deadline will be invited to attend the GBS Interview Conference Weekend in late February/early March. The admissions criteria for the five-year program will be the same as for other MPSA students.

Students who choose not to finish the MPSA degree after being admitted to the five-year program may exit the program at any time. Completed MPSA courses will be applied to their bachelor's degree in Agricultural Economics, and students will select the Agricultural Economics option area that is most appropriate for their interest. Failure to complete the MPSA program will in no way impede their ability to attain a bachelor's degree in Agricultural Economics when the requirements for that degree are completed.

Advising for the five-year program will involve a coordinated effort by academic advisors in the College of Agriculture and Life Sciences and the Director of the MPSA program in the Bush School. Academic advisors in the College of Agriculture and Life Sciences will help ensure that interested students have satisfied the prerequisite course requirements for their bachelor's degree by the beginning of their senior year. The MPSA director and GBS director of recruiting will also be available for Agricultural Economics students who wish to set up appointments to talk individually about the MPSA program's curriculum and career opportunities available to its graduates.

Students in the five-year program will be required to complete the same curriculum as other students admitted to the Bush School's MPSA program.

Program Requirements

First Year

Fall		Semester Credit Hours
AGEC 105	Introduction to Agricultural Economics ¹	3
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition or Composition and Rhetoric	3
MATH 140	Mathematics for Business and Social Sciences	3
American History (p. 30) ²		3
Life and physical sciences (p. 27)		3
Semester Credit Hours		15
Spring		
AGEC 117	Critical Thinking and Decision Making in Agricultural Economics ³	1
MATH 142	Business Calculus	3
American history (p. 30) ²		3
Communication (p. 27)		3
Creative arts (p. 30) ⁴		3
Life and physical sciences (p. 27)		3
Semester Credit Hours		16

Second Year

Fall		
ACCT 209	Survey of Accounting Principles	3
AGEC 217	Fundamentals of Agricultural Economics Analysis	3
ECON 202	Principles of Economics	3
POLS 206	American National Government ²	3
Language, philosophy and culture (p. 28) ⁴		3
Semester Credit Hours		15
Spring		
ACCT 210	Survey of Managerial and Cost Accounting Principles	3
ECON 203	Principles of Economics	3
POLS 207	State and Local Government ²	3
STAT 303	Statistical Methods	3
Life and physical sciences elective (p. 27)		3
Semester Credit Hours		15

Summer

AGEC 314	Marketing Agricultural and Food Products	3
Directed non-agricultural economics elective ⁴		3
Select one of the following:		
ECMT 461	Economic Data Analysis	
ECON 433	Energy Markets and Policy	
FSTC 444	Fundamentals of Food Law	
GEOG 330 or GEOG 430	Resources and the Environment or Environmental Justice	
GEOS 430		
MKTG 409	Principles of Marketing	
POLS 340/ PSAA 340	Public Administration	

POLS 364	Global Political Thought	
POLS 412	International Political Economy	
POLS 415	Contemporary Issues in American Foreign Policy	
POLS 439	Foreign Policy Decision Making	
POLS 447 or POLS 475	National Security Policy or Government and the Economy	
PSAA 440	Public Policies and Policymaking	
RWFM 436	Natural Resources Policy	
URPN 360	Issues in Environmental Quality	
WGST 430/ MGMT 430	Employment Discrimination Law	

Semester Credit Hours 6

Third Year

Fall

AGEC 330	Financial Management in Agriculture	3
AGEC 340	Agribusiness Management	3
AGEC 429	Agricultural Policy ³	3
AGEC 452 or AGECE 453	International Trade and Agriculture or International Agribusiness Marketing	3
ECON 323	Microeconomic Theory	3
Directed agricultural economics elective ⁵		3

Semester Credit Hours 18

Spring

AGEC 317	Economic Analysis for Agribusiness Management	3
AGEC 344	Food and Agricultural Law	3
AGEC 350	Environmental and Natural Resource Economics	3
AGEC 430 or ECON 311	Macroeconomics of Agriculture or Money and Banking	3
AGEC 481	Ethics in Agribusiness and Agricultural Economics	1
Directed agricultural economics elective ⁵		3

Semester Credit Hours 16

Summer

Directed non-agricultural economics elective		3

Select one from the following:

ECMT 461	Economic Data Analysis	
ECON 433	Energy Markets and Policy	
FSTC 444	Fundamentals of Food Law	
GEOG 330 or GEOG 430	Resources and the Environment or Environmental Justice	
GEOS 430		
MKTG 409	Principles of Marketing	
POLS 340/ PSAA 340	Public Administration	
POLS 364	Global Political Thought	
POLS 412	International Political Economy	
POLS 415	Contemporary Issues in American Foreign Policy	
POLS 439	Foreign Policy Decision Making	

POLS 447 or POLS 475	National Security Policy or Government and the Economy	
PSAA 440	Public Policies and Policymaking	
RWFM 436	Natural Resources Policy	
URPN 360	Issues in Environmental Quality	
WGST 430/ MGMT 430	Employment Discrimination Law	

Semester Credit Hours 3

Fourth Year

Fall

BUSH 631	Quantitative Methods in Public Management I ⁶	3
PSAA 601	Foundations of Public Service ⁶	3
PSAA 621 or ECON 607	Economic Analysis ⁶ or Foundations of Microeconomic Theory	3
PSAA 643	Foundations of the Nonprofit Sector ⁶	3

Semester Credit Hours 12

Spring

BUSH 632 or BUSH 635	Quantitative Methods in Public Management II or Quantitative Methods in Public Management II: Policy Analysis Emphasis	3
PSAA 611	Public Policy Formation	3
PSAA 622	Public Finance ⁶	3
AGEC elective 600-level		3
Select one of the following: ⁶		
AGEC 604/ PSAA 663	Natural Resource Economics	
AGEC 606	Water Resource Economics	
AGEC 607	Research Methodology	
AGEC 614	Global Food and Agribusiness Policy	
AGEC 652	International Agribusiness Trade Analysis	

Semester Credit Hours 12

Summer

Professional Internship		

Semester Credit Hours 0

Fifth Year

Fall

PSAA 675	Public Service and Administration Capstone Seminar	3
PSAA 615	Policy Analysis	3
Approved Elective		6

Semester Credit Hours 12

Spring

PSAA 676	Public Service and Administration Capstone Seminar II	3
Approved Elective		9

Semester Credit Hours 12

Total Semester Credit Hours 152

Code	Title	Semester Credit Hours
MPSA Degree Requirements		48
BUSH 631	Quantitative Methods in Public Management I ⁶	
BUSH 632	Quantitative Methods in Public Management II	
or BUSH 635	Quantitative Methods in Public Management II: Policy Analysis Emphasis	
PSAA 601	Foundations of Public Service ⁶	
PSAA 611	Public Policy Formation	
PSAA 615	Policy Analysis	
PSAA 621	Economic Analysis ⁶	
PSAA 622	Public Finance ⁶	
PSAA 643	Foundations of the Nonprofit Sector ⁶	
PSAA 675	Public Service and Administration Capstone Seminar	
PSAA 676	Public Service and Administration Capstone Seminar II	
Electives		

¹ This course meets the Social and Behavioral Sciences requirement.

² Completion of four semesters of upper-level ROTC may be substituted for 3 hours of American History and 3 hours of Government/Political Science. Students under ROTC contract, see Requirement 7 of the Requirements for Baccalaureate Degree. (p. 34)

³ All undergraduate students must take at least two courses in their major designated as writing intensive (W). This course is an approved W course.

⁴ The Graduation requirements include a requirement for 3 hours of international and cultural diversity courses and 3 hours of cultural discourse courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. See academic advisor.

⁵ To be selected in consultation with an advisor.

⁶ Course double-counted.

The program includes a total of 168 hours with 16 hours being applied toward both the Bachelor of Science in Agricultural Economics and [the Master of Public Service Administration](#). (13 hours of electives and 3 hours of 600-level AGECE coursework).

See the MPSA program in the Graduate and Professional Catalog for the MPSA requirements.

Financial Planning - BS

This program prepares students to create personalized financial strategies for clients, covering topics like savings, investments, tax planning, retirement, debt management, estate planning, risk management, and client communication.

Financial planning is the study of financial decision-making throughout the life cycle of individuals, families, and organizations. Financial planning is ranked among the fastest-growing careers in the nation. Graduates of this program are qualified for careers in financial planning, financial counseling, financial literacy education, financial technology,

mutual fund companies, consumer banking, accounting, consulting, government agencies, and other related fields. This degree will also prepare students for advanced graduate studies in accounting, psychology, finance, law, and agribusiness.

The Bachelor of Science in Financial Planning degree program is registered with the Certified Financial Planning Board of Standards (CFP Board). All coursework meets the Certified Financial Planner™ education requirement. Upon completing the program, students are eligible to take the CFP® Certification Examination.

Students in this program will acquire marketable skills, including:

- In-depth knowledge of financial systems at the macro and microeconomic level
- Financial counseling and the ability to provide fundamental financial advice
- Client communication and in-depth understanding of the financial language used across multiple industries
- Identification of social and ethical issues related to household finances
- Data Analysis and Modeling of consumer choice
- Computer-based forecasting using household financial modeling
- Comprehensive knowledge of all areas (retirement, taxation, estate, investments, education, risk management, and ethics) of financial planning

Financial planning students will have access to:

- A case-based and experiential curriculum that will empower learners to engage and understand the impact of finances and financial decision-making across the lifecycle
- Structured mentorship and high-impact learning opportunities provided via existing relationships with local private and public organizations
- Opportunities to provide presentations to the local community and student body regarding financial planning and financial literacy
- National financial planning organizations and career placement

Program Requirements

First Year

Fall		Semester Credit Hours
AGEC 105 or ECON 202	Introduction to Agricultural Economics or Principles of Economics	3
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition or Composition and Rhetoric	3
FINP 101	Introduction to Personal Finance	3
MATH 140	Mathematics for Business and Social Sciences	3
American history (p. 30) ¹		3
Semester Credit Hours		15

Spring

MATH 142 or MATH 151	Business Calculus or Engineering Mathematics I	3-4
American history (p. 30) ¹		3
Creative Arts (p. 30) ¹		3

Language, philosophy and culture (p. 28) ¹	3
Life and physical sciences (p. 27)	3
Semester Credit Hours	15
Second Year	
Fall	
ACCT 209 Survey of Accounting Principles or ACCT 229 or Introductory Accounting	3
AGEC 223 Establishing Agribusiness or AGECE 216 Entrepreneurship Networks I or Fundamentals of the AgriFood Sales Industry	1
FINP 235 Foundations of Money Education	3
Communication (p. 27)	3
Government/Political science (p. 31)	3
Life and physical sciences (p. 27)	3
Semester Credit Hours	16
Spring	
ACCT 210 Survey of Managerial and Cost Accounting or ACCT 230 Principles or Introductory Accounting	3
AGEC 315 Food and Agricultural Sales	3
AGEC 324 Agribusiness Entrepreneurship – or AGECE 325 Budgeting or Principles of Farm and Ranch Management	3
FINP 201 Professional Development in Financial Planning	1
Select one of the following:	3
STAT 301 Introduction to Biometry	
STAT 302 Statistical Methods	
STAT 303 Statistical Methods	
BUSN 203 Statistical Methods for Business	
Government/Political science (p. 31)	3
Semester Credit Hours	16
Third Year	
Fall	
FINP 435 Financial Planning for Professionals	3
FINP 437 Tax Planning	3
Life and physical sciences (p. 27)	3
Directed Elective ²	3
Prescribed Elective ³	3
Semester Credit Hours	15
Spring	
FINP 436 Insurance Planning	3
FINP 438 Investment Planning	3
Directed elective ²	3
Prescribed elective ³	3
General elective ⁴	3
Semester Credit Hours	15
Fourth Year	
Fall	
FINP 439 Retirement Planning	3
FINP 442 Estate Planning	3

FINP 443 Technology Applications in Financial Planning	3
Directed elective ²	3
General elective ⁴	4
Semester Credit Hours	16
Spring	
FINP 441 Financial Planning Capstone	3
Prescribed elective ³	3
General elective ⁴	3
General elective ⁴	2-3
Semester Credit Hours	12
Total Semester Credit Hours	120

¹ The Graduation requirements include a requirement for 3 hours of international and cultural diversity (p. 49) courses and 3 hours of cultural discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. See academic advisor.

² Select from AGECE 314, AGECE 316, AGECE 330, AGECE 340, AGECE 344, AGECE 416, AGECE 424, AGECE 425.

³ Select from ALED 202, ALED 301, ALED 340, COMM 205, COMM 320, COMM 335, ECON 202-471 (p. 1016), ISTM 209, MGMT 209, MGMT 309, MKTG 409, FINC 409.

⁴ Any Texas A&M or transfer course (except ASCC 001-ASCC 003 (p. 937); KINE 199) not used to meet other requirements.

Agribusiness Entrepreneurship - Minor

The minor is for students interested in starting their own business, working in an existing family-owned business, working for an entrepreneur, pursuing employment with a bank or financial institution, or wanting a working knowledge of business development practices and strategies.

Using “real world” application, students engage in firm-level problem identification, analysis, decision making, and management control. Integrating ideas, numbers, and mentor interactions are central to the courses’ paradigms. The capstone characteristics of the classes afford the students connectivity opportunities to relate their other coursework to pragmatic applications in entrepreneurial pursuits of their individual interests.

Students will choose to develop a business plan for their own professional career pursuit, or to evaluate a business from an investor’s or consultant’s perspective in the coursework included in this minor. The instructor and student will mutually agree on a business venture and business settings selected. The options for students’ businesses are wide and varied, with locations in either a rural or metropolitan setting. Students are encouraged to ‘think outside the box,’ with exploration of non-traditional production, marketing, financing, and management opportunities being requisite components of students’ individualized business plan development.

A critical ingredient in the Agribusiness Entrepreneurship Minor is learning to establish and develop a large network with successful entrepreneurs and other professionals. This minor offers ample

opportunities for you to learn how to develop networking strategies in the classroom and in social settings.

Innovation and entrepreneurship are not limited to one field/degree area; therefore, the Agribusiness Entrepreneurship Minor is open to all majors.

Program Requirements

Code	Title	Semester Credit Hours
AGEC 315	Food and Agricultural Sales	3
AGEC 424	Agribusiness Entrepreneurship – Economic Analysis	3
AGEC 425	Agribusiness Entrepreneurship – Financial Analysis	3
AGEC 434	Rural Financial Markets and Financial Planning	3
Select one from the following:		1
AGEC 223	Establishing Agribusiness Entrepreneurship Networks I	
AGEC 423	Establishing Agribusiness Entrepreneurship Networks II	
Select one from the following:		3
AGEC 324	Agribusiness Entrepreneurship – Budgeting	
MGMT 470	Entrepreneurial Small Business	
MGMT 477	Entrepreneurship: The Lean Startup Approach	
MGMT 489	Special Topics in... ¹	
Total Semester Credit Hours		16

¹ Must be taken as MGMT 489 Innovative Product Design: The Lean Startup Method.

Must have declared a major.

Must meet all prerequisites for each course listed above prior to enrolling in any required course.

Must make a grade of 'C' or better in each required course.

Must have a cumulative GPR of 2.0 or higher.

Agricultural Economics - Minor

This minor equips students with fundamental knowledge of how economics contributes to business solutions for industries across agriculture.

The minor in Agricultural Economics is available to all students enrolled at Texas A&M University. The primary educational objective of this minor program is to provide students, majoring in other fields, with a fundamental knowledge of the fields of agricultural economics. The courses required for this minor will cover the major business elements of the agricultural industry.

Program Requirements

Code	Title	Semester Credit Hours
Core Courses		
AGEC 105	Introduction to Agricultural Economics	3
AGEC 314	Marketing Agricultural and Food Products	3
AGEC 330	Financial Management in Agriculture	3
AGEC 340	Agribusiness Management	3
Electives		
Upper-level AGEC courses (p. 906) ¹		6
Total Semester Credit Hours		18

¹ The following courses will not count toward the 6 hours of electives: AGEC 481, AGEC 484, and AGEC 485. Students are encouraged to visit the Agricultural Economics advisors to select the elective courses based on their career interests.

Students must make a grade of "C" or better in all courses.

AgriFood Sales - Minor

This minor is a great fit for students looking to pursue a career in professional sales, build a strong network of industry representatives and explore career development opportunities.

Elevate your career in professional sales and client management with our minor in AgriFood Sales. Tailored for students who want to understand how to build lasting client relationships, this program empowers you to master the art of sales with a focus on emotional intelligence and strategic self-management.

By joining our program, you'll expand your network through direct connections with industry leaders, gaining insights that open doors to dynamic career opportunities. Our innovative curriculum—grounded in hands-on industry partnerships and high-impact learning experiences—equips you with the skills to manage complex client interactions and drive business success.

While rooted in AgriFood, the core competencies you develop here seamlessly translate to diverse industries such as financial planning, technology, pharmaceuticals, and more. This minor is a powerful addition to any degree plan, setting you apart as a well-rounded, highly sought-after professional ready to excel in client management and sales.

Invest in your future, build a robust professional network, and transform your passion for sales and client management into a thriving career.

Program Requirements

Code	Title	Semester Credit Hours
AGEC 216	Fundamentals of the AgriFood Sales Industry	1
AGEC 315	Food and Agricultural Sales	3
AGEC 316	Building Customer Relationships in AgriFood Selling	3

AGEC 416	Sales Management and Advanced Techniques in Professional Technical Selling for AgriFood Firms	3
Select one of the following:		3
AGEC 314	Marketing Agricultural and Food Products	
MKTG 321	Marketing	
MKTG 409	Principles of Marketing	
Select one of the following:		3
AGEC 330	Financial Management in Agriculture	
AGEC 340	Agribusiness Management	
AGEC 422	Land Economics	
AGEC 424	Agribusiness Entrepreneurship – Economic Analysis	
FINP 435	Financial Planning for Professionals	
Total Semester Credit Hours		16

Students must have a declared major.

Must meet all prerequisite requirements for each course listed prior to enrolling in the course.

Must have a cumulative GPR of 2.0 or higher.

Must must earn a grade of “C” or better in each required course.

Financial Planning - Minor

This program prepares students for leadership roles in the financial planning profession.

The minor in Financial Planning prepares students for leadership roles in a rapidly growing profession. Financial planners advise their clients about financial decisions, including investments, insurance, taxes, retirement, estate planning, and budgeting. The goal of a financial planner is to help households bring confidence and peace of mind through the establishment of a financial plan to meet their life goals.

Eligibility requirements to declare a Financial Planning minor:

1. Students must be junior or senior classification.
2. Students must have a declared major.
3. Students must have the ability to successfully complete all minor coursework before graduation.
4. Complete an introductory finance course before applying for the minor. The prerequisite course *does not apply* to the minor.
5. Complete a minor application and receive approval from the Financial Planning Program.

For more information about the minor, visit our website (<https://financialplanning.tamu.edu/>).

Program Requirements

Code	Title	Semester Credit Hours
FINP 435	Financial Planning for Professionals	3
FINP 436	Insurance Planning	3
FINP 437	Tax Planning	3

FINP 438	Investment Planning	3
FINP 439	Retirement Planning	3
FINP 442	Estate Planning	3
Total Semester Credit Hours		18

Must make a grade of C or better in all courses.

International Trade and Agriculture - Certificate

In this program, students learn how global forces shape agriculture and how they impact the exchange of capital, goods and services across international borders or territories.

The Certificate in International Trade and Agriculture (CITA) offered by the Department of Agricultural Economics is designed to provide students with a complete knowledge and understanding of the global forces shaping change in agriculture. The CITA is available to all students, provided that all prerequisites are met. Specific certificate requirements are available in the Undergraduate Programs Office in the Department of Agricultural Economics, Room 214 of the Agriculture and Life Sciences Building or at: <https://agecon.tamu.edu/minors-and-certificates/>.

Program Requirements

Code	Title	Semester Credit Hours
AGEC 429	Agricultural Policy	3
AGEC 452	International Trade and Agriculture	3
AGEC 453	International Agribusiness Marketing	3
Select two from the following:		6
AGEC 430	Macroeconomics of Agriculture	
ALEC 350	Global Agricultural Issues	
ALEC 450	Global Social Justice Issues in Agriculture	
ALED 422	Cultural Pluralism in Agriculture	
ANTH 205	Peoples and Cultures of the World	
ANTH 300	Cultural Change and Development	
COMM 335	Intercultural Communication	
COMM 365/	International Communication	
JOUR 365		
ECON 330	Economic Development	
ECON 410	Macroeconomic Theory	
ECON 452	International Trade Theory and Policy	
FINC 445/	International Finance	
IBUS 446		
GEOG 202	Geography of the Global Village	
GEOG 323	Geography of Latin America	
MGMT 450/	International Environment of	
IBUS 450	Business	
MGMT 452/	International Management	
IBUS 452		
MKTG 401/	Global Marketing	
IBUS 401		

POLS 322	Western European Government and Politics
POLS 323	Political Systems of Latin America
POLS 333	International Cooperation
POLS 338	Government and Politics of the Former Soviet Union
POLS 412	International Political Economy
POLS 424	Comparative Governmental Institutions
RWFM 314	Principles of Rangeland Management Around the World
SPMT 337	International Sport Business

Total Semester Credit Hours**15**

Study abroad, foreign languages, and international internships are encouraged and allowed to contribute toward the 15 hours required for the certificate. No more than three hours of foreign language or six hours of study abroad or six hours of international internship may be counted as credit toward the certificate.

Department of Agricultural Leadership, Education, and Communications

The Department of Agricultural Leadership, Education, and Communications (ALEC) includes a student-centered faculty and staff offering undergraduate degrees leading to professional careers. Using a blend of asynchronous and synchronous courses, our programs offer a unique combination of practical, hands-on experiences and critical people skills required for success in today's fast-paced careers. Upon graduation, our students are uniquely equipped for leadership, education, communications, and training roles in the broad field of agricultural education and human performance in both domestic and international settings.

We offer three Bachelor of Science degrees: Agricultural Communications and Journalism, Agricultural Education, and Agricultural Leadership and Development; and five minors: Agricultural Communications and Journalism, Extension Education, International Agricultural Development, Leadership, and Youth Development.

Degree Programs

Agricultural Communications and Journalism (AGCJ) (p. 149)

This program prepares the student to work in writing, broadcasting, public relations, advertising, and multimedia communications. Students in this program will complete courses in writing, editing, and basic digital design. Courses include professional skills in the areas of social media, scientific writing, journalism, magazine production, photography, public relations, advertising, and multimedia content creation.

Agricultural Leadership and Development (ALED) (p. 151)

This program prepares the student to work with people involved in agriculture and life sciences and other related fields. Students in this program will complete courses in personal and organizational leadership, ethics, and leading change. Specialized courses include courses such as

team leadership, leading volunteers, cultural pluralism, and agricultural extension-related courses.

Agricultural Education (AGED) (p. 150)

This program prepares the student for a degree and teacher certification in Agricultural Food and Natural Resources (AFNR Grades 6-12). Students in this program will study agricultural content areas, educational technologies, instructional design, and program planning in agricultural education. The program is aimed at creating high-quality secondary agricultural education teachers. Program graduates can succeed in agricultural education careers as well as industry careers.

For more information about each of our programs, visit the specific majors tab (<https://catalog.tamu.edu/undergraduate/agriculture-life-sciences/agricultural-leadership-education-communications/#majorstext>) or visit our department website. (<https://alec.tamu.edu/academics/undergraduate/>)

Degree Minors

We offer five minors to complement a student's degree. Each minor provides our students with foundational knowledge and concepts required for success in future careers. Careers may include communication specialists, Extension educators, developers of youth programs, and students seeking positions as leaders in domestic or international settings.

- Agricultural Communications and Journalism (AGCJ)
- Extension Education (EXED)
- International Agricultural Development (IDAG)
- Leadership (LDAG)
- Youth Development (YDEV)

For more information on each minor, visit our department website (<https://alec.tamu.edu/academics/undergraduate/>).

Faculty

Boyd, Barry L, Associate Professor
Ag Leadership, Educ & Comm
PHD, Texas A&M University, 1991

Briers, Gary E, Professor
Ag Leadership, Educ & Comm
PHD, Iowa State University, 1978

Culbertson, Avery, Instructional Assistant Professor
Ag Leadership, Educ & Comm
PHD, University of Florida, 2013

Dooley, Kim E, Professor
Ag Leadership, Educ & Comm
PHD, Texas A&M University, 1995

Dunn, Allison L, Instructional Associate Professor
Ag Leadership, Educ & Comm
PHD, Texas A&M University, 2018

Elbert, Chanda D, Associate Professor
Ag Leadership, Educ & Comm
PHD, The Pennsylvania State University, 2000

Elliot, Jack, Professor
Ag Leadership, Educ & Comm
PHD, Ohio State University, 1988

Ellis, Gary D, Professor
Ag Leadership, Educ & Comm
PHD, North Texas State University, 1983

Hancock, J.P., Assistant Lecturer
Ag Leadership, Educ & Comm
MS, Texas A&M University, 1984

Harlin, Julie F, Associate Professor
Ag Leadership, Educ & Comm
PHD, Oklahoma State University, 1999

Herbert, Bruce E, Professor
Ag Leadership, Educ & Comm
PHD, University of California at Riverside, 1992

Hewitt, Mallory D, Visiting Lecturer
Ag Leadership, Educ & Comm
MS, Texas A&M University, 2023

Jamar, Patrick, Visiting Lecturer
Ag Leadership, Educ & Comm
PHD, University of Texas at Austin, 2023

Keszei, David, Professor of the Practice
Ag Leadership, Educ & Comm
PHD, Pepperdine University, 2021

Leggette, Holli R, Associate Professor
Ag Leadership, Educ & Comm
PHD, Texas A&M University, 2013

Lockett, Landry L, Senior Lecturer
Ag Leadership, Educ & Comm
PHD, Texas A&M University, 2007

Lund, Randy S, Instructional Assistant Professor
Ag Leadership, Educ & Comm
PHD, Texas A&M University, 2022

McGrath, Paul A, Assistant Lecturer
Ag Leadership, Educ & Comm
MA, Marist College, 2012

Moore, Lori L, Associate Professor
Ag Leadership, Educ & Comm
PHD, University of Florida, 2003

Murphrey, Theresa P, Professor
Ag Leadership, Educ & Comm
PHD, Texas A&M University, 1997

Murphy, Timothy H, Senior Professor
Ag Leadership, Educ & Comm
PHD, Texas A&M University, 1995

Nelson, Chad E, Instructional Associate Professor
Ag Leadership, Educ & Comm
PHD, Texas A&M University, 2019

Norris-Parish, Shannon, Assistant Professor
Ag Leadership, Educ & Comm
PHD, Texas A&M University, 2020

Odom, Summer Felton, Associate Professor
Ag Leadership, Educ & Comm
PHD, Texas A&M University, 2011

Opat, Kelsi, Instructional Assistant Professor
Ag Leadership, Educ & Comm
PHD, Texas Tech University, 2020
LLM, Friends University, 2015

Preston, Tammie M, Instructional Associate Professor
Ag Leadership, Educ & Comm
PHD, Texas A&M University, 2014

Quijada Landaverde, Rafael Antonio, Assistant Professor
Ag Leadership, Educ & Comm
PHD, The Ohio State University, 2022

Ripley, Jeff P, Visiting Professor of the Practice
Ag Leadership, Educ & Comm
PHD, Texas A&M University, 2008

Rotter, Craig A, Lecturer
Ag Leadership, Educ & Comm
PHD, Texas A&M University, 2004

Saunders, Clint, Professor of the Practice
Ag Leadership, Educ & Comm
MS, Texas Tech University, 2002

Strong, Jennifer R, Associate Professor
Ag Leadership, Educ & Comm
PHD, Oklahoma State University, 2007

Strong, Robert L, Professor
Ag Leadership, Educ & Comm
PHD, University of Florida, 2010

Stutts, Erin, Visiting Lecturer
Ag Leadership, Educ & Comm
MED, Texas A&M University, 2004

Wang, Jun, Associate Professor
Ag Leadership, Educ & Comm
PHD, Colorado State University, 2013

Wingenbach, Gary, Professor
Ag Leadership, Educ & Comm
PHD, Iowa State University, 1995

Xu, Zhihong, Associate Professor
Ag Leadership, Educ & Comm
PHD, Texas A&M University, 2020

Majors

- Bachelor of Science in Agricultural Communications and Journalism (p. 149)
- Bachelor of Science in Agricultural Education (p. 150)
- Bachelor of Science in Agricultural Leadership and Development (p. 151)

Minors

- Agricultural Communications and Journalism Minor (p. 152)
- Extension Education Minor (p. 153)
- International Agricultural Development Minor (p. 153)
- Leadership Minor (p. 154)
- Youth Development Minor (p. 154)

Agricultural Communications and Journalism - BS

This program prepares students for a career in communications, marketing, public relations and more.

Students graduating with a Bachelor of Science in Agricultural Communications and Journalism are prepared for employment in agricultural businesses, organizations, associations, and government agencies at all levels. Students obtain an understanding of media and science communication theory and industry best-practices to apply what they learn outside of the classroom. Graduates gain skills in the areas of social media, scientific writing, journalism, magazine production, photography, public relations, advertising, and multimedia content creation.

Students who wish to develop specific career plans may do so in consultation with their Agricultural Communications and Journalism advisor. With approval of the advisor and the dean's office, substitutions may be made in the required scientific and technical agriculture courses to help meet the student's goals.

For more information about this major, visit our website (<https://alec.tamu.edu/b-s-ag-communications-journalism/>). (<https://alec.tamu.edu/academics/undergraduate/agricultural-communications/>)

Program Requirements

First Year

Fall		Semester Credit Hours
AGCJ 105	Introduction to Agriculture and Life Sciences Communications	3
American history (p. 30)		3
Communication (p. 27)		3
Mathematics (p. 27)		3
Human performance directed elective ¹		3
Semester Credit Hours		15
Spring		
AGCJ 281	Media Concepts in Agriculture and Life Sciences	3
Communication (p. 27)		3
Life and physical sciences (p. 27)		3
Mathematics (p. 27)		3
Animal science directed elective ²		3
Semester Credit Hours		15

Second Year

Fall

AGCJ 307	Design for Agricultural Media	3
Select one of the following:		3
AGEC 105	Introduction to Agricultural Economics	
ECON 202	Principles of Economics	
ECON 203	Principles of Economics	
FINP 235	Foundations of Money Education	
American history (p. 30)		3
Government/Political science (p. 31)		3
Language, philosophy and culture (p. 28)		3
Semester Credit Hours		15

Spring

AGCJ 312	Editing in Agriculture and Life Sciences	3
Government/Political science (p. 31)		3
Life and physical sciences (p. 27)		3
Statistics/Research emphasis ³		3
Plant science directed elective ⁴		3
Semester Credit Hours		15

Third Year

Fall

AGCJ 313	Media Writing in Agriculture and Life Sciences I	3
Creative arts (p. 30)		3
Life and physical sciences (p. 27)		3
Agricultural communication and journalism ⁵		3
Agricultural emphasis area ⁶		3
Semester Credit Hours		15

Spring

AGCJ 314	Media Writing in Agriculture and Life Sciences II	3
ALED 424	Applied Ethics in Leadership	3
Select one of the following:		3
ALEC 350	Global Agricultural Issues	
ALEC 450	Global Social Justice Issues in Agriculture	
ALED 422	Cultural Pluralism in Agriculture	
Agriculture emphasis area ⁶		6
Semester Credit Hours		15

Fourth Year

Fall

AGCJ 405	Design and Publication in Agriculture and Life Sciences	3
Agricultural communication and journalism ⁵		6
Agricultural emphasis area ⁶		3
General elective ⁷		3
Semester Credit Hours		15

Spring

Select one of the following:		3
AGCJ 481	Seminar	
AGCJ 491	Research	
AGCJ 494	Internship	
Agricultural communication and journalism ⁵		3

General elective ⁷	9
Semester Credit Hours	15
Total Semester Credit Hours	120

- ¹ Select from ALED 100-499 (p. 916), FSTC 100-499 (p. 1051), NUTR 100-499 (p. 1175).
- ² Select from ANSC 100-499 (p. 918), ECCB 100-499 (p. 1004), ENTO 100-499 (p. 1031), POSC 100-499 (p. 1214), RWFM 100-499 (p. 1222).
- ³ Select from AGCJ 311, HMGJ 336, RWFM 336, STAT 201-225 (p. 1248), STAT 301-315 (p. 1248).
- ⁴ Select from ECCB 100-499 (p. 1004), HORT 100-499 (p. 1085), PLPA 100-499 (p. 1208), RWFM 100-499 (p. 1222), SCSC 100-499 (p. 1229).
- ⁵ Select from any AGCJ 300-499 (<https://catalog.tamu.edu/undergraduate/agriculture-life-sciences/agricultural-leadership-education-communications/#coursestext>) course not used elsewhere (except AGCJ 311).
- ⁶ Agriculture emphasis area courses will be used to develop a cohesive career emphasis and are to be selected in consultation with an academic advisor. Select from any 100-499 course in the College of Agriculture and Life Sciences.
- ⁷ Select from any 100-499 course not used elsewhere (except AGCJ 100-499 (<https://catalog.tamu.edu/undergraduate/agriculture-life-sciences/agricultural-leadership-education-communications/#coursestext>) or ENGL 103).

A grade of C or better must be maintained in all AGCJ courses.

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. See an academic advisor.

Only one of the following will satisfy the requirements for AGCJ degree: AGCJ 105 or JOUR 102.

Only one of the following will satisfy the requirements for AGCJ degree: AGCJ 313 or JOUR 203.

Agricultural Education - BS

This program prepares students to successfully work toward teacher certification, resulting in the ability to teach Agriculture, Food, and Natural Resources (AFNR) classes in a secondary school setting.

The Agricultural Education curriculum includes a combination of courses in scientific agriculture and professional education that will meet requirements for employment and advanced study in careers emphasizing formal and informal programs of education. A student following this curriculum must meet the requirements of admission to the teacher education program as determined by the State of Texas. Enrollment in this program requires a passing score on the TExES 272 AFNR content exam and a full semester performing an off-campus professional teaching internship in a secondary classroom in order to graduate. After successful completion of the professional teaching semester, a student may be eligible to enter public schools as a teacher of AFNR certified by the Texas Education Agency.

In addition to teaching in a secondary agriculture program, career options may include working as an agricultural extension agent, working for a

marketing agency or agricultural supply company, or working in other industries related to agricultural education.

A student majoring in agricultural education will be counseled by an advisor to ensure that the program developed with the student will satisfy his or her unique interests, needs and professional aspirations, as well as requirements for teacher certification.

For more information on this major, visit our website (<https://alec.tamu.edu/b-s-agricultural-science/>).

Program Requirements

First Year

Fall		Semester Credit Hours
AGLS 101 or AGLS 125	Modern Agricultural Systems and Renewable Natural Resources or Life Sciences Learning Community I	1
HORT 201 or SCSC 105	Horticultural Science and Practices or World Food and Fiber Crops	3
Select one of the following:		3
AGEC 105	Introduction to Agricultural Economics	
ECON 202	Principles of Economics	
ECON 203	Principles of Economics	
FINP 235	Foundations of Money Education	
Communication (p. 27)		3
Mathematics (p. 27)		3
Semester Credit Hours		13

Spring

ANSC 107	General Animal Science	3
ANSC 108	General Animal Science Laboratory	1
American history (p. 30)		3
Creative arts (p. 30)		3
Mathematics (p. 27)		3
General elective ¹		3
Semester Credit Hours		16

Second Year

Fall		
Communication (p. 27)		3
Government/Political science (p. 31)		3
Language, philosophy and culture (p. 28)		3
Life and physical sciences (p. 27)		3
Scientific agricultural elective ²		3
Semester Credit Hours		15

Spring

Select one of the following:		3
AGSC 363	Teaching Skills in Agricultural Metal Technology	
AGSC 489	Special Topics in...	
AGSM 201	Agricultural Energy and Power Systems	
AGSM 360	Occupational Safety Management	
AGSM 489	Special Topics in...	
POSC 427	Animal Waste Management	
American history (p. 30)		3

Government/Political science (p. 31)	3
Life and physical sciences (p. 27)	3
Scientific agricultural elective ²	3
Semester Credit Hours	15

Third Year**Fall**

AGSC 302	Teaching School-Based Agricultural Education & Clinical Professional Experience ^{3,4,5}	4
INST 210	Understanding Special Populations ³	3
Select one of the following:		3
AGEC 314	Marketing Agricultural and Food Products	
AGEC 315	Food and Agricultural Sales	
AGEC 325	Principles of Farm and Ranch Management	
AGEC 340	Agribusiness Management	
AGSC 305	Management of Supervised Agricultural Experiences	
Plant science elective ⁶		3
Scientific agricultural elective ²		3

Semester Credit Hours **16**

Spring

AGSC 373	Managing Safety in the Agricultural Science Program ³	3
AGSC 383	Teaching Agricultural Mechanics ³	3
INST 301	Educational Psychology ³	3
Select one of the following:		3
ANSC 210	Companion Animal Science	
ANSC 302	Basic Beef Cattle Production	
ANSC 309	Applied Animal Record Keeping	
ANSC 320	Animal Nutrition and Feeding	
ANSC 326/ FSTC 326	Food Bacteriology	
ANSC 451	Current Issues in Animal Agriculture	
Life and physical sciences (p. 27)		3

Semester Credit Hours **15**

Fourth Year**Fall**

AGSC 402	Designing Instruction for Secondary Agricultural Science Programs ^{3,4}	3
AGSC 405	Facilitating Complete Secondary Agricultural Science Programs ^{3,4}	3
ANSC 380	Animal Science for Agricultural Science	3
Plant science elective ⁶		3
Scientific agricultural elective ²		3

Semester Credit Hours **15**

Spring

AGSC 425	Learner Centered Instruction in Agricultural Science ^{3,4}	3
AGSC 436	Professional Teaching Internship in AGSC ^{3,4}	6
AGSC 481	Seminar ³	1
AGSC 484	Field Experience ³	4

ANSC 484	Livestock Practicum	1
Semester Credit Hours		15
Total Semester Credit Hours		120

¹ Select any 100-499 course not used elsewhere (except ASCC 100-499 (p. 937)).

² All scientific agricultural electives are to be selected in consultation with an academic advisor.

³ Must make a grade of C or better to receive credit.

⁴ Professional development course required for certification as a teacher of agricultural science.

⁵ Requires admission to teacher education. Consult with an advisor about specific requirements for admission to teacher education.

⁶ Select from ECCB 203, ECCB 301, ECCB 307, ECCB 309, ECCB 310, ECCB 312, ECCB 319, ECCB 324, ECCB 405, ECCB 408; GENE 100-499 (p. 1053); HORT 100-499 (p. 1085); RWFM 202, RWFM 302, RWFM 313, RWFM 314, RWFM 316, RWFM 317, RWFM 370; SCSC 100-499 (p. 1229).

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. See an academic advisor.

Agricultural Leadership and Development - BS

This program is multidisciplinary and designed to develop students for leadership positions in local, state, regional, and national organizations and agencies in the agriculture industry and beyond.

Students in this major will learn about the fundamentals of leadership and human development and develop their own leadership capabilities and communication skills to lead and work with people. The Agricultural Leadership and Development program includes a multidisciplinary curriculum emphasizing the development of tools to be successful both professionally and personally. Upon graduation, students are prepared for leadership positions in local, state, regional, and national groups, organizations, and agencies that are involved in the agricultural industry.

The degree requires students to declare a university-approved minor that serves as a context for students to apply their leadership knowledge.

For more information about this major, visit our website (<https://alec.tamu.edu/b-s-ag-leadership/>). (<https://alec.tamu.edu/academics/undergraduate/agricultural-communications/>)

Program Requirements

First Year**Fall**

		Semester Credit Hours
ALED 202	Introduction to Leadership	3
Select one of the following:		3
AGEC 105	Introduction to Agricultural Economics	
ECON 202	Principles of Economics	
ECON 203	Principles of Economics	
FINP 235	Foundations of Money Education	

Communication (p. 27)	3
Life and physical sciences (p. 27)	3
Mathematics (p. 27)	3
Semester Credit Hours	15
Spring	
Communication (p. 27)	3
Creative arts (p. 30)	3
Language, philosophy and culture (p. 28)	3
Mathematics (p. 27)	3
Agricultural elective ^{1,2}	3
Semester Credit Hours	15
Second Year	
Fall	
American history (p. 30)	3
Life and physical sciences (p. 27)	3
Social and behavioral sciences (p. 31)	3
Agricultural elective ^{1,2}	3
General elective	3
Semester Credit Hours	15
Spring	
ALED 301 Personal Leadership Education or ALED 340 or Survey of Leadership Theory	3
American history (p. 30)	3
Government/Political science (p. 31)	3
Life and physical sciences (p. 27)	3
General elective	3
Semester Credit Hours	15
Third Year	
Fall	
ALED 301 Personal Leadership Education ³ or ALED 340 or Survey of Leadership Theory	3
Government/Political science (p. 31)	3
Agricultural elective ^{1,2}	3
Minor	3
General elective	3
Semester Credit Hours	15
Spring	
ALED 424 Applied Ethics in Leadership or ALED 440 or Leading Change	3
Agricultural leadership and development ⁴	3
Minor	3
Minor	3
General elective	3
Semester Credit Hours	15
Fourth Year	
Fall	
ALED 424 Applied Ethics in Leadership ³ or ALED 440 or Leading Change	3
Agricultural leadership and development ⁴	3
Minor	3
Minor	3

General elective	3
Semester Credit Hours	15
Spring	
ALED 481 Seminar	3
Agricultural leadership and development ⁴	3
Minor or general elective	3
General electives	6
Semester Credit Hours	15
Total Semester Credit Hours	120

¹ Select from AGCJ 100-499 (p. 904); AGECE 117-499 (p. 906); AGLS 100-499 (p. 910); AGSM 100-499 (p. 912); ANSC 100-499 (p. 918); BAEN 100-499 (p. 942); BESC 100-499 (p. 946); BICH 100-499 (p. 947); DASC 100-499 (p. 997); ECCB 100-499 (p. 1004); ENTO 100-499 (p. 1031); FIVS 100-499 (p. 1047); FSTC 100-499 (p. 1051); GENE 100-499 (p. 1053); HMG 100-499 (p. 1081); HORT 100-499 (p. 1085); NUTR 100-499 (p. 1175); PLPA 100-499 (p. 1208); POSC 100-499 (p. 1214); RWFM 100-499 (p. 1222); SCSC 100-499 (p. 1229). (p. 1268)

² ALED courses may not be used for these electives.

³ Select course not taken the previous semester.

⁴ Select from ALEC 300-499 (p. 914); ALED 300-499. (p. 916)

Students are required to make a C or better for each of their courses in the major coursework area.

Before registering as a junior, students must develop a degree program in consultation with a departmental advisor.

At least 36 credits must be 300- and 400-level courses.

The Graduation requirements include 3 hours of International and Cultural Diversity (p. 49), and 3 hours of Cultural Discourse. (p. 48) A course satisfying a Core category, a college/department requirement or a free elective can be used to satisfy this requirement.

Agricultural Communications and Journalism - Minor

This program focuses on written communication, preparing students for roles in media relations.

Students seeking a minor in Agricultural Communications and Journalism (AGCJ) should begin the process by discussing the option with their academic advisor in their major. Students should then make an appointment with an AGCJ advisor to discuss interests.

The AGCJ minor is highly focused on written communication. Students should consider their interest in writing before beginning the minor. Students seeking to complete the AGCJ minor will graduate prepared to assist with writing news releases, social media posts, photography or other media relations activities in many communication fields.

Eligibility requirements to declare an AGCJ Minor

Students must:

1. Have a cumulative 2.5 GPA or higher and be in good standing with Texas A&M University;

2. Have completed less than 70 hours;
3. Meet with an AGCJ advisor for approval.

For more information about this minor, visit our website (<https://alec.tamu.edu/academics/undergraduate/minor-agricultural-communications-journalism/>).

Program Requirements

Code	Title	Semester Credit Hours
AGCJ 105	Introduction to Agriculture and Life Sciences Communications	3
AGCJ 281	Media Concepts in Agriculture and Life Sciences	3
AGCJ 312	Editing in Agriculture and Life Sciences	3
AGCJ 313	Media Writing in Agriculture and Life Sciences I	3
Select two of the following:		6
AGCJ 306	Theory and Practice of Public Relations in Agriculture and Life Sciences	
AGCJ 311	Introduction to Research in Agriculture and Life Sciences Communications	
AGCJ 314	Media Writing in Agriculture and Life Sciences II	
AGCJ 404	Science Communications and Public Engagement in Agriculture and Life Sciences	
AGCJ 406	Public Relations and Campaigns in Agriculture and Life Sciences	
AGCJ 408	Advertising Copy and Design in Agriculture and Life Sciences	
AGCJ 410	Risk Communications in Science and Society	
AGCJ 411	Advanced Research in Agriculture and Life Sciences Communications	
Total Semester Credit Hours		18

Students must make a grade of C or better in all courses.

Extension Education - Minor

This program provides students with formal instruction in Extension Education necessary to be successful Extension educators.

The curriculum prepares students in the history and philosophy of Extension education, extension educational methodologies, program management and program development. Students explore Extension educational roles in their future contexts; develop an awareness of program development, volunteer management, Extension educational theories and models for future application as an Extension educator. The curriculum includes foundational leadership concepts coursework, credits in a specialized area of leadership, and an Extension internship.

Eligibility requirements to declare minor in Extension Education

1. Students must have a cumulative 2.5 GPA or higher and be in good standing with Texas A&M University.
2. Students must have completed 75 hours or less at time of application.
3. Students must have a declared major.
4. Any prerequisite coursework for classes must be completed, but does not count towards the actual minor.

For more information about this minor, visit our website (<https://alec.tamu.edu/minors/>).

Program Requirements

Code	Title	Semester Credit Hours
ALED 339	Agricultural Extension Philosophy and the Land-Grant Mission	3
ALED 441	Agricultural Extension Organization and Methods	3
ALED 494	Internship	3
Select three from:		9
ALEC 370	Principles of Positive Youth Development	
ALEC 371	Skills and Techniques for Youth Development Professionals	
ALEC 412	Technology-Enhanced Instructional Design Strategies for Agriculture	
ALEC 425	Principles of Program Evaluation	
ALEC 478	Youth Development Practice	
ALED 341	Team Learning	
ALED 344	Leadership of Volunteers	
ALED 426	Leading and Training Adult Learners	
ALED 440	Leading Change	
RWFM 322	Community Development and Sustainability	
Total Semester Credit Hours		18

Minimum of 6 hours at 300- to 400-level.

International Agricultural Development - Minor

This program provides students with formal instruction in international agricultural development concepts and practical experiences through language acquisition, study/research abroad, and/or international fieldwork.

The International Agricultural Development (IDAG) curriculum prepares students for successful post-baccalaureate international careers or graduate studies particularly aligned with the Graduate Certificate in International Agriculture (INAG).

Students critically examine current international agriculture issues and/or topics in diversity and communications. IDAG coursework includes foundational concepts and upper-division foreign languages or approved international experiences.

Eligibility requirements to declare an IDAG Minor

Students must have:

1. A cumulative 2.0 GPA or higher and be in good standing with Texas A&M University;
2. A declared major;
3. Completed 75 hours or less at time of application;
4. A meeting with an IDAG advisor; and,
5. Complete an IDAG Minor application.

For more information about this minor, visit our website (<https://alec.tamu.edu/minors/>).

Program Requirements

Code	Title	Semester Credit Hours
AGCJ 491	Research	3
or ALEC 485 or Directed Studies		
Select three of the following:		9
AGEC 344	Food and Agricultural Law	
AGEC 452	International Trade and Agriculture	
ALEC 350	Global Agricultural Issues	
ALEC 425	Principles of Program Evaluation	
ALEC 450	Global Social Justice Issues in Agriculture	
ALEC 460	Applying International Development Theories in Agriculture	
ALED 422	Cultural Pluralism in Agriculture	
ARCH 458	Cultural and Ethical Considerations for Global Practice	
COMM 365/International Communication		
JOUR 365		
COMM 460 Communication and Contemporary Issues		
ECCB 303	Fire Ecology and Biogeochemistry	
ECON 318/ The Economics of Gender and Race		
WGST 318		
ECON 452	International Trade Theory and Policy	
EHRD 408	Globalization and Diversity in the Workplace	
GEOG 324	Global Climatic Regions	
GEOG 410/ Global Change		
OCNG 412		
GEOS 430		
HMGD 302	Application of Tourism Principles	
INTA 301	Theories of Globalization	
INTA 321	Political Islam and Jihad	
MKTG 401/ Global Marketing		
IBUS 401		
PHLT 307	Public Health in the Global Context	
POLS 325	African Politics	
POLS 335	International Conflict	
SCMT 340	Managing Logistics and Supply Chain Operations	

Practical Skills/Experiences ¹	3
Total Semester Credit Hours	15

¹ Upper-division, university-level foreign languages; University approved credit-bearing Education Abroad experience; or IDAG advisor approved international experience

Leadership - Minor

This program provides students with formal instruction in leadership theory and the application of concepts necessary to be successful leaders in future careers.

The Leadership (LDAG) curriculum prepares students to be effective industry, community, and organizational leaders. Students explore leadership roles in their future contexts, develop an awareness of personal leadership characteristics, and apply leadership theories and models for future professional experiences. The coursework includes foundational leadership concepts and advanced leadership concepts.

Eligibility requirements to declare Minor in Leadership (LDAG)

1. Students are encouraged to have completed or be currently enrolled in ALED 202.
2. Students must have a cumulative 2.0 GPA or higher and be in good standing with Texas A&M University.
3. Students must have the ability to successfully complete all minor coursework before graduation – meaning 3 to 4 long semesters.
4. Students must have a declared major.

For more information about this minor, visit our website (<https://alec.tamu.edu/minors/>).

Program Requirements

Code	Title	Semester Credit Hours
ALED 202	Introduction to Leadership	3
ALED 301	Personal Leadership Education	3
ALED 340	Survey of Leadership Theory	3
ALED 424	Applied Ethics in Leadership	3
ALED 440	Leading Change	3
Total Semester Credit Hours		15

Must make a C or better in all minor coursework.

Youth Development - Minor

This program focuses on programs and services that contribute to the development of young people's personal, physical, social and educational abilities.

The Department of Agricultural Leadership, Education and Communications offers a minor in Youth Development as a supplement to other majors. Youth workers are program developers, leaders and managers who need to be able to work with youth, families, organizations and communities. Coursework in this option focuses on positive youth development, program planning and evaluation, methods for working with

young people, and societal factors that both contribute to and inhibit the development of young people.

For more information about this minor, visit the department's Undergraduate Minors website (<https://alec.tamu.edu/minors/>).

Program Requirements

Code	Title	Semester Credit Hours
ALEC 370	Principles of Positive Youth Development	3
ALEC 473	Diversity, Equity, and Inclusion in Youth Development Organizations	3
Select three from the following:		9
ALEC 371	Skills and Techniques for Youth Development Professionals	
ALEC 372	Designing and Delivering Effective Youth Programs	
ALEC 375	Youth Development Programming in Sport and Physical Activities	
ALEC 377	Camp Management and Administration	
ALEC 474	Positive Youth Development in the Age of Artificial Intelligence	
Total Semester Credit Hours		15

Students must make a grade of C or better in all courses.

Department of Animal Science

The curricula in Animal Science are designed to prepare students for rewarding careers in animal-oriented agribusiness. The millions of domestic animals that provide food, fiber and recreation for humans offer a variety of career opportunities for animal science graduates.

Students completing the Bachelor of Science degree in Animal Science are in demand by both the private and public sectors. Career paths include livestock production and the extensive infrastructure that provides the products and services required for management, marketing and processing of livestock and livestock products. Students receive training in nutrition, breeding, reproductive physiology, meat science, dairy products, wool and mohair, and the production and management of livestock. Extensive laboratory facilities and livestock operations located on or near campus in the Animal Science Teaching, Research and Extension Complex facilitate practical application of the scientific principles.

Leadership skills are developed through participation in a wide array of extracurricular activities, including departmental clubs, judging teams and continuing education/youth programs. A substantial number of students gain experience in a variety of disciplines through high impact learning experiences such as internships, research, study abroad and field trips.

Faculty

Bazer, Fuller W, Distinguished Professor
Animal Science
PHD, North Carolina State University, 1969

Beck, Matt, Assistant Professor
Animal Science
PHD, Lincoln University, New Zealand, 2020

Brandao, Alice, Instructional Assistant Professor
Animal Science
DVM, SÃO PAULO STATE UNIVERSITY, 2013
PHD, Texas A&M University, 2021

Cardoso, Rodolfo, Associate Professor
Animal Science
DVM, Sao Paulo State University, 2005
PHD, Texas A&M University, 2014

Carstens, Gordon E, Professor
Animal Science
PHD, Colorado State University, 1998

Chao, Michael, Associate Professor
Animal Science
PHD, University of Nebraska, Lincoln, 2015

Clark, Karl, Associate Professor
Animal Science
PHD, University of Minnesota, 2003

Coburn, Chad, Senior Lecturer
Animal Science
MS, Angelo State University, 1995

Cooke, Reinaldo F, Professor
Animal Science
PHD, University of Florida, 2008

Daigle, Courtney L, Associate Professor
Animal Science
PHD, Michigan State University, East Lansing, MI, 2013

Dass, Sapna, Assistant Professor
Animal Science
PHD, Dublin Institute of Technology, 2020

Despain, Kyle, Visiting Lecturer
Animal Science
MS, Texas A&M University, College Station, 2024

Dunlap, Kathrin A, Instructional Professor
Animal Science
PHD, Texas A&M University, 2006

Gehring, Kerri B, Professor
Animal Science
PHD, Texas A&M University, 1994

Gill, Clare A, Professor
Animal Science
PHD, University of Adelaide, Australia, 2000

Gill, Jason J, Professor
Animal Science
PHD, University of Guelph, 2006

Hanagriff, Roger D, Instructional Associate Professor
Animal Science
PHD, Texas A&M University, 2002

Herring, Andy D, Professor
Animal Science
PHD, Texas A&M University, 1994

Ing, Nancy H, Professor
Animal Science
DVM, University of Florida, 1984
PHD, University of Florida, 1988

Kaniyamattam, Karun, Assistant Professor
Animal Science
PHD, University of Florida, 2016

Kerth, Christopher R, Associate Professor
Animal Science
PHD, Texas Tech University, 1999

Lamb, Graham C, Professor
Animal Science
PHD, Kansas State University, 1998

Legako, Jerrad, Associate Professor
Animal Science
PHD, Texas Tech University, 2011

Linne, Paige K, Senior Lecturer
Animal Science
MS, Texas A&M University, 2017

Long, Charles R, Professor
Animal Science
PHD, Texas A&M University, 1972

Luense, Lacey, Assistant Professor
Animal Science
PHD, University of Kansas Medical Center, 2012

Macon, Erica, Assistant Professor
Animal Science
PHD, University of Kentucky, 2021

Mathis, Clay P, Professor
Animal Science
PHD, Kansas State University, 1998

Osburn, Wesley N, Associate Professor
Animal Science
PHD, University of Nebraska at Lincoln, 1996

Paudyal, Sushil, Assistant Professor
Animal Science
PHD, Colorado State University, 2018

Pohler, Ky Garrett, Associate Professor
Animal Science
PHD, University of Missouri, 2015

Poole, Rebecca, Assistant Professor
Animal Science
PHD, North Carolina State University, 2019

Ramsey, W, Professor
Animal Science
PHD, New Mexico State University, 1996

Riggs, Penny, Associate Professor
Animal Science
PHD, Texas A&M University, 1996

Riley, David Greg, Professor
Animal Science
PHD, Texas A&M University, 2000

Satterfield, Michael C, Professor
Animal Science
PHD, Texas A&M University, 2008

Savell, Jeffrey W, Professor
Animal Science
PHD, Texas A&M University, 1978

Schobert, Sarah, Lecturer
Animal Science
MS, Oklahoma State University, 2017

Skaggs, Chris L, Professor
Animal Science
PHD, Iowa State University, 1992

Taylor, Matthew, Professor
Animal Science
PHD, University of Tennessee, Knoxville, 2006

Tedeschi, Luis O, Professor
Animal Science
PHD, Cornell University, 2001

Tomaszewski, Michael A, Visiting Professor
Animal Science
PHD, North Carolina State University, 1972

Welsh, Thomas H, Professor
Animal Science
PHD, North Carolina State University, 1980

White-Springer, Sarah H, Associate Professor
Animal Science
PHD, University of Florida, 2014

Wickersham, Tryon A, Professor
Animal Science
PHD, Kansas State University, 2006

Wiegert, Jeffrey Glennon, Instructional Associate Professor
Animal Science
PHD, North Carolina State University, 2019

Wu, Guoyao, Professor
Animal Science
PHD, University of Alberta, Canada, 1989

Majors

- Bachelor of Science in Animal Science, Production/Industry Option (p. 157)
- Bachelor of Science in Animal Science, Science Option (p. 158)

Certificates

- Equine Science Certificate (p. 160)
- Meat Science Certificate (p. 160)

Animal Science - BS, Production/Industry Option

This program prepares students for careers in animal-oriented agribusinesses, including animal production, agricultural extension work, and feed sales.

This curriculum prepares students for careers in animal-oriented agribusinesses. Other courses, in addition to animal science courses, include accounting, economics, genetics and management. A wide array of internships giving students invaluable experience in all phases of livestock production and related industries is available. Career opportunities include sales, management, public relations, marketing, quality control and education. Students may concentrate on an emphasis area within this option, including the following.

Beef Cattle

Students receive training that enables them to pursue careers in ranch management, feedlot management, pharmaceutical sales and other service-oriented livestock industries. Students are trained in all aspects of production, marketing and merchandising techniques for employment in the beef industry. The University Beef Cattle Center gives students hands-on experience.

Dairy

The focus of this emphasis area is to develop a well-rounded, knowledgeable student. Students have the opportunity to apply scientific principles, problem-solving methods, state-of-the-art techniques and information transfer to complex dairy production systems.

Equine

Designed for students with professional or vocational interests in horses and the horse industry. Coursework emphasizes equine nutrition, breeding, reproduction, health, management, training and judging. Lectures are reinforced with laboratories in which students work with horses. Graduates are well prepared for careers with horse production farms, stallion stations, performance and race training stables, breed associations, performance horse organizations, feed and pharmaceutical companies, county extension positions, and other industries and agencies related to the horse industry.

Meat

Students prepare for a career in the meats industry by taking meat science and processing and evaluation courses. Students also can conduct research through special problems courses and can gain valuable work experience on campus in the Meat Science Section or the Rosenthal Meat Science and Technology Center or off campus through internships or summer jobs. Job opportunities are available in packing, processing, retailing, purveying, food service, promotion, public relations and government regulatory agencies.

Sheep

Designed to prepare students for careers in the sheep and goat industries and in the associated wool and mohair industries, this emphasis gives

students first-hand experience in sheep production and management practices, as well as procedures for processing and evaluating fleeces. Job opportunities are diverse and include flock management, marketing of lamb and fiber products, feed and pharmaceutical sales and county extension agent positions.

Swine

This emphasis area is designated for students planning to pursue a career in swine production or closely allied industries. Students are taught the principles of breeding and genetics, nutrition and feeding, animal health, environmental control and waste management as they relate to profitable swine production systems. These principles are reinforced by hands-on experience with the department's swine herd. Career paths include management of swine production units and technical service or sales for feed, pharmaceutical and breeding stock companies.

Program Requirements

First Year

Fall		Semester Credit Hours
ANSC 101	Introductory Seminar for Animal Science	1
ANSC 107 & ANSC 108	General Animal Science and General Animal Science Laboratory	4
CHEM 119	Fundamentals of Chemistry I	4
Language, philosophy and culture (p. 28) ¹		3
Mathematics (p. 27) ¹		3
Semester Credit Hours		15

Spring

ANSC 111	Animal Production Systems	3
ANSC 113	Farm Animal Biosystems	2
BIOL 107 or BIOL 111	Zoology or Introductory Biology I	4
Communication (p. 27) ¹		3
Mathematics (p. 27) ¹		3
Semester Credit Hours		15

Second Year

Fall		
ANSC 303/ NUTR 303	Principles of Animal Nutrition	3
CHEM 222	Elements of Organic and Biological Chemistry	3
Select one of the following:		3
AGEC 105	Introduction to Agricultural Economics	
ECON 202	Principles of Economics	
ECON 203	Principles of Economics	
Select one of the following:		3
ANSC 309	Applied Animal Record Keeping	
STAT 301	Introduction to Biometry	
STAT 302	Statistical Methods	
STAT 303	Statistical Methods	
American history (p. 30) ¹		3
Semester Credit Hours		15

Spring

ACCT 209	Survey of Accounting Principles	3
ANSC 307	Meats	3
ANSC 333 & ANSC 334	Reproduction in Farm Animals and Reproduction in Farm Animals Laboratory	3
GENE 301	Comprehensive Genetics	3
American history (p. 30) ¹		3
Semester Credit Hours		15

Third Year**Fall**

ACCT 210	Survey of Managerial and Cost Accounting Principles	3
ANSC 305	Animal Breeding	3
ANSC 318	Animal Feeds and Feeding	3
Creative arts (p. 30) ¹		3
Government/Political science (p. 31) ¹		3
Semester Credit Hours		15

Spring

ANSC 326/ FSTC 326 or BIOL 206	Food Bacteriology or Introductory Microbiology	3
Select one of the following:		3
AGEC 325	Principles of Farm and Ranch Management	
AGEC 340	Agribusiness Management	
MGMT 309	Survey of Management	
ANSC disciplinary focus ²		4
Government/Political science (p. 31) ¹		3
Directed elective ³		3
Semester Credit Hours		16

Summer

Animal science experience ⁴		0
ANSC 399	Animal Science Experience	
Semester Credit Hours		0

Fourth Year**Fall**

AGEC 330 or FINC 409	Financial Management in Agriculture or Survey of Finance Principles	3
ANSC disciplinary focus ²		4
Agriculture elective ⁵		3
Directed elective ³		3
General elective		3
Semester Credit Hours		16

Spring

ANSC 498	Animal Science Capstone	4
Communication (p. 27) ¹		3
Directed elective ³		3
General elective		3
Semester Credit Hours		13
Total Semester Credit Hours		120

and Cultural Diversity (p. 49) and 3 hours of Cultural Discourse (p. 48). Refer to the University Core Curriculum (p. 26) catalog page for a list of acceptable courses. A course satisfying another Core category, a college/department requirement or taken as a general elective can be used to satisfy these requirements. Select in consultation with an academic advisor.

- ² Select from the following courses: ANSC 404, ANSC 406, ANSC 408, ANSC 412, ANSC 414, ANSC 420, ANSC 429, ANSC 434, ANSC 437, ANSC 447, ANSC 451; DASC 418. 8 total hours required.
- ³ Any ANSC (p. 918) course that is not fulfilling part of your "major coursework" category.
- ⁴ All students are required to complete an animal science experience in order to graduate. May include but is not limited to: undergraduate research, study abroad, internships, and competitive judging teams. To be selected in consultation with your academic advisor.
- ⁵ Any course taught within the College of Agriculture and Life Sciences.

Students are required to make a C or better in each of their courses in their major (ANSC) coursework area.

All undergraduate students must take at least (2) specific courses in their major designated as writing or communication intensive (W or C). To be chosen in consultation with your academic advisor.

Maximum of 4hrs of ANSC 485 may be used in this program.

Maximum of 5hrs of ANSC 494 may be used in this program.

Animal Science - BS, Science Option

This program is designed to provide scientific expertise in chemistry, biological and physical sciences, and statistics and is recommended for students considering entry into the veterinary, medical, allied health field, law, or the graduate program of their choice.

This option provides a strong background for graduate study in a wide variety of disciplines. Animal scientists graduating with a Bachelor of Science degree in this option who do not enter graduate or professional school find employment in rewarding careers in the pharmaceutical, clinical and food-related industries. Students may concentrate on an emphasis area within this option, including the following.

Pre-Professional

Students planning to pursue a career in veterinary medicine can complete course requirements for admission to the professional curriculum in this emphasis. Students gain experience working with animals through direct contact in laboratory courses and directed field study. Students acquire knowledge of animal systems and animal behavior principles through coursework and interaction with livestock industry leaders. Students are also prepared to seek admission to the professional curricula in medicine, dentistry, pharmacy, optometry and physical therapy.

Pre-graduate Studies

This emphasis prepares students to pursue a Master of Science, Master of Agriculture or Doctor of Philosophy degree. Possible graduate programs include animal behavior, animal breeding, biochemistry, cellular and molecular biology, meats, dairy science, food science and technology, genetics, growth biology, nutrition and reproductive physiology. Experience gained through honors courses, internships, special problems courses and research laboratories helps the student identify specific disciplines of interest for graduate study. Students with advanced degrees are employed as university professors, research

¹ To be selected from the University Core Curriculum. The University Core Curriculum includes a requirement for 3 hours of International

scientists or technicians, extension livestock specialists and technical representatives for industry.

Program Requirements

First Year

Fall		Semester Credit Hours
ANSC 101	Introductory Seminar for Animal Science	1
ANSC 107 & ANSC 108	General Animal Science and General Animal Science Laboratory	4
CHEM 119	Fundamentals of Chemistry I	4
Language, philosophy and culture (p. 28) ¹		3
Mathematics (p. 27) ¹		3
Semester Credit Hours		15

Spring

ANSC 111	Animal Production Systems	3
ANSC 113	Farm Animal Biosystems	2
CHEM 120	Fundamentals of Chemistry II	4
ENGL 104	Composition and Rhetoric	3
Mathematics (p. 27) ¹		3
Semester Credit Hours		15

Second Year

Fall		
ANSC 303/ NUTR 303	Principles of Animal Nutrition	3
BIOL 111	Introductory Biology I	4
CHEM 257	Organic Chemistry I - Structure and Function	4
American history (p. 30) ¹		3
Semester Credit Hours		14

Spring

ANSC 307	Meats	3
BIOL 112	Introductory Biology II	4
CHEM 258	Organic Chemistry II - Reactivity and Applications	4
American history (p. 30) ¹		3
Social and behavioral sciences (p. 31) ¹		3
Semester Credit Hours		17

Third Year

Fall		
ANSC 318	Animal Feeds and Feeding	3
BICH 410 or BICH 409	Comprehensive Biochemistry I or Principles of Biochemistry	3
GENE 301 & GENE 312	Comprehensive Genetics and Comprehensive Genetics Laboratory	4
Select one of the following:		3
STAT 301	Introduction to Biometry	
STAT 302	Statistical Methods	
STAT 303	Statistical Methods	
Creative arts (p. 30)		3
Semester Credit Hours		16

Spring

ANSC 305	Animal Breeding	3
ANSC 333 & ANSC 334	Reproduction in Farm Animals and Reproduction in Farm Animals Laboratory	3
Select one of the following:		4
ANSC 326/ FSTC 326 & ANSC 327/ FSTC 327	Food Bacteriology and Food Bacteriology Lab	
BIOL 206	Introductory Microbiology	
BIOL 351	Fundamentals of Microbiology	
VTPB 405	Biomedical Microbiology	
General elective ²		6
Semester Credit Hours		16

Summer

Animal science experience ³		0
ANSC 399	Animal Science Experience	
Semester Credit Hours		0

Fourth Year

Fall		
ANSC disciplinary focus ⁴		4
ANSC disciplinary focus ⁴		4
Government/Political science (p. 31) ¹		3
General elective ²		3
Semester Credit Hours		14

Spring

ANSC 498	Animal Science Capstone	4
COMM 203 or ENGL 210	Public Speaking or Technical and Professional Writing	3
Government/Political science (p. 31) ¹		3
General elective ²		3
Semester Credit Hours		13
Total Semester Credit Hours		120

¹ To be selected from the University Core Curriculum. The University Core Curriculum includes a requirement for 3 hours of International and Cultural Diversity (p. 49) and 3 hours of Cultural Discourse (p. 48). Refer to the the University Core Curriculum (p. 26) catalog page for a list of acceptable courses. A course satisfying another Core category, a college/department requirement or taken as a general elective can be used to satisfy these requirements. Select in consultation with an academic advisor.

² Students may choose to use general electives to complete a concentration in a pre-professional program, a pre-graduate study area, and/or a certificate program.

³ All students are required to complete an animal science experience in order to graduate. May include but is not limited to: undergraduate research, study abroad, internships, and competitive judging teams. To be selected in consultation with your academic advisor.

⁴ Select from the following courses: ANSC 404, ANSC 406, ANSC 408, ANSC 412, ANSC 414, ANSC 420, ANSC 429, ANSC 434, ANSC 437, ANSC 447, ANSC 451; DASC 418. 8 total hours required.

Students are required to make a C or better for each of their courses in the major (ANSC) coursework area.

All undergraduate students must take at least two (2) specific courses in their major designated as writing or communication intensive (W or C). To be chosen in consultation with your academic advisor.

Maximum of 4 hours of ANSC 485 may be used in this program.

Maximum of 5 hours of ANSC 494 may be used in this program.

Equine Science - Certificate

This program is designed to provide a knowledge base to those individuals who have an interest in pursuing a career in the equine industry.

The Department of Animal Science offers a certificate in Equine Science for students who wish to obtain specialization in this area. Please reference the program requirements tab for information on course of study requirements for the Equine Science certificate.

Program Requirements

Code	Title	Semester Credit Hours
ANSC 201	Introductory Equine Care and Use	2
ANSC 211	Equine Industry and Career Preparation	2
ANSC 311	Equine Behavior and Training	2
ANSC 411	Equine Nutrition and Health	3
ANSC 420	Equine Production and Management	4
ANSC 423	Issues in the Equine Industry	1
ANSC 494	Animal Science Internship	3
Total Semester Credit Hours		17

Meat Science - Certificate

This program is designed to provide a knowledge base to those individuals who have an interest in pursuing a career that involves the meat industry.

The Department of Animal Science offers a certificate in Meat Science for students who wish to obtain specialization in this area. Please reference the program requirements tab for information on course of study requirements for the Meat Science certificate.

Program Requirements

Code	Title	Semester Credit Hours
ANSC 307	Meats	3
ANSC 326/ FSTC 326	Food Bacteriology	3
ANSC 447	Advanced Meat Science and Technology ¹	4
ANSC 457/ FSTC 457	Hazard Analysis and Critical Control Point System	3
Select 5 semester credit hours from the following:		5

ANSC 317 Meat Selection, Evaluation and Grading

ANSC 327/ FSTC 327 Food Bacteriology Lab

ANSC 337 Meat Merchandising ²

ANSC 437 Marketing and Grading of Livestock and Meat

ANSC 485 Directed Studies

Total Semester Credit Hours

18

¹ Students who have taken ANSC 489, Special Topics in Advanced Meat Technology, will be credited with ANSC 447.

² Students who have taken ANSC 489, Special Topics in Meat Merchandising, will be credited with ANSC 337.

Department of Biochemistry and Biophysics

Curriculum in Biochemistry is administered by the Department of Biochemistry and Biophysics.

Biochemists seek to understand life at the molecular level, including the detailed structures of biological molecules and the chemical reactions in which they participate. They study the molecules of living systems of all kinds, from the simplest viruses and bacteria to higher plants and animals. In their work, biochemists use experimental tools ranging from x-ray crystallography and nuclear magnetic resonance to bioinformatics and genetic engineering. Biochemistry is a dynamic and diverse field that has become the basic discipline for the life sciences, and biochemists have made significant discoveries that relate to medicine, agriculture, and the environment.

Faculty

Ayres, Nicola M, Principal Lecturer
Biochemistry & Biophysics
PHD, University of Nebraska at Lincoln, 1987

Bryk, Mary E, Associate Professor
Biochemistry & Biophysics
PHD, Albany Medical College, 1994

Cho, Jae H, Associate Professor
Biochemistry & Biophysics
PHD, State University of New York at Stony Brook, 2006

Cruz-Reyes, Jorge A, Professor
Biochemistry & Biophysics
PHD, London School of Hygiene & Tropical Medicine, 1992

Devarenne, Timothy P, Associate Professor
Biochemistry & Biophysics
PHD, University of Kentucky, 2000

Dong, Juan, Professor
Biochemistry & Biophysics
PHD, University of California, Riverside, 2005

Glasner, Margaret E, Associate Professor
Biochemistry & Biophysics
PHD, Massachusetts Institute of Technology, 2003

Gohil, Vishal M, Professor
Biochemistry & Biophysics
PHD, Wayne State University, 2005

Henderson, Michelle, Principal Lecturer
Biochemistry & Biophysics
PHD, Texas A&M University, 2010

Herman, Jennifer K, Associate Professor
Biochemistry & Biophysics
PHD, Indiana University, 2005

Igumenova, Tatyana I, Professor
Biochemistry & Biophysics
PHD, Columbia University, 2003

Koff, Melissa, Lecturer
Biochemistry & Biophysics
PHD, Texas A&M University, 2024

Kurouski, Dzmitry L, Associate Professor
Biochemistry & Biophysics
PHD, State University of New York at Albany, 2012

Lee, Miok, Senior Lecturer
Biochemistry & Biophysics
PHD, Seoul National University, Korea, 2008

Li, Pingwei, Professor
Biochemistry & Biophysics
PHD, Peking University, 1996

Meek, Thomas D, Professor
Biochemistry & Biophysics
PHD, Pennsylvania State University, 1981

Miles, Bryant W, Principal Lecturer
Biochemistry & Biophysics
PHD, Texas A&M University, 1998

Monagas-Valentin, Pedro, Lecturer
Biochemistry & Biophysics
BS, University of Puerto Rico-Mayagüez, 2020

Mullet, John E, Professor
Biochemistry & Biophysics
PHD, University of Illinois at Urbana-Champaign, 1981

Panin, Vladislav M, Professor
Biochemistry & Biophysics
PHD, Moscow State University, 1990

Park, William D, Professor
Biochemistry & Biophysics
PHD, University of Florida, 1977

Pellois, Jean-Philippe, Professor
Biochemistry & Biophysics
PHD, University of Houston, 2002

Perez, Stephanie A, Senior Lecturer
Biochemistry & Biophysics
PHD, Texas A&M University, 2012

Pishko, E. Jane, Senior Lecturer
Biochemistry & Biophysics
PHD, University of Texas, 1993

Polymenis, Michael S, Professor
Biochemistry & Biophysics
PHD, Tufts University, 1994

Reynolds, Mollie M, Principal Lecturer
Biochemistry & Biophysics
PHD, Texas A&M University, 2010

Rye, Chavela M, Instructional Professor
Biochemistry & Biophysics
PHD, Massachusetts Institute of Technology, 2014

Rye, Hays S, Associate Professor
Biochemistry & Biophysics
PHD, University of California at Berkeley, 1995

Sacchettini, James C, Professor
Biochemistry & Biophysics
PHD, Washington University in St. Louis, 1987

Shippen, Dorothy E, Senior Professor
Biochemistry & Biophysics
PHD, University of Alabama at Birmingham, 1987

Sivaram, Gargi, Lecturer
Biochemistry & Biophysics
BS, University of Washington, 2020

Straight, Paul D, Associate Professor
Biochemistry & Biophysics
PHD, University of Colorado, 2000

Sui, Xuewu, Assistant Professor
Biochemistry & Biophysics
PHD, Case Western Reserve University, 2016

Tommos, Cecilia, Professor
Biochemistry & Biophysics
PHD, Stockholm University, 1997

Wand, Josh, Professor
Biochemistry & Biophysics
PHD, University of Pennsylvania, 1984

Wehman, Ann, Assistant Professor
Biochemistry & Biophysics
PHD, University of California, San Francisco, 2006

Young, Ry, Senior Professor
Biochemistry & Biophysics
PHD, University of Texas at Dallas, 1975

Zeng, Lanying, Professor
Biochemistry & Biophysics
PHD, University of Illinois at Urbana-Champaign, 2007

Zhang, Junjie, Professor
Biochemistry & Biophysics
PHD, Baylor College of Medicine, 2009

Zhang, Xiuren, Professor
Biochemistry & Biophysics
PHD, Cornell University, 2003

Majors

- Bachelor of Science in Biochemistry (p. 162)
- Bachelor of Science in Genetics (p. 163)

Minors

- Biochemistry Minor (p. 164)
- Genetics Minor (p. 165)

Biochemistry - BS

This program is designed to provide a solid background in chemistry and the physical sciences, as well as in the biological sciences.

Biochemistry is an especially versatile major giving undergraduates many options when they complete their BS degree. A biochemistry major provides a strong background for entering graduate school in a variety of fields, and the majority of biochemistry majors go on to graduate school or to professional schools such as medicine, veterinary medicine or dentistry. Biochemistry majors excel in biomedical professional schools because of their strong background in the basic sciences. In addition, a wide variety of job opportunities is open to biochemistry majors with a BS degree. Many find rewarding careers working in laboratories as research scientists, forensic scientists and technicians in clinical, governmental and university laboratories. Biochemists are also employed by diverse companies in the chemical, pharmaceutical, agricultural, food and scientific equipment industries.

Program Requirements

First Year

Fall		Semester Credit Hours
BICH 101/ GENE 101	Introduction to Biochemical and Genetics Research Methods ¹	1
BIOL 111	Introductory Biology I	4
CHEM 119	Fundamentals of Chemistry I	4
MATH 151 or MATH 171	Engineering Mathematics I or Calculus I	4
University Core Curriculum (p. 26) ²		3
Semester Credit Hours		16
Spring		
BICH 102/ GENE 102	Introduction to Biochemical and Genetic Techniques	1
BIOL 112	Introductory Biology II	4
CHEM 120	Fundamentals of Chemistry II	4
ENGL 104 or ENGL 103	Composition and Rhetoric or Introduction to Rhetoric and Composition	3
MATH 152 or MATH 172	Engineering Mathematics II or Calculus II	4
Semester Credit Hours		16

Second Year

Fall		
BICH 201/ GENE 201	Introduction to Information Literacy and Artificial Intelligence Tools for Biochemistry and Genetics	1
Select one of the following: ¹		4
CHEM 227 & CHEM 237	Organic Chemistry I and Organic Chemistry Laboratory	
CHEM 257	Organic Chemistry I - Structure and Function	
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences	4
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
University Core Curriculum (p. 26) ²		3
Semester Credit Hours		15

Spring

BICH 202/ GENE 202	Biochemical and Genetic Concepts in Medicine - Case Studies	1
BICH 491	Research	1
Select one of the following: ¹		4
CHEM 228 & CHEM 238	Organic Chemistry II and Organic Chemistry Laboratory	
CHEM 258	Organic Chemistry II - Reactivity and Applications	
PHYS 207 & PHYS 227	Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences	4
University Core Curriculum (p. 26) ²		3
Semester Credit Hours		13

Third Year

Fall		
BICH 440	Biochemistry I ¹	3
BICH 404	Biochemical Calculations ¹	2
BICH 491	Research ¹	1
CHEM 321	Physical Chemistry for Life Sciences	3
GENE 303 or GENE 302	Fundamentals of Genetics or Principles of Genetics	3
GENE 314	Principles of Genetics Laboratory	1
University Core Curriculum (p. 26) ²		3
Semester Credit Hours		16
Spring		
BICH 414 or BICH 432/ GENE 432	Biochemical Techniques I ¹ or Laboratory in Molecular Genetics	2
BICH 441	Biochemistry II ¹	3
BICH 491	Research ¹	1

STAT 302	Statistical Methods	3
or STAT 312	or Statistics for Biology	
University Core Curriculum (p. 26) ²		3
General elective ³		3
Semester Credit Hours		15

Fourth Year**Fall**

BICH 431/ GENE 431	Molecular Genetics ¹	3
BICH 491	Research ¹	1
BIOL 351	Fundamentals of Microbiology	4
Biochemistry elective ⁵		3
General elective ³		3
Semester Credit Hours		14

Spring

University Core Curriculum (p. 26) ²		6
Biochemistry elective ⁵		3
General elective ³		6
Semester Credit Hours		15
Total Semester Credit Hours		120

¹ Must make a grade of C or better.

² To be selected from the University Core Curriculum (p. 26). Of the 21 hours shown as University Core Curriculum (p. 26) electives, 3 must be from language, philosophy and culture, 3 from creative arts, 3 from social and behavioral sciences, 6 from American history, 6 from POLS 206 and POLS 207. The graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses which may be met by courses satisfying the Core Curriculum requirements if they are also on the approved list of international and cultural diversity courses.

³ Select from any course 100-499 not used elsewhere (except BICH 303, BICH 410-412 (p. 947); MATH 100-104, 131-148 (p. 1135); STAT 201). Often used for a minor. Students intending to pursue an advanced degree in biochemistry are strongly encouraged to use some free electives for additional upper division courses in BICH (p. 947), GENE (p. 1053), BIOL (p. 951), CHEM (p. 964), MATH (p. 1135) or STAT (p. 1248).

⁴ The fourth registered hour of research must be taken as writing intensive.

⁵ Hours to be selected from any 400-level course in Biochemistry with approval of student's academic advisor. BICH 404, BICH 414, BICH 431/GENE 431, BICH 432/GENE 432, BICH 440, BICH 441, or BICH 491 may not be used to satisfy this requirement.

Genetics - BS

The program is designed to develop the knowledge and skills necessary for advanced studies in all disciplines related to life sciences from medicine/veterinary medicine to genetic engineering.

Curriculum in Genetics is administered by the Department of Biochemistry and Biophysics.

Genetics is one of the most exciting, rapidly expanding areas in the life sciences. More than an independent discipline, it has become the basis

for understanding many aspects of medical and agricultural systems, animal and plant diseases, and even animal behavior. Developments in molecular genetics have provided biotechnologies that will dramatically affect our lives from the improved diagnosis of human disease, to the production of viral-resistant crops, to environmental cleanup.

The undergraduate curriculum in genetics allows the study of several different aspects of genetics, including population genetics, human genetics and genetic engineering. This basic science curriculum also has enough flexibility to allow a student to prepare for such diverse careers as forensics, medicine, business or law.

Program Requirements

First Year**Fall**

		Semester Credit Hours
BIOL 111	Introductory Biology I	4
CHEM 119	Fundamentals of Chemistry I	4
GENE 101/ BICH 101	Introduction to Biochemical and Genetics Research Methods ¹	1
MATH 151 or MATH 171	Engineering Mathematics I or Calculus I	4
University Core Curriculum (p. 26) ²		3
Semester Credit Hours		16

Spring

BIOL 112	Introductory Biology II	4
CHEM 120	Fundamentals of Chemistry II	4
ENGL 104 or ENGL 103	Composition and Rhetoric or Introduction to Rhetoric and Composition	3
GENE 102/ BICH 102	Introduction to Biochemical and Genetic Techniques ¹	1
MATH 152 or MATH 172	Engineering Mathematics II or Calculus II	4
Semester Credit Hours		16

Second Year**Fall**

GENE 201/ BICH 201	Introduction to Information Literacy and Artificial Intelligence Tools for Biochemistry and Genetics ¹	1
Select one of the following: ¹		4
CHEM 227 & CHEM 237	Organic Chemistry I and Organic Chemistry Laboratory	
CHEM 257	Organic Chemistry I - Structure and Function	
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
University Core Curriculum (p. 26) ²		3
General elective ⁵		3
Semester Credit Hours		14

Spring

GENE 202/ BICH 202	Biochemical and Genetic Concepts in Medicine - Case Studies ¹	1
GENE 303 or GENE 302	Fundamentals of Genetics ¹ or Principles of Genetics	3
GENE 314	Principles of Genetics Laboratory ¹	1
GENE 491	Research ¹	1
STAT 312	Statistics for Biology	3
Select one of the following: ¹		4
CHEM 228 & CHEM 238	Organic Chemistry II and Organic Chemistry Laboratory	
CHEM 258	Organic Chemistry II - Reactivity and Applications	
University Core Curriculum (p. 26) ²		3
Semester Credit Hours		16

Third Year**Fall**

BICH 409	Principles of Biochemistry ¹	3
BIOL 351	Fundamentals of Microbiology	4
GENE 491	Research ¹	1
PHYS 201	College Physics	4
General elective ⁵		2
Semester Credit Hours		14

Spring

GENE 412	Population, Quantitative and Ecological Genetics ¹	3
GENE 431/ BICH 431	Molecular Genetics ¹	3
GENE 491	Research ¹	1
PHYS 202	College Physics	4
University Core Curriculum (p. 26) ²		3
General elective ⁵		1
Semester Credit Hours		15

Fourth Year**Fall**

GENE 419/ BICH 419	Computational Techniques for Evolutionary Analysis ¹	3
GENE 432/ BICH 432 or BICH 414	Laboratory in Molecular Genetics ¹ or Biochemical Techniques I	2
GENE 491	Research ^{1,3}	1
University Core Curriculum (p. 26) ²		6
Genetics elective ^{1,4}		3
Semester Credit Hours		15

Spring

Select one of the following: ¹		3
BICH 450/ BIOL 450	Genomics	
BIOL 349	Bioinformatics	
BIOL 350	Computational Genomics	

GENE 464/ BICH 464 or BICH 464/ GENE 464	Bacteriophage Genomics or Bacteriophage Genomics	

STAT 446	Statistical Bioinformatics	
VTPP 438	Analysis of Genomic Signals	
University Core Curriculum (p. 26) ²		3
Genetics elective ^{1,4}		3
General elective ⁵		5
Semester Credit Hours		14
Total Semester Credit Hours		120

¹ Must make a grade of C or better.

² To be selected from the University Core Curriculum (p. 26). Of the 21 hours shown as University Core Curriculum (p. 26) electives, 3 hours must be from language, philosophy and culture, 3 hours from creative arts, 3 hours from social and behavioral sciences, 6 hours from American history, 6 hours from POLS 206 and POLS 207. The graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses which may be met by courses satisfying the language, philosophy and culture, creative arts, social and behavioral sciences, government/political science and American history requirements if they are also on the approved list of international and cultural diversity courses.

³ The fourth registered hour of research must be taken as Writing Intensive.

⁴ Hours to be selected from any 400-level course in Genetics (p. 1053) with approval of student's academic advisor. Excludes BICH 409, BICH 410, BICH 411, BICH 414, BICH 431/GENE 431, BICH 432/GENE 432, BICH 440, BICH 491, GENE 412, GENE 419/BICH 419, GENE 491.

⁵ Often used for a minor. Students intending to pursue an advance degree in Genetics are strongly urged to use some general electives for additional upper division courses in GENE, BICH, BIOL, CHEM, MATH or STAT. General electives may be any course numbered 100-499 that is not used elsewhere (except BICH 303, BICH 410, BICH 411, BICH 412, BICH 440, BICH 441; MATH 100-104 (p. 1135), MATH 130-148 (p. 1135); STAT 201).

Biochemistry - Minor

The Biochemistry minor provides a rigorous exploration of cellular processes at the molecular level, covering essential topics such as enzyme kinetics, metabolic pathways, and molecular interactions.

The Department of Biochemistry and Biophysics offers a minor in Biochemistry. Students seeking a minor must complete a minor form (<https://bcbp.tamu.edu/minors/>) and have it approved and signed by the BICH/GENE undergraduate advisor and their major academic advisor. Students are required to meet all minor course prerequisites.

Program Requirements

Code	Title	Semester Credit Hours
BICH 410 or BICH 440	Comprehensive Biochemistry I or Biochemistry I	3
BICH 411	Comprehensive Biochemistry II	3

or BICH 441 or Biochemistry II		
BICH 414	Biochemical Techniques I	2
or BICH 432/ or Laboratory in Molecular GENE 432 Genetics		
BICH 431/ GENE 431	Molecular Genetics	3
CHEM 327	Physical Chemistry I	3
or CHEM 321 or Physical Chemistry for Life Sciences		
Biochemistry elective (p. 947) ¹		3
Total Semester Credit Hours		17

¹ Hours to be selected from any 400-level course in biochemistry with approval of academic advisor.

Students must make a grade of C or better in all courses.

Genetics - Minor

This program delves deep into the fascinating realm of heredity, encompassing principles of inheritance, genetic variation, and the molecular mechanisms that govern gene expression.

The Department of Biochemistry and Biophysics offers a minor in Genetics. Students seeking a minor must complete a minor form (<https://bcbp.tamu.edu/minors/>) and have it approved and signed by the BICH/GENE undergraduate advisor and their major academic advisor. Students are required to meet all minor course prerequisites.

Program Requirements

Code	Title	Semester Credit Hours
GENE 412	Population, Quantitative and Ecological Genetics	3
GENE 431/ BICH 431	Molecular Genetics	3
STAT 302	Statistical Methods	3
Select one of the following:		3
GENE 301	Comprehensive Genetics	
GENE 302	Principles of Genetics	
GENE 303	Fundamentals of Genetics	
GENE 320/ BIMS 320	Biomedical Genetics	
Select one of the following:		3
BICH 450/ BIOL 450	Genomics	
BICH 464/ GENE 464	Bacteriophage Genomics	
BIOL 349	Bioinformatics	
BIOL 350	Computational Genomics	
GENE 419/ BICH 419	Computational Techniques for Evolutionary Analysis	
Total Semester Credit Hours		15

Students must make a grade of C or better in all courses.

Department of Biological and Agricultural Engineering

Biological and agricultural engineers apply their knowledge of physical and biological sciences, mathematics, engineering principles and engineering design to the production and processing of food and fiber, to the preservation of environmental quality, to biological systems and processes, and to machine systems that interface with all of these. Because of their broad general engineering background, biological and agricultural engineering graduates are sought by a wide variety of employers including environmental consulting firms, equipment manufacturers, crop storage and handling industries, the cotton and forest products industries, food and feed processing industries, animal production industries, biotechnology companies, electric utility companies, chemical companies, and governmental agencies. Biological and agricultural engineers make significant contributions to meeting many basic needs of society such as maintaining food quality, quantity and safety; improving environmental quality; and enhancing the quantity and quality of our water resources.

The Biological and Agricultural Engineering Department provides quality education, research and outreach in engineering and technology for the world's agricultural, biological, environmental and food systems. Our undergraduate programs provide a high quality education for engineering and systems management students to fulfill the needs of industries we serve and advance our reputation as a world leader in engineering and systems management education.

The Bachelor of Science program in Biological and Agricultural Engineering is accredited by the Engineering Accreditation Commission (EAC) of ABET. The Fundamentals of *Engineering (FE)* exam is generally your first step in the process to becoming a licensed professional engineer (P.E.). Students are eligible to obtain these licenses upon graduating from an EAC of ABET-accredited program.

Faculty

Agarwal, Girish S, Professor
Biological & Agricultural Eng
PHD, University of Rochester, 1969

Buser, Michael, Professor
Biological & Agricultural Eng
PHD, Texas A&M University, 2004

Calabrese, Salvatore, Assistant Professor
Biological & Agricultural Eng
PHD, Princeton University, 2019

Capareda, Sergio C, Professor
Biological & Agricultural Eng
PHD, Texas A&M University, 1990

Castell-Perez, M E, Professor
Biological & Agricultural Eng
PHD, Michigan State University, 1990

Davis, Donovan, Instructional Assistant Professor
Biological & Agricultural Eng
BS, Texas A&M University, 2020

Fernando, Sandun D, Professor
Biological & Agricultural Eng
PHD, University of Nebraska, 2003

Hardin, Robert G, Associate Professor
Biological & Agricultural Eng
PHD, Texas A&M University, 2009

King, Maria D, Associate Professor
Biological & Agricultural Eng
PHD, Institute for Biotechnology, Berlin, Germany, 1986

Kingman, Douglas M, Instructional Professor
Biological & Agricultural Eng
PHD, Purdue University, 2002

McGee, Russell O, Instructional Associate Professor
Biological & Agricultural Eng
MEN, Texas A&M University, 1997

Mohanty, Binayak P, Professor
Biological & Agricultural Eng
PHD, Iowa State University, 1992

Mohtar, Rabi H, Professor
Biological & Agricultural Eng
PHD, Michigan State University, 1994

Moore, Janie M, Associate Professor
Biological & Agricultural Eng
PHD, Purdue University, 2015

Moreira, Rosana G, Professor
Biological & Agricultural Eng
PHD, Michigan State University, 1989

Munster, Clyde L, Senior Professor
Biological & Agricultural Eng
PHD, North Carolina State University, 1992

Nikolov, Zivko L, Professor
Biological & Agricultural Eng
PHD, Iowa State University, 1986

Singh, Vijay P, Professor
Biological & Agricultural Eng
PHD, Colorado State University, 1974

Smith, Patricia K, Professor
Biological & Agricultural Eng
PHD, North Carolina State University, 2000

Vaddevolu, Uday Bhanu Prakash, Assistant Professor
Biological & Agricultural Eng
PHD, North Dakota State University, 2023

Majors

- Bachelor of Science in Agricultural Systems Management (p. 166)
- Bachelor of Science in Biological and Agricultural Engineering (p. 167)
- Bachelor of Science in Biological and Agricultural Engineering, Agricultural Engineering Track (p. 169)
- Bachelor of Science in Biological and Agricultural Engineering, Biological Engineering Track (p. 170)

- Bachelor of Science in Biological and Agricultural Engineering, Natural Resources Engineering Track (p. 172)

Minors

- Agricultural Systems Management Minor (p. 173)
- Food Engineering Minor (p. 173)

Agricultural Systems Management - BS

This program integrates practical technology and business courses, preparing students for both technical and managerial roles in the food and agricultural industries.

Graduates of the Agricultural Systems Management program manage people, money and machines in the food and agricultural industries. They are typically employed as production or processing operations managers, equipment managers, or in technical sales and services. Employers include farm and industrial equipment companies, food processing plants, cotton gins, grain and seed companies, livestock feeding operations, irrigation companies, construction companies, manufacturers, and a variety of other employers who need technical managers.

The technological courses are applications-oriented and focus on practical experience in food processing systems, water management, machinery and power systems, electrical systems and electronics. Business courses include accounting, economics, marketing, management, law and finance. Students can obtain a minor in either Agricultural Economics or Business by taking the 15 hours of noted coursework, plus one additional 3-hour class per minor. Management and systems science techniques such as linear programming, simulation, optimization, queuing theory, inventory models, PERT/CPM and expert systems are taught along with applications for solving realistic problems faced by agribusiness managers. Supporting courses provide a foundation of mathematics, chemistry, computer and communications skills. Technical electives are available to develop a degree program that meets personal career objectives.

The curriculum is administered by the Department of Biological and Agricultural Engineering and leads to the Bachelor of Science degree in Agricultural Systems Management. AGSM 360 prepares students for the opportunity to pursue an occupational license. Students who participate in the class regularly and pass the course will be eligible for a "30 hour Course for General Industry" diploma from NASP. Please refer to the Notification for Students Pursuing an Occupational License (<https://catalog.tamu.edu/undergraduate/appendices/licensing/>) in our catalog for additional information.

Program Requirements

First Year		Semester
Fall		Credit Hours
AGSM 125	Introduction to Agricultural Systems Management	1
AGSM 201	Agricultural Energy and Power Systems	3
CHEM 119	Fundamentals of Chemistry I	4
ENGL 104	Composition and Rhetoric	3

MATH 140	Mathematics for Business and Social Sciences	3
Semester Credit Hours		14
Spring		
ECON 202	Principles of Economics	3
MATH 142	Business Calculus	3
MMET 105	Engineering Graphics	2
POLS 206	American National Government	3
Language, philosophy and culture (p. 28) ^{1, 2}		3
General elective ^{3, 4}		3
Semester Credit Hours		17
Second Year		
Fall		
ACCT 209	Survey of Accounting Principles ³	3
AGSM 301	Systems Analysis in Agriculture	3
PHYS 201	College Physics	4
POLS 207	State and Local Government	3
ENGL 210	Technical and Professional Writing	3
Semester Credit Hours		16
Spring		
ACCT 210	Survey of Managerial and Cost Accounting Principles	3
COMM 203	Public Speaking	3
ECON 203	Principles of Economics	3
MGMT 209	Principles of Business Regulations and Law	3
or AGECE 344	or Food and Agricultural Law	
Creative arts (p. 30)		3
Semester Credit Hours		15
Third Year		
Fall		
FINC 409	Survey of Finance Principles ^{3, 4}	3
or AGECE 330	or Financial Management in Agriculture	
MGMT 309	Survey of Management ^{3, 4}	3
or AGECE 340	or Agribusiness Management	
STAT 302	Statistical Methods	3
or STAT 303	or Statistical Methods	
American history (p. 30) ^{1, 2}		3
AGSM Directed elective ⁵		3
Semester Credit Hours		15
Spring		
AGSM 310	Agricultural Machinery Management	3
AGSM 315/	Food Process Engineering Technology	3
FSTC 315		
AGSM 325	Agri-Industrial Applications of Electricity	3
AGSM 360	Occupational Safety Management	3
Life and physical sciences (p. 27) ¹		3
Semester Credit Hours		15
Fourth Year		
Fall		
AGSM 403	Processing and Storage of Agricultural Products	3
AGSM 439	Management of Agricultural Systems I ⁶	3

AGSM 470	Agricultural Electronics and Control	3
Select one of the following:		3
AGSM 473	Project Management for Agricultural Systems Technology (Select one of the following)	
ECCB 351	Geographic Information Systems for Resource Management	
RWFM 351	Geographic Information Systems for Resource Management	
Technical elective ^{2, 7}		3
Semester Credit Hours		15
Spring		
AGSM 440	Management of Agricultural Systems II ⁶	3
MKTG 409	Principles of Marketing ^{3, 4}	3
or AGECE 314	or Marketing Agricultural and Food Products	
American history (p. 30) ^{1, 2}		3
AGSM Directed elective ⁵		3
Technical elective ^{2, 7}		3
Technical elective ^{2, 7}		3
Semester Credit Hours		18
Total Semester Credit Hours		125

¹ To be selected from the University Core Curriculum.

² The 3 hours of international and cultural diversity (p. 49) and 3 hours of cultural discourse (p. 48) courses, as required for graduation, may be met in the curriculum. Students may select Language, Philosophy, and Culture, Creative Arts, Technical Electives, or American History Electives that also meet the ICD/CD requirement.

³ A minor in Business may be obtained by completing the noted courses, plus ISTM 209. Each of these courses must be completed with a C or better.

⁴ A minor in Agricultural Economics may be obtained by completed the noted courses, plus AGECE 105. Each of these courses must be completed with a C or better.

⁵ Select six hours from the following: AGSM 335, AGSM 337, AGSM 435, AGSM 437, AGSM 477.

⁶ All undergraduate students must take at least two (2) specific courses in their major designated as writing intensive (W). This course is an approved W course.

⁷ Technical electives must be selected in consultation with the student's advisor and from the current list of approved electives published by the department.

A grade of C or better is required for all Common Body of Knowledge (CBK) courses; ACCT 209, AGSM 301, CHEM 119, ECON 202, MATH 140, MATH 142 and PHYS 201, or equivalents and senior capstone courses AGSM 439 and AGSM 440.

Biological and Agricultural Engineering - BS

Students learn to apply fundamental knowledge of biological and physical sciences, mathematics, and engineering principles to formulate and solve engineering problems.

Graduates from the Biological and Agricultural Engineering program, will after several years, have:

- Successfully entered the biological and agricultural engineering profession.
- Successfully pursued graduate education and research at major universities in biological and agricultural engineering, and related fields.
- Advanced into leadership positions in their chosen fields, professions, and society.
- Engaged in life-long learning through professional licensure and professional development.
- Contributed to the impact of the profession by creating global and culturally relevant engineering solutions.

Engineering design is integrated throughout the curriculum, along with opportunities to develop communication, learning, and teamwork skills, culminating in a capstone design experience. Electives in the curriculum allow the student to focus in one of the following areas:

- **Environmental and Natural Resources Engineering**—design and management of systems affecting soil, water, and air resources.
- **Renewable Energy Engineering**—design and development of biomass, wind and solar energy systems.
- **Food and Bioprocess Engineering**—design and development of systems for processing and handling of food and agricultural products and processes involving cells, enzymes, or other biological components.
- **Machine Systems Engineering**—design and development of machines and machine systems for food, feed and fiber production and processing.

Students select courses with the assistance of the academic advisor in an individualized advising system. Faculty members assist with professional development and job placement for students.

The biological and agricultural engineering program is jointly administered by the College of Agriculture and Life Sciences and the College of Engineering. The department is one of the largest in North America and is consistently ranked as one of the top programs in the nation.

For graduates to become successful practicing biological and agricultural engineers, students need to acquire a set of skills, knowledge, and behaviors as they progress through the curriculum. We have established the following student outcomes outlining what students are expected to know and be able to do upon completion of the curriculum. At the time of graduation, students should have:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. An ability to communicate effectively with a range of audiences.
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.

5. An ability to function effectively on a team whose members together provide leadership, create a collaborative environment, establish goals, plan tasks, and meet objectives.
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

The Bachelor of Science program in Biological and Agricultural Engineering is accredited by the Engineering Accreditation Commission (EAC) of ABET, <https://www.abet.org>.

Program Requirements

First Year

Fall

		Semester Credit Hours
CHEM 107	General Chemistry for Engineering Students ¹	3
CHEM 117	General Chemistry for Engineering Students Laboratory ¹	1
ENGL 104	Composition and Rhetoric ¹	3
ENGR 102	Engineering Lab I - Computation ¹	2
MATH 151	Engineering Mathematics I ^{1,2}	4
American history (p. 30) ³		3
Semester Credit Hours		16

Spring

ENGL 210	Technical and Professional Writing	3
ENGR 216/ PHYS 216	Experimental Physics and Engineering Lab II - Mechanics ¹	2
MATH 152	Engineering Mathematics II ¹	4
PHYS 206	Newtonian Mechanics for Engineering and Science ¹	3
POLS 206	American National Government	3
Semester Credit Hours		15

Second Year

Fall

BAEN 201	Analysis of Biological and Agricultural Engineering Problems ¹	3
BIOL 111	Introductory Biology I ¹	4
ENGR 217/ PHYS 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism ¹	2
MATH 251	Engineering Mathematics III ¹	3
MEEN 221	Statics and Particle Dynamics ¹	3
PHYS 207	Electricity and Magnetism for Engineering and Science ¹	3
Semester Credit Hours		18

Spring

BAEN 301	Biological and Agricultural Engineering Fundamentals I ¹	3
BAEN 320	Engineering Thermodynamics ¹	3
CHEM 222	Elements of Organic and Biological Chemistry ¹	3
CVEN 305	Mechanics of Materials ¹	3

MATH 308	Differential Equations ¹	3
MEEN 222/ MSEN 222	Materials Science ¹	3
Semester Credit Hours		18
Third Year		
Fall		
BAEN 302	Biological and Agricultural Engineering Fundamentals II ^{1,4}	3
BAEN 340	Fluid Mechanics ¹	3
BAEN 354	Engineering Properties of Biological Materials ¹	3
BAEN 375	Design Fundamentals for Agricultural Machines and Structures ¹	3
ECEN 215	Principles of Electrical Engineering ¹	3
Semester Credit Hours		15
Spring		
BAEN 365	Unit Operations for Biological and Agricultural Engineering ¹	3
BAEN 366	Transport Processes in Biological Systems ¹	3
BAEN 370	Measurement and Control of Biological Systems and Agricultural Processes ¹	3
POLS 207	State and Local Government	3
Mathematics elective ^{1,5}		3
Semester Credit Hours		15
Fourth Year		
Fall		
BAEN 399	Professional Development ⁶	0
BAEN 479	Biological and Agricultural Engineering Design I ¹	3
Language, philosophy and culture (p. 28) ³		3
Social and behavioral sciences (p. 31) ³		3
Biological and agricultural engineering elective ^{1,7}		3
Engineering elective ^{1,8}		3
Semester Credit Hours		15
Spring		
BAEN 480	Biological and Agricultural Engineering Design II ^{1,4}	3
American history (p. 30) ³		3
Creative arts (p. 30) ³		3
Biological and agricultural engineering elective ^{1,7}		3
Technical elective ^{1,9}		3
Semester Credit Hours		15
Total Semester Credit Hours		127

¹ Must make a grade of C or better.

² Entering students will normally be given a placement test in mathematics. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.

³ The three hours of international and cultural diversity (p. 49) and three hours of cultural discourse (p. 48) courses, as required for graduation, may be met by courses that also satisfy a core curriculum course.

⁴ All undergraduate students must take at least two (2) specific courses in their major designated as writing intensive.

⁵ Select from CHEN 320; CVEN 302; MATH 304, MATH 417; MEEN 357; STAT 211.

⁶ All engineering students are required to complete a high-impact experience in order to graduate. The list of possible high-impact experiences is available in the BAEN advising office.

⁷ Select from BAEN 400-478 (p. 942), BAEN 485, BAEN 489.

⁸ Select from BAEN 400-478 (p. 942), BAEN 485, BAEN 489; CHEN 451, CHEN 455/SENG 455, CHEN 460/SENG 460; CVEN 301/EVEN 301, CVEN 303, CVEN 336, CVEN 339/EVEN 339, CVEN 402/EVEN 402, CVEN 450, CVEN 455, CVEN 458/EVEN 458, CVEN 462/EVEN 462; MEEN 363, MEEN 364, MEEN 441, MEEN 442, MEEN 444, MEEN 460; MTDE 333; SENG 310, SENG 312, SENG 321; Other courses may be approved by request to the advising office.

⁹ Select from AGSM 473, ANSC 307, ANSC 320, ANSC 326/FSTC 326, ANSC 327/FSTC 327; BESC 320, BESC 357, BESC 367, BESC 401, BESC 402, BESC 403; BIOL 349, BIOL 351; ECCB 351, ECCB 407, ECCB 444; FSTC 305, FSTC 312, FSTC 313, FSTC 457/ANSC 457, FSTC 470/ANSC 470, FSTC 487/ANSC 487; GEOG 390; GEOL 410; MMET 307; NUTR 410/FSTC 410; POSC 309, POSC 326, POSC 406, POSC 427; SCSC 301, SCSC 311, SCSC 405. Other courses may be approved by request to the advising office.

Biological and Agricultural Engineering - BS, Agricultural Engineering Track

Agricultural engineers apply their knowledge of physical sciences, mathematics, engineering principles and engineering design to the production and processing of food and fiber, to agricultural systems and processes, and to machine systems that interface with all of these.

Because of their broad general engineering background, agricultural engineering graduates are sought by a wide variety of employers including equipment manufacturers, crop storage and handling industries, the cotton and forest products industries, food and feed processing industries, animal production industries, electric utility companies, and governmental agencies. Agricultural engineers make significant contributions to meeting many basic needs of society such as ensuring sustainable food production and harvesting and advancing manufacturing/processing technology.

Program Requirements

First Year

Fall		Semester Credit Hours
CHEM 107	General Chemistry for Engineering Students ¹	3
CHEM 117	General Chemistry for Engineering Students Laboratory ¹	1
ENGR 102	Engineering Lab I - Computation ¹	2
ENGL 104	Composition and Rhetoric ¹	3
MATH 151	Engineering Mathematics I ^{1,2}	4
American history (p. 30) ³		3
Semester Credit Hours		16
Spring		
ENGL 210	Technical and Professional Writing	3

ENGR 216/ PHYS 216	Experimental Physics and Engineering Lab II - Mechanics ¹	2
MATH 152	Engineering Mathematics II ¹	4
PHYS 206	Newtonian Mechanics for Engineering and Science ¹	3
POLS 206	American National Government	3

Semester Credit Hours 15

Second Year

Fall

BAEN 201	Analysis of Biological and Agricultural Engineering Problems ¹	3
BIOL 113	Essentials in Biology ¹	3
ENGR 217/ PHYS 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism ¹	2
MATH 251	Engineering Mathematics III ¹	3
MEEN 221	Statics and Particle Dynamics ¹	3
PHYS 207	Electricity and Magnetism for Engineering and Science ¹	3

Semester Credit Hours 17

Spring

BAEN 301	Biological and Agricultural Engineering Fundamentals I ¹	3
BAEN 320	Engineering Thermodynamics ¹	3
CVEN 305	Mechanics of Materials ¹	3
MATH 308	Differential Equations ¹	3
MSEN 222/ MEEN 222	Materials Science ¹	3
POLS 207	State and Local Government	3

Semester Credit Hours 18

Third Year

Fall

BAEN 340	Fluid Mechanics ¹	3
BAEN 354	Engineering Properties of Biological Materials ¹	3
BAEN 375	Design Fundamentals for Agricultural Machines and Structures ¹	3
ECEN 215	Principles of Electrical Engineering ¹	3
SCSC 301	Soil Science ¹	4

Semester Credit Hours 16

Spring

BAEN 365	Unit Operations for Biological and Agricultural Engineering ¹	3
BAEN 366	Transport Processes in Biological Systems ¹	3
BAEN 370	Measurement and Control of Biological Systems and Agricultural Processes ¹	3
BAEN 460	Principles of Environmental Hydrology ¹	3
Mathematics elective ^{1,4}		3

Semester Credit Hours 15

Fourth Year

Fall

BAEN 399	Professional Development ⁵	0
BAEN 479	Biological and Agricultural Engineering Design I ^{1,6}	3

Language, philosophy and culture (p. 28) ³	3
Social and behavioral sciences (p. 31) ³	3
Biological and agricultural engineering elective ^{1,7}	3
Engineering elective ^{1,8}	3

Semester Credit Hours 15

Spring

BAEN 412	Hydraulic Power ¹	3
BAEN 480	Biological and Agricultural Engineering Design II ^{1,6}	3
American history (p. 30) ³		3
Creative arts (p. 30) ³		3
Technical elective ^{1,9}		3

Semester Credit Hours 15

Total Semester Credit Hours 127

¹ Must make a grade of C or better.

² Entering students will normally be given a placement test in mathematics. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.

³ The three hours of international and cultural diversity (p. 49) and three hours of cultural discourse (p. 48) courses, as required for graduation, may be met by courses that also satisfy a core curriculum course.

⁴ Select from CHEN 320; CVEN 302; MATH 304, MATH 417; MEEN 357; STAT 211.

⁵ All engineering students are required to complete a high-impact experience in order to graduate. The list of possible high-impact experiences is available in the BAEN advising office.

⁶ All undergraduate students must take at least two (2) specific courses in their major designated as writing intensive.

⁷ Select from BAEN 400-478 (p. 942), BAEN 485, BAEN 489.

⁸ Select from BAEN 400- 478, BAEN 485, BAEN 489; CHEN 451, CHEN 455/SENG 455, CHEN 460/SENG 460; CVEN 301/EVEN 301, CVEN 303, CVEN 336, CVEN 339/EVEN 339, CVEN 402/EVEN 402, CVEN 450, CVEN 455, CVEN 458/EVEN 458, CVEN 462/EVEN 462; MEEN 363, MEEN 364, MEEN 441, MEEN 442, MEEN 444, MEEN 460; MTDE 333; SENG 310, SENG 312, SENG 321; Other courses may be approved by request to the advising office.

⁹ Select from AGSM 473, ANSC 307, ANSC 320, ANSC 326/FSTC 326, ANSC 327/FSTC 327; BESC 320, BESC 357, BESC 367, BESC 401, BESC 402, BESC 403; BIOL 349, BIOL 351; ECCB 351, ECCB 407, ECCB 444; FSTC 305, FSTC 312, FSTC 313, FSTC 457/ANSC 457, FSTC 470/ANSC 470, FSTC 487/ANSC 487; GEOG 390; GEOL 410; MMET 307; NUTR 410/FSTC 410; POSC 309, POSC 326, POSC 406, POSC 427; SCSC 301, SCSC 311, SCSC 405. Other courses may be approved by request to the advising office.

Biological and Agricultural Engineering - BS, Biological Engineering Track

This program equips graduates with a broad engineering background to innovate in food, fiber, biological systems and processes, meeting essential societal needs in multiple industries.

Biological engineers apply their knowledge of physical and biological sciences, mathematics, engineering principles and engineering design to the production and processing of food and fiber and biological

systems and processes. Because of their broad general engineering background, biological engineering graduates are sought by a wide variety of employers including crop storage and handling industries, food and feed processing industries, animal production industries, biotechnology companies, chemical companies, and governmental agencies. Biological engineers make significant contributions to meeting many basic needs of society such as maintaining food quality, quantity and safety; manufacturing new products from biological materials and developing engineering sustainable and more efficient technologies to feed the world.

Program Requirements

First Year

		Semester Credit Hours
Fall		
CHEM 107	General Chemistry for Engineering Students ¹	3
CHEM 117	General Chemistry for Engineering Students Laboratory ¹	1
ENGL 104	Composition and Rhetoric ¹	3
ENGR 102	Engineering Lab I - Computation ¹	2
MATH 151	Engineering Mathematics I ^{1,2}	4
American history (p. 30) ³		3
Semester Credit Hours		16

Spring

ENGL 210	Technical and Professional Writing	3
ENGR 216/ PHYS 216	Experimental Physics and Engineering Lab II - Mechanics ¹	2
PHYS 206	Newtonian Mechanics for Engineering and Science ¹	3
MATH 152	Engineering Mathematics II ¹	4
POLS 206	American National Government	3
Semester Credit Hours		15

Second Year

Fall		
BAEN 201	Analysis of Biological and Agricultural Engineering Problems ¹	3
BIOL 111	Introductory Biology I ¹	4
ENGR 217/ PHYS 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism ¹	2
MATH 251	Engineering Mathematics III ¹	3
MEEN 221	Statics and Particle Dynamics ¹	3
PHYS 207	Electricity and Magnetism for Engineering and Science ¹	3
Semester Credit Hours		18

Spring

BAEN 301	Biological and Agricultural Engineering Fundamentals I ¹	3
BAEN 320	Engineering Thermodynamics ¹	3
CHEM 222	Elements of Organic and Biological Chemistry ¹	3
MATH 308	Differential Equations ¹	3
MSEN 222/ MEEN 222	Materials Science ¹	3

Social and behavioral sciences (p. 31) ³		3
Semester Credit Hours		18

Third Year

Fall

BAEN 302	Biological and Agricultural Engineering Fundamentals II ¹	3
BAEN 340	Fluid Mechanics ¹	3
BAEN 354	Engineering Properties of Biological Materials ¹	3
ECEN 215	Principles of Electrical Engineering ¹	3
Language, philosophy and culture (p. 28) ³		3
Semester Credit Hours		15

Spring

BAEN 365	Unit Operations for Biological and Agricultural Engineering ¹	3
BAEN 366	Transport Processes in Biological Systems ¹	3
BAEN 370	Measurement and Control of Biological Systems and Agricultural Processes ¹	3
POLS 207	State and Local Government	3
Mathematics elective ^{1,4}		3
Semester Credit Hours		15

Fourth Year

Fall

BAEN 399	Professional Development ⁵	0
BAEN 401	Bioprocess Systems Design ¹	3
BAEN 422/ CHEN 422	Unit Operations in Food Processing ¹	3
BAEN 479	Biological and Agricultural Engineering Design I ^{1,6}	3
Biological and agricultural engineering elective ^{1,7}		3
Engineering elective ^{1,8}		3
Semester Credit Hours		15

Spring

BAEN 480	Biological and Agricultural Engineering Design II ^{1,6}	3
American history (p. 30) ³		3
Creative arts (p. 30) ³		3
Biological and agricultural engineering elective ^{1,7}		3
Technical elective ^{1,9}		3
Semester Credit Hours		15
Total Semester Credit Hours		127

¹ Must make a grade of C or better.

² Entering students will normally be given a placement test in mathematics. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.

³ The three hours of international and cultural diversity (p. 49) and three hours of cultural discourse (p. 48) courses, as required for graduation, may be met by courses that also satisfy a core curriculum course.

⁴ Select from CHEN 320; CVEN 302; MATH 304, MATH 417; MEEN 357; STAT 211.

⁵ All engineering students are required to complete a high-impact experience in order to graduate. The list of possible high-impact experiences is available in the BAEN advising office.

⁶ All undergraduate students must take at least two (2) specific courses in their major designated as writing intensive.

⁷ Select from BAEN 400-478 (p. 942), BAEN 485, BAEN 489.

⁸ Select from BAEN 400- 478 (p. 942), BAEN 485, BAEN 489; CHEN 451, CHEN 455/SENG 455, CHEN 460/SENG 460; CVEN 301/EVEN 301, CVEN 303, CVEN 336, CVEN 339/EVEN 339, CVEN 402/EVEN 402, CVEN 450, CVEN 455, CVEN 458/EVEN 458, CVEN 462/EVEN 462; MEEN 363, MEEN 364, MEEN 441, MEEN 442, MEEN 444, MEEN 460; MTDE 333; SENG 310, SENG 312, SENG 321; Other courses may be approved by request to the advising office.

⁹ Select from AGSM 473, ANSC 307, ANSC 320, ANSC 326/FSTC 326, ANSC 327/FSTC 327; BESC 320, BESC 357, BESC 367, BESC 401, BESC 402, BESC 403; BIOL 349, BIOL 351; ECCB 351, ECCB 407, ECCB 444; FSTC 305, FSTC 312, FSTC 313, FSTC 457/ANSC 457, FSTC 470/ANSC 470, FSTC 487/ANSC 487; GEOG 390; GEOL 410; MMET 307; NUTR 410/FSTC 410; POSC 309, POSC 326, POSC 406, POSC 427; SCSC 301, SCSC 311, SCSC 405. Other courses may be approved by request to the advising office.

Biological and Agricultural Engineering - BS, Natural Resources Engineering Track

Natural resource engineers apply their knowledge of physical and biological sciences, mathematics, engineering principles and engineering design to the preservation of environmental quality, and to biological systems and processes.

Because of their broad general engineering background, natural resource engineering graduates are sought by a wide variety of employers including environmental consulting firms, the cotton and forest products industries, chemical companies, and governmental agencies. Natural resource engineers make significant contributions to meeting many basic needs of society such as improving environmental quality and enhancing the quantity and quality of our water, soil, and air resources.

Program Requirements

First Year

Fall		Semester Credit Hours
CHEM 107	General Chemistry for Engineering Students ¹	3
CHEM 117	General Chemistry for Engineering Students Laboratory ¹	1
ENGL 104	Composition and Rhetoric ¹	3
ENGR 102	Engineering Lab I - Computation ¹	2
MATH 151	Engineering Mathematics I ^{1,2}	4
American history (p. 30) ³		3
Semester Credit Hours		16

Spring

ENGL 210	Technical and Professional Writing	3
ENGR 216/ PHYS 216	Experimental Physics and Engineering Lab II - Mechanics ¹	2
MATH 152	Engineering Mathematics II ¹	4
PHYS 206	Newtonian Mechanics for Engineering and Science ¹	3

POLS 206	American National Government	3
Semester Credit Hours		15

Second Year

Fall

BIOL 113	Essentials in Biology ¹	3
BAEN 201	Analysis of Biological and Agricultural Engineering Problems ¹	3
ENGR 217/ PHYS 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism ¹	2
MATH 251	Engineering Mathematics III ¹	3
MEEN 221	Statics and Particle Dynamics ¹	3
PHYS 207	Electricity and Magnetism for Engineering and Science ¹	3

Semester Credit Hours 17

Spring

BAEN 301	Biological and Agricultural Engineering Fundamentals I ¹	3
BAEN 320	Engineering Thermodynamics ¹	3
CHEM 222	Elements of Organic and Biological Chemistry ¹	3
MATH 308	Differential Equations ¹	3
MSEN 222/ MEEN 222	Materials Science ¹	3
POLS 207	State and Local Government	3

Semester Credit Hours 18

Third Year

Fall

BAEN 302	Biological and Agricultural Engineering Fundamentals II ¹	3
BAEN 340	Fluid Mechanics ¹	3
BAEN 354	Engineering Properties of Biological Materials ¹	3
ECEN 215	Principles of Electrical Engineering ¹	3
Language, philosophy and culture (p. 28) ³		3

Semester Credit Hours 15

Spring

BAEN 365	Unit Operations for Biological and Agricultural Engineering ¹	3
BAEN 366	Transport Processes in Biological Systems ¹	3
BAEN 370	Measurement and Control of Biological Systems and Agricultural Processes ¹	3
SCSC 301	Soil Science ¹	4
Mathematics elective ^{1,4}		3

Semester Credit Hours 16

Fourth Year

Fall

BAEN 399	Professional Development ⁵	0
BAEN 464	Irrigation and Drainage Engineering ¹	3
BAEN 479	Biological and Agricultural Engineering Design I ^{1,6}	3
American history (p. 30) ³		3
Social and behavioral sciences (p. 31) ³		3

Engineering elective ^{1,7}	3
Semester Credit Hours	15
Spring	
BAEN 460 Principles of Environmental Hydrology	3
BAEN 468 Soil and Water Conservation Engineering	3
BAEN 480 Biological and Agricultural Engineering Design II ^{1,6}	3
Creative arts (p. 30) ³	3
Technical elective ^{1,8}	3
Semester Credit Hours	15
Total Semester Credit Hours	127

¹ Must make a grade of C or better.

² Entering students will normally be given a placement test in mathematics. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.

³ The three hours of international and cultural diversity (p. 49) and three hours of cultural discourse (p. 48) courses, as required for graduation, may be met by courses that also satisfy a core curriculum course.

⁴ Select from CHEN 320; CVEN 302; MATH 304, MATH 417; MEEN 357; STAT 211.

⁵ All engineering students are required to complete a high-impact experience in order to graduate. The list of possible high-impact experiences is available in the BAEN advising office.

⁶ All undergraduate students must take at least two (2) specific courses in their major designated as writing intensive.

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⁸ Select from AGSM 473, ANSC 307, ANSC 320, ANSC 326/FSTC 326, ANSC 327/FSTC 327; BESC 320, BESC 357, BESC 367, BESC 401, BESC 402, BESC 403; BIOL 349, BIOL 351; ECCB 351, ECCB 407, ECCB 444; FSTC 305, FSTC 312, FSTC 313, FSTC 457/ANSC 457, FSTC 470/ANSC 470, FSTC 487/ANSC 487; GEOG 390; GEOL 410; MMET 307; NUTR 410/FSTC 410; POSC 309, POSC 326, POSC 406, POSC 427; SCSC 301, SCSC 311, SCSC 405. Other courses may be approved by request to the advising office.

Agricultural Systems Management - Minor

The minor in Agricultural Systems Management is available to all students enrolled at Texas A&M University. The primary educational objective of this minor program is to provide students, majoring in other fields, with a fundamental knowledge of the fields of agricultural systems management.

AGSM 360 prepares students for the opportunity to pursue an occupational license. Students who participate in the class regularly and pass the course will be eligible for a "30 hour Course for General Industry" diploma from NASP. Please refer to the Notification for Students Pursuing an Occupational License (p. 1416) in our catalog for additional information.

Program Requirements

Code	Title	Semester Credit Hours
Required Courses		
AGSM 201	Agricultural Energy and Power Systems	3
AGSM 301	Systems Analysis in Agriculture	3
Electives		12
Select four of the following:		
AGSM 105	The World Has a Drinking Problem - Global Water Scarcity	
AGSM 310	Agricultural Machinery Management	
AGSM 315/	Food Process Engineering	
FSTC 315	Technology	
AGSM 325	Agri-Industrial Applications of Electricity	
AGSM 335	Water and Soil Management	
AGSM 337	Technology for Environmental and Natural Resource Engineering	
AGSM 360	Occupational Safety Management	
AGSM 403	Processing and Storage of Agricultural Products	
AGSM 417	Food Process Engineering Technology II	
AGSM 435	Irrigation Principles and Management	
AGSM 437	Landscape Irrigation	
AGSM 470	Agricultural Electronics and Control	
AGSM 473	Project Management for Agricultural Systems Technology	
AGSM 477	Air Pollution Control and Regulatory Compliance	
AGSM 484	Internship ¹	
Total Semester Credit Hours		18

¹ Must be taken for 3 credit hours and approved by program coordinator.

Students must make a grade of C or better in all courses.

Food Engineering - Minor

This program offers knowledge and skills related to food and food processing complexities.

From the farm to the table, engineers play a role in producing tastier and healthier food for everybody in a sustainable manner. Food engineering is a hybrid of food science and an engineering science, resulting in the application of engineering principles to food systems and their components. With the complexity of food and food processing, the Minor in Food Engineering is aimed at students in the Chemical Engineering major whose graduates are routinely employed in the food industry.

The Minor in Food Engineering will provide students with the knowledge and skills for success in the ever-growing food industry by: (1) understanding the effect of physical, chemical and biological changes on the quality of raw materials and processed foods, (2) applying these

skills to the formulation, production and processing of new foods, (3) using innovative technologies that protect foods against spoilage and people against foodborne illnesses, and (4) applying innovations in food packaging that help improve appearance while increasing product convenience, safety, and shelf life.

Program Requirements

Code	Title	Semester Credit Hours
ANSC 326/ FSTC 326	Food Bacteriology	3
BAEN 420	Food Rheology	3
BAEN 422/ CHEN 422	Unit Operations in Food Processing	3
BAEN 427	Engineering Aspects of Packaging	3
CHEN 468	Zymology	3
CHEN 482	Bioprocess Engineering	3
Total Semester Credit Hours		18

Minimum of 6 hours at 300- to 400- level.

Department of Ecology and Conservation Biology

The Department of Ecology and Conservation Biology at Texas A&M University provides advanced educational opportunities that prepare undergraduate students for leadership in the stewardship and study of terrestrial and aquatic ecological systems. A Bachelor of Science degree in Ecology and Conservation Biology emphasizes fundamental ecological knowledge and its application to biodiversity conservation, environmental health, and management of complex systems, involving aspects of ecology from genes to ecosystems to the globe. Five degree tracks provide flexibility to pursue one's chosen career path and readies students for success in a future that needs their expertise.

Faculty

Appel, David N, Senior Professor
Ecology and Conservation Biology
PHD, Virginia Polytechnic Institute and State University, 1980

Ausprey, Ian, Assistant Professor
Ecology and Conservation Biology
PHD, University of Florida, 2021

Barboza, Perry S, Professor
Ecology and Conservation Biology
PHD, University of New England, 1991

Casola, Claudio, Associate Professor
Ecology and Conservation Biology
PHD, University of Pisa, Italy, 2006

Conway, Kevin W, Professor
Ecology and Conservation Biology
PHD, San Louis University, 2010

Feagin, Russell A, Professor
Ecology and Conservation Biology
PHD, Texas A&M University, 2003

Fitzgerald, Lee A, Professor
Ecology and Conservation Biology
PHD, University of New Mexico, 1993

Fujiwara, Masami, Professor
Ecology and Conservation Biology
PHD, Massachusetts Inst of Technology, 2002

Gan, Jianbang, Professor
Ecology and Conservation Biology
PHD, Iowa State University, 1990

Gatlin, Delbert M, Professor
Ecology and Conservation Biology
PHD, Mississippi State University, 1983

Gonder, Mary Katherine, Professor
Ecology and Conservation Biology
PHD, The City University of New York, 2000

Grace, Jacquelyn K, Assistant Professor
Ecology and Conservation Biology
PHD, Wake Forest University, 2014

Grant, William E, Professor
Ecology and Conservation Biology
PHD, Colorado State University, 1974

Hibbitts, Toby J, Instructional Assistant Professor
Ecology and Conservation Biology
PHD, University of the Witwatersrand, 2006

Hurtado Clavijo, Luis A, Associate Professor
Ecology and Conservation Biology
PHD, Rutgers, 2002

Jiao, Wenzhe, Assistant Professor
Ecology and Conservation Biology
PHD, Indiana University - IUPUI, 2022
PHD, University of Chinese Academy of Sciences, 2017

Lawing, Michelle, Associate Professor
Ecology and Conservation Biology
PHD, Indiana University, 2012

Lee, Taeyoon, Instructional Assistant Professor
Ecology and Conservation Biology
PHD, University of Georgia, 2022

Light, Jessica, Professor
Ecology and Conservation Biology
PHD, Louisiana State University, 2005

Loopstra, Carol A, Associate Professor
Ecology and Conservation Biology
PHD, North Carolina State University, 1992

Mateos, Mariana, Associate Professor
Ecology and Conservation Biology
PHD, Rutgers, 2002

Noormets, Asko, Professor
Ecology and Conservation Biology
PHD, Michigan Technological University, 2001

Perkin, Joshua S, Associate Professor
Ecology and Conservation Biology
PHD, Kansas State University, 2012

Popescu, Sorin C, Professor
Ecology and Conservation Biology
PHD, Virginia Tech, 2002

Rodrigues, Antonio M.M., Assistant Professor
Ecology and Conservation Biology
DPhil, University of Oxford, 2014

Rogers, William E, Professor
Ecology and Conservation Biology
PHD, Kansas State University, 1998

Spalink, Daniel, Associate Professor
Ecology and Conservation Biology
PHD, University of Wisconsin, Madison, 2015

Srinivasan, Raghavan, Professor
Ecology and Conservation Biology
PHD, Purdue University, 1992

Stronza, Amanda L, Professor
Ecology and Conservation Biology
PHD, University of Florida, 2000

Veldman, Joseph W, Associate Professor
Ecology and Conservation Biology
PHD, University of Florida, 2010

Voelker, Gary A, Professor
Ecology and Conservation Biology
PHD, University of Washington, 1998

West, Jason B, Professor
Ecology and Conservation Biology
PHD, University of Georgia, 2002

Wilcox, Bradford P, Professor
Ecology and Conservation Biology
PHD, Texas A&M University, 1986

Winemiller, Kirk O, Professor
Ecology and Conservation Biology
PHD, The University of Texas at Austin, 1987

Winemiller, Leslie K, Instructional Professor
Ecology and Conservation Biology
PHD, The University of Texas at Austin, 1989

Wu, X. Ben, Professor
Ecology and Conservation Biology
PHD, University of Tennessee, Knoxville, 1991

Yorzinski, Jessica L, Associate Professor
Ecology and Conservation Biology
PHD, University of California at Davis, 2012

Majors

- Bachelor of Science in Ecology and Conservation Biology, Ecoinformatics Track (p. 175)
- Bachelor of Science in Ecology and Conservation Biology, Ecology and Conservation Biology Track (p. 177)

- Bachelor of Science in Ecology and Conservation Biology, Forest Resources Track (p. 178)
- Bachelor of Science in Ecology and Conservation Biology, Teaching Track (p. 180)
- Bachelor of Science in Ecology and Conservation Biology, Vertebrate Zoology Track (p. 181)

Minors

- Ecology and Conservation Biology Minor (p. 182)

Ecology and Conservation Biology - BS, Ecoinformatics Track

This program trains students to integrate digital and information technologies with ecological data analysis to detect, evaluate and predict ecological patterns, disturbances and processes.

The Department of Ecology and Conservation Biology at Texas A&M University provides advanced educational opportunities to prepare students for careers in the science and stewardship of biological diversity, ecosystems and their services, and the biosphere. Our undergraduate and graduate degrees in Ecology and Conservation Biology emphasize fundamental ecological knowledge and its application to biodiversity conservation, environmental health, and management of complex systems, involving diverse aspects of ecology, ranging from genes to ecosystems and microcosms to the entire biosphere. ECCB is home to more than 70 experts and 400 students, representing a community of scholars working to understand nature, to conserve our natural resources, and to maintain the health and services of natural and human-dominated systems that sustain our communities.

Ecoinformatics Track

Ecoinformatics is an emerging field that prepares graduates to become experts in integrating digital and information technologies, such as GPS (global positioning system), satellite and UAV (unmanned aerial vehicle) imagery, and advanced field sensors with ecological data analysis in complex ecosystems to detect, evaluate, and predict ecological patterns, disturbances, and processes. The Ecoinformatics track provides students with training in theories and applications of ecological data analysis, natural resources and ecological modeling, and spatial information sciences that will prepare them for handling complex and ever-increasing interdisciplinary ecological data and understanding of contemporary environmental challenges. Students who successfully complete this track will have the ability to use advanced technologies to collect data from genomic to landscape levels and beyond. The diversity of coursework provides opportunities for students to develop skills using analytical and computer-based methods to perform quantitative data analysis, spatial analysis, and ecological modeling.

Program Requirements

First Year

Fall		Semester Credit Hours
BIOL 111	Introductory Biology I	4
ECCB 101	Introduction to Ecology and Conservation Biology	1
ECCB 205	Fundamentals of Ecology	3

MATH 140	Mathematics for Business and Social Sciences	3
General elective ¹		3
Semester Credit Hours		14
Spring		
BIOL 112	Introductory Biology II	4
MATH 142	Business Calculus	3
American history (p. 30) ²		3
Language, philosophy and culture (p. 28) ²		3
Social and behavioral sciences (p. 31) ²		3
Semester Credit Hours		16
Second Year		
Fall		
CHEM 119	Fundamentals of Chemistry I	4
ECCB 302	Diversity and Evolution of Vertebrates	3
American history (p. 30) ²		3
Creative arts (p. 30) ²		3
Ecology practice ³		3
Semester Credit Hours		16
Spring		
CHEM 222	Elements of Organic and Biological Chemistry	3
ECCB 215	Fundamentals of Ecology--Laboratory	1
ECCB 304	Conservation Biology	3
STAT 302	Statistical Methods	3
Government/Political science (p. 31) ²		3
GIS and remote sensing ⁴		3
Semester Credit Hours		16
Third Year		
Fall		
ECCB 403	Population and Community Ecology	3
Select one of the following:		4
CHEM 120	Fundamentals of Chemistry II	
GEOL 101 & GEOL 102	Principles of Geology and Principles of Geology Laboratory	
OCNG 251 & OCNG 252	The Blue Planet - Our Oceans and The Blue Planet - Our Oceans Laboratory	
PHYS 201	College Physics	
SCSC 301	Soil Science	
Ecosystem		
Select one of the following:		3
ECCB 309	Forest Ecology	
ECCB 320	Ecosystem Restoration and Management	
ECCB 416	Fire Ecology and Natural Resource Management	
RWFM 404	Aquatic Ecosystems	
Organismal Biology		
Select one of the following:		3
BESC 204	Molds and Mushrooms: The Impact of Fungi on Society and the Environment	
ECCB 203	Forest Trees of North America	
ECCB 311	Ichthyology	

ECCB 312	Diversity, Evolution, and Ecology of Grasses	
ECCB 313	Diversity and Evolution of Invertebrates	
ECCB 315	Herpetology	
ECCB 401	General Mammalogy	
ECCB 402	General Ornithology	
ENTO 201	General Entomology	
RWFM 302	Wildland Plants of North America	
Communication (p. 27) ²		3
Semester Credit Hours		16
Spring		
ECCB 303	Fire Ecology and Biogeochemistry	3
ECCB 400	Molecular Ecology	3
Government/Political science (p. 31) ²		3
Ecology practice ³		3
General elective ¹		3
Semester Credit Hours		15
Fourth Year		
Fall		
ECCB 301	Diversity and Evolution of Plants	3
Human-environment Interaction		
Select one of the following:		3
ECCB 319	Principles of Forestry	
ECCB 420	Ecological Restoration of Wetland and Riparian Systems	
ECCB 430	Advanced Restoration Ecology	
RWFM 301	Wildland Watershed Management	
RWFM 314	Principles of Rangeland Management Around the World	
RWFM 443	Aquaculture Production and Hatchery Management	
RWFM 470	Environmental Impact Assessment	
Communication (p. 27) ²		3
Ecology practice ³		2
GIS and remote sensing ⁴		3
Semester Credit Hours		14
Spring		
ECCB 485	Directed Studies	1
Ethical Dimensions		
Select one of the following:		3
AGEC 350	Environmental and Natural Resource Economics	
ECCB 308	Fundamentals of Environmental Decision-Making	
ECCB 318	Coupled Social and Ecological Systems	
ECCB 405	Forest Resource Assessment and Management	
ECCB 460/ RPTS 460	Nature, Values, and Protected Areas	
RWFM 308	Fish and Wildlife Laws and Administration	
RWFM 436	Natural Resources Policy	
Individual Function		
Select one of the following:		3-4
BESC 401	Bioenvironmental Microbiology	

ECCB 307	Forest Protection	
ECCB 310	Forest Tree Physiology and Breeding	
ECCB 422	Behavioral Ecology	
ECCB 448	Fish Ecophysiology	
ENTO 306	Insect Structure and Function	
HORT 313	Introduction to Plant Physiology	
RWFM 447	Aquatic Animal Nutrition, Diet Formulation and Feeding	
GIS and remote sensing ⁴		3
GIS and remote sensing ⁴		3
Semester Credit Hours		13
Total Semester Credit Hours		120

¹ Select from any 100-499 course not used elsewhere.

² Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a general elective can be used to satisfy this requirement.

³ Select from ECCB 285, ECCB 300/ENTO 300, ECCB 314, ECCB 316, ECCB 324, ECCB 385, ECCB 408, ECCB 417, ECCB 450/ENTO 450, ECCB 451/ENTO 451, ECCB 462, ECCB 484, ECCB 485, ECCB 491; RWFM 325, RWFM 400/ECCB 452, RWFM 408, RWFM 410, RWFM 485; STAT 307.

⁴ Select from ECCB 351, ECCB 406/GEOG 462, ECCB 407, ECCB 444, ECCB 446.

Must make a grade of C or better in BIOL 111, BIOL 112, and all ECCB major core coursework or any course substituted for an ECCB major core coursework requirement (ECCB 101, ECCB 205, ECCB 301, ECCB 302, ECCB 303, ECCB 304, ECCB 400, ECCB 403, and ECCB 485).

Ecology and Conservation Biology - BS, Ecology and Conservation Biology Track

This program teaches students the fundamentals of ecology and evolution and how to understand issues related to conserving, managing and restoring species, habitats, and ecosystems.

The Department of Ecology and Conservation Biology at Texas A&M University provides advanced educational opportunities to prepare students for careers in the science and stewardship of biological diversity, ecosystems and their services, and the biosphere. Our undergraduate and graduate degrees in Ecology and Conservation Biology emphasize fundamental ecological knowledge and its application to biodiversity conservation, environmental health, and management of complex systems, involving diverse aspects of ecology, ranging from genes to ecosystems and microcosms to the entire biosphere. ECCB is home to more than 70 experts and 400 students, representing a community of scholars working to understand nature, to conserve our natural resources, and to maintain the health and services of natural and human-dominated systems that sustain our communities.

Ecology and Conservation Biology Track

The Ecology and Conservation Biology track is designed to meet the needs of students interested in understanding issues related to conserving, managing, and restoring species, habitats, and ecosystems.

The curriculum prepares students for careers with natural resource agencies, conservation and environmental organizations, environmental consulting firms, and education and research institutions. Students enrolled in this track gain an understanding of the core body of knowledge used by ecologists and conservation biologists, including ecological concepts, ecological practices, human-environmental interactions, and biodiversity exploration and conservation. This track offers a diversity of courses, including several upper-level electives, that allow students to tailor their education to fit their interests. For example, students can take courses that position them for external certification through organizations such as the Ecological Society of America and the Society for Ecological Restoration. Students completing this track successfully will have a strong background in ecosystem functioning, field experience, human and ethical dimensions, organism biology, and quantitative applications, including the skills necessary for pursuing graduate degrees.

Program Requirements

First Year

		Semester Credit Hours
BIOL 111	Introductory Biology I	4
ECCB 101	Introduction to Ecology and Conservation Biology	1
ECCB 205	Fundamentals of Ecology	3
MATH 140	Mathematics for Business and Social Sciences	3
General elective ¹		2
Semester Credit Hours		13

Spring

BIOL 112	Introductory Biology II	4
MATH 142	Business Calculus	3
American history (p. 30) ²		3
Language, philosophy and culture (p. 28) ²		3
Social and behavioral sciences (p. 31) ²		3
Semester Credit Hours		16

Second Year

Fall

CHEM 119	Fundamentals of Chemistry I	4
ECCB 302	Diversity and Evolution of Vertebrates	3
American history (p. 30) ²		3
Communication (p. 27) ²		3
Creative arts (p. 30) ²		3
Semester Credit Hours		16

Spring

CHEM 222	Elements of Organic and Biological Chemistry	3
ECCB 215	Fundamentals of Ecology-Laboratory	1
ECCB 304	Conservation Biology	3
STAT 302	Statistical Methods	3
Communication (p. 27) ²		3
Government/Political science (p. 31) ²		3
Semester Credit Hours		16

Third Year**Fall**

Select one of the following:	4
CHEM 120 Fundamentals of Chemistry II	
GEOL 101 Principles of Geology & GEOL 102 and Principles of Geology Laboratory	
OCNG 251 The Blue Planet - Our Oceans & OCNG 252 and The Blue Planet - Our Oceans Laboratory	
PHYS 201 College Physics	
SCSC 301 Soil Science	
Ecosystem	
Select one of the following:	3
ECCB 309 Forest Ecology	
ECCB 320 Ecosystem Restoration and Management	
ECCB 416 Fire Ecology and Natural Resource Management	
RWFM 404 Aquatic Ecosystems	
Government/Political science (p. 31) ²	3
Ecology practice ³	3
General elective ¹	3

Semester Credit Hours 16

Spring

ECCB 301 Diversity and Evolution of Plants	3
ECCB 303 Fire Ecology and Biogeochemistry	3
ECCB 400 Molecular Ecology	3
ECCB 403 Population and Community Ecology	3
Ecology practice ⁴	3

Semester Credit Hours 15

Fourth Year**Fall**

Biodiversity ⁵	3
Ecology practice ⁴	3
Ecology practice ⁶	3-4
Human-environment interaction ⁷	3
Human-environment interaction ⁸	3

Semester Credit Hours 15

Spring

ECCB 485 Directed Studies	1
Individual Function	
Select one of the following:	3-4
BESC 401 Bioenvironmental Microbiology	
BIOL 318 Chordate Anatomy	
ECCB 307 Forest Protection	
ECCB 310 Forest Tree Physiology and Breeding	
ECCB 422 Behavioral Ecology	
ECCB 448 Fish Ecophysiology	
ENTO 306 Insect Structure and Function	
HORT 313 Introduction to Plant Physiology	
RWFM 447 Aquatic Animal Nutrition, Diet Formulation and Feeding	
Biodiversity ⁵	3
Human-environment interaction ⁹	3

General elective ¹	1-3
Semester Credit Hours	13
Total Semester Credit Hours	120

¹ Select from any 100-499 course not used elsewhere.

² Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a general elective can be used to satisfy this requirement.

³ Select from ECCB 300/ENTO 300, ECCB 314, ECCB 316, ECCB 324, ECCB 408, ECCB 417, ECCB 446, ECCB 450/ENTO 450, ECCB 451/ENTO 451, ECCB 462, ECCB 484, ECCB 485, ECCB 491; RWFM 325, RWFM 400/ECCB 452, RWFM 408, RWFM 410, RWFM 485.

⁴ Select from ECCB 285, ECCB 300/ENTO 300, ECCB 385, ECCB 314, ECCB 316, ECCB 324, ECCB 351, ECCB 406/GEOG 462, ECCB 407, ECCB 408, ECCB 417, ECCB 444, ECCB 446, ECCB 450/ENTO 450, ECCB 451/ENTO 451, ECCB 462, ECCB 484, ECCB 485, ECCB 491; PHYS 201, PHYS 202; RWFM 325, RWFM 400/ECCB 452, RWFM 408, RWFM 410, RWFM 485; STAT 307.

⁵ Select from BESC 204; ECCB 203, ECCB 311, ECCB 312, ECCB 313, ECCB 315, ECCB 401, ECCB 402; ENTO 201; RWFM 302.

⁶ Select from ECCB 351, ECCB 406/GEOG 462, ECCB 407, ECCB 444; PHYS 201, PHYS 202, STAT 307.

⁷ Select from ECCB 319, ECCB 420, ECCB 430; RWFM 301, RWFM 314, RWFM 443, RWFM 470.

⁸ Select from AGECE 350; ECCB 308, ECCB 318, ECCB 319, ECCB 405, ECCB 420, ECCB 430, ECCB 460/RPTS 460; RWFM 301, RWFM 308, RWFM 314, RWFM 443, RWFM 470.

⁹ Select from AGECE 350; ECCB 308, ECCB 318, ECCB 405, ECCB 460/RPTS 460; RWFM 308, RWFM 436.

Must make a grade of C or better in BIOL 111, BIOL 112, and all ECCB major core coursework or any course substituted for an ECCB major core coursework requirement (ECCB 101, ECCB 205, ECCB 301, ECCB 302, ECCB 303, ECCB 304, ECCB 400, ECCB 403, and ECCB 485).

Ecology and Conservation Biology - BS, Forest Resources Track

This program prepares students for a broad array of career opportunities or graduate studies in forestry, natural resources, conservation and environmental-related fields.

The Department of Ecology and Conservation Biology at Texas A&M University provides advanced educational opportunities to prepare students for careers in the science and stewardship of biological diversity, ecosystems and their services, and the biosphere. Our undergraduate and graduate degrees in Ecology and Conservation Biology emphasize fundamental ecological knowledge and its application to biodiversity conservation, environmental health, and management of complex systems, involving diverse aspects of ecology, ranging from genes to ecosystems and microcosms to the entire biosphere. ECCB is home to more than 70 experts and 400 students, representing a community of scholars working to understand nature, to conserve our natural resources, and to maintain the health and services of natural and human-dominated systems that sustain our communities.

Forest Resources Track

The Forest Resources track builds on the ecology and conservation foundation of the ECCB major core. As such, it prepares students for a broad array of career opportunities, from that of a professional forester or natural resources specialist with government natural resource agencies, forest resources companies, conservation and environmental organizations, environmental or forestry consulting firms, urban forestry companies and agencies, or pursuing a graduate degree in natural resources. Students obtaining a degree in Ecology and Conservation Biology gain an understanding of ecological concepts and practices, human-environmental interactions, and principles of conservation. Students in the ECCB Forest Resources track also learn important concepts in forest biology and ecology, assessment, and management and are exposed to exciting areas of increasing importance such as climate change, forest fire management, remote sensing, forest insects and diseases, and forest genetics. Students may use free electives to broaden their experience outside of natural resources or to add additional courses of interest within the other ECCB tracks, including Education Abroad. The Forest Resources track is accredited by the Society of American Foresters (SAF). The Council for Higher Education Accreditation recognizes SAF as the specialized accrediting body for forestry education in the United States.

Program Requirements

First Year

Fall		Semester Credit Hours
BIOL 111	Introductory Biology I	4
ECCB 101	Introduction to Ecology and Conservation Biology	1
MATH 140	Mathematics for Business and Social Sciences	3
ECCB 205	Fundamentals of Ecology	3
General elective ¹		3
Semester Credit Hours		14
Spring		
AGEC 105	Introduction to Agricultural Economics	3
BIOL 112	Introductory Biology II	4
MATH 142	Business Calculus	3
American history (p. 30) ²		3
Language, philosophy and culture (p. 28) ²		3
Semester Credit Hours		16

Second Year

Fall		
CHEM 119	Fundamentals of Chemistry I	4
ECCB 203	Forest Trees of North America	3
ECCB 302	Diversity and Evolution of Vertebrates	3
American history (p. 30) ²		3
Creative arts (p. 30) ²		3
Semester Credit Hours		16
Spring		
CHEM 222	Elements of Organic and Biological Chemistry	3
ECCB 215	Fundamentals of Ecology–Laboratory	1

ECCB 304	Conservation Biology	3
ECCB 310	Forest Tree Physiology and Breeding	3
STAT 302	Statistical Methods	3
Government/Political science (p. 31) ²		3

Semester Credit Hours 16

Third Year

Fall		
ECCB 301	Diversity and Evolution of Plants	3
ECCB 351	Geographic Information Systems for Resource Management	3
ECCB 403	Population and Community Ecology	3
SCSC 301	Soil Science	4
Communication (p. 27) ²		3
Semester Credit Hours		16

Spring

AGEC 350	Environmental and Natural Resource Economics	3
ECCB 303	Fire Ecology and Biogeochemistry	3
ECCB 309	Forest Ecology	3
ECCB 400	Molecular Ecology	3
Government/Political science (p. 31) ²		3
Semester Credit Hours		15

Summer

ECCB 325	Field Studies in Forest Ecosystems	3
Semester Credit Hours		3

Fourth Year

Fall		
ECCB 319	Principles of Forestry	3
ECCB 324	Forest Measurements	2
ECCB 444	Remote Sensing of the Environment	3
ECCB 485	Directed Studies	1
RWFM 436	Natural Resources Policy	3
Semester Credit Hours		12

Spring

ECCB 307	Forest Protection	3
ECCB 405	Forest Resource Assessment and Management	3
Communication (p. 27) ²		3
General elective ¹		3
Semester Credit Hours		12
Total Semester Credit Hours		120

¹ Select from any 100-499 course not used elsewhere.

² Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a general elective can be used to satisfy this requirement.

Must make a grade of C or better in BIOL 111, BIOL 112, and all ECCB major core coursework or any course substituted for an ECCB major core coursework requirement (ECCB 101, ECCB 205, ECCB 301, ECCB 302, ECCB 303, ECCB 304, ECCB 400, ECCB 403, and ECCB 485).

Ecology and Conservation Biology - BS, Teaching Track

This program trains future secondary school teachers in the life sciences.

The Department of Ecology and Conservation Biology at Texas A&M University provides advanced educational opportunities to prepare students for careers in the science and stewardship of biological diversity, ecosystems and their services, and the biosphere. Our undergraduate and graduate degrees in Ecology and Conservation Biology emphasize fundamental ecological knowledge and its application to biodiversity conservation, environmental health, and management of complex systems, involving diverse aspects of ecology, ranging from genes to ecosystems and microcosms to the entire biosphere. ECCB is home to more than 70 experts and 400 students, representing a community of scholars working to understand nature, to conserve our natural resources, and to maintain the health and services of natural and human-dominated systems that sustain our communities.

Teaching Track

This track consists of a major in Ecology and Conservation Biology and a minor in Secondary Education, to meet all course requirements to prepare students to take the teaching certification exam. After passing the teaching certification exam, graduates are certified to teach middle school science courses and high school life science courses. This track was developed to meet the increasing demand for science teachers in Texas middle and high schools.

Program Requirements

First Year

Fall		Semester Credit Hours
ARSC 201	Self-Directed Experiences with Adolescents	1
BIOL 111	Introductory Biology I	4
ECCB 101	Introduction to Ecology and Conservation Biology	1
ECCB 205	Fundamentals of Ecology	3
MATH 140	Mathematics for Business and Social Sciences	3
Creative arts (p. 30) ¹		3
Semester Credit Hours		15
Spring		
BIOL 112	Introductory Biology II	4
MATH 142	Business Calculus	3
American history (p. 30) ¹		3
Communication (p. 27) ¹		3
Language, philosophy and culture (p. 28) ¹		3
Semester Credit Hours		16

Second Year

Fall		
CHEM 119	Fundamentals of Chemistry I	4
ECCB 302	Diversity and Evolution of Vertebrates	3
ECCB 304	Conservation Biology	3
INST 210	Understanding Special Populations	3

American history (p. 30) ¹		3
Semester Credit Hours		16
Spring		
CHEM 222	Elements of Organic and Biological Chemistry	3
ECCB 215	Fundamentals of Ecology–Laboratory	1
ECCB 301	Diversity and Evolution of Plants	3
RDNG 465	Reading in the Middle and Secondary Grades	3
STAT 302	Statistical Methods	3
Individual function		
Select one of the following:		3
BESC 401	Bioenvironmental Microbiology	
ECCB 307	Forest Protection	
ECCB 310	Forest Tree Physiology and Breeding	
ECCB 422	Behavioral Ecology	
ECCB 448	Fish Ecophysiology	
ENTO 306	Insect Structure and Function	
HORT 313	Introduction to Plant Physiology	
Semester Credit Hours		16
Third Year		
Fall		
INST 222	Foundations of Education in a Multicultural Society	3
TEFB 322	Teaching and Schooling in Modern Society	3
Select one of the following:		4
CHEM 120	Fundamentals of Chemistry II	
GEOL 101 & GEOL 102	Principles of Geology and Principles of Geology Laboratory	
OCNG 251 & OCNG 252	The Blue Planet - Our Oceans and The Blue Planet - Our Oceans Laboratory	
PHYS 201	College Physics	
SCSC 301	Soil Science	
Biodiversity ²		3
Government/Political science (p. 31) ¹		3
Semester Credit Hours		16
Spring		
ECCB 303	Fire Ecology and Biogeochemistry	3
ECCB 400	Molecular Ecology	3
ECCB 403	Population and Community Ecology	3
TEFB 324	Teaching Skills II	3
Government/Political science (p. 31) ¹		3
Semester Credit Hours		15
Fourth Year		
Fall		
ECCB 285 or ECCB 385	Directed Studies or Communication in Ecology and Conservation Biology	1
TEFB 406	Science in the Middle and Secondary School	3
Ecosystem		
Select one of the following:		3

ECCB 309	Forest Ecology	
ECCB 320	Ecosystem Restoration and Management	
ECCB 416	Fire Ecology and Natural Resource Management	
RWFM 404	Aquatic Ecosystems	
Human-environment interaction ³		3
Communication (p. 27) ¹		3
Semester Credit Hours		13
Spring		
ECCB 485	Directed Studies	1
MEFB 497	Supervised Clinical Teaching	6
General electives ⁴		6
Semester Credit Hours		13
Total Semester Credit Hours		120

¹ Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a general elective can be used to satisfy this requirement.

² Select from BESC 204; ECCB 203, ECCB 311, ECCB 312, ECCB 313, ECCB 315, ECCB 401, ECCB 402; ENTO 201; RWFM 302.

³ Select from AGECE 350; ECCB 308, ECCB 318, ECCB 319, ECCB 405, ECCB 420, ECCB 460/RPTS 460; RWFM 301, RWFM 308, RWFM 314, RWFM 436, RWFM 443, RWFM 447, RWFM 470.

⁴ Select from any 100-499 course not used elsewhere.

Must make a grade of C or better in BIOL 111, BIOL 112, and all ECCB major core coursework or any substituted for an ECCB major core coursework requirement (ECCB 101, ECCB 205, ECCB 301, ECCB 302, ECCB 303, ECCB 304, ECCB 400, and ECCB 485).

Ecology and Conservation Biology - BS, Vertebrate Zoology Track

This program is for students with a deep interest in vertebrates, their diversity, ecology, and conservation, and satisfies all prerequisite requirements for veterinary school.

The Department of Ecology and Conservation Biology at Texas A&M University provides advanced educational opportunities to prepare students for careers in the science and stewardship of biological diversity, ecosystems and their services, and the biosphere. Our undergraduate and graduate degrees in Ecology and Conservation Biology emphasize fundamental ecological knowledge and its application to biodiversity conservation, environmental health, and management of complex systems, involving diverse aspects of ecology, ranging from genes to ecosystems and microcosms to the entire biosphere. ECCB is home to more than 70 experts and 400 students, representing a community of scholars working to understand nature, to conserve our natural resources, and to maintain the health and services of natural and human-dominated systems that sustain our communities.

Vertebrate Zoology Track (Pre-Vet)

The Vertebrate Zoology track is tailored specifically for those ECCB students with a deep interest in vertebrates, their diversity, ecology, and conservation and/or are interested in pursuing veterinary school. This

track capitalizes on the collective experience of ECCB faculty in the areas of vertebrate ecology, evolution, genetics, anatomy, physiology, and behavior to provide a comprehensive understanding of vertebrate biology and ecology. In addition to core courses in ecology and conservation, ECCB students in the Vertebrate Zoology track complete coursework in vertebrate ecology, diversity, and evolution, and enroll in national or international field courses that focus on vertebrates, including their collection and identification. This is a flexible track that permits the inclusion of courses specifically required by graduate programs as well as schools of veterinary medicine. Students on this track may use free electives to personalize or broaden their experience to meet certification requirements for vertebrate-focused professional societies (e.g., American Fisheries Society and The Wildlife Society). The Vertebrate Zoology track satisfies all prerequisite requirements for veterinary school.

Program Requirements

First Year

Fall		Semester Credit Hours
BIOL 111	Introductory Biology I	4
ECCB 101	Introduction to Ecology and Conservation Biology	1
ECCB 205	Fundamentals of Ecology	3
MATH 140	Mathematics for Business and Social Sciences	3
General elective ¹		3
Semester Credit Hours		14
Spring		
BIOL 112	Introductory Biology II	4
MATH 142	Business Calculus	3
American history (p. 30) ²		3
Language, philosophy and culture (p. 28) ²		3
Social and behavioral sciences (p. 31) ²		3
Semester Credit Hours		16

Second Year

Fall		
CHEM 119	Fundamentals of Chemistry I	4
ECCB 215	Fundamentals of Ecology-Laboratory	1
ECCB 302	Diversity and Evolution of Vertebrates	3
STAT 302	Statistical Methods	3
American history (p. 30) ²		3
Semester Credit Hours		14
Spring		
CHEM 222	Elements of Organic and Biological Chemistry	3
ECCB 304	Conservation Biology	3
Biodiversity ³		3
Communication (p. 27) ²		3
Government/Political science (p. 31) ²		3
Semester Credit Hours		15

Third Year

Fall		
ECCB 403	Population and Community Ecology	3
Select one of the following:		4

CHEM 120	Fundamentals of Chemistry II	
GEOL 101 & GEOL 102	Principles of Geology and Principles of Geology Laboratory	
OCNG 251 & OCNG 252	The Blue Planet - Our Oceans and The Blue Planet - Our Oceans Laboratory	
PHYS 201	College Physics	
SCSC 301	Soil Science	
Ecosystem		
Select one of the following:		3
ECCB 309	Forest Ecology	
ECCB 320	Ecosystem Restoration and Management	
ECCB 416	Fire Ecology and Natural Resource Management	
RWFM 404	Aquatic Ecosystems	
Creative arts (p. 30) ²		3
Government/Political science (p. 31) ²		3
Semester Credit Hours		16
Spring		
ECCB 301	Diversity and Evolution of Plants	3
ECCB 303	Fire Ecology and Biogeochemistry	3
Communication (p. 27) ²		3
Ecology practice ⁴		4
Professional development ⁵		3
Semester Credit Hours		16
Fourth Year		
Fall		
ECCB 400	Molecular Ecology	3
Biodiversity ³		3
Ecology practice ⁴		4
Professional development ⁵		3
General elective ¹		3
Semester Credit Hours		16
Spring		
ECCB 485	Directed Studies	1
Individual Function		
Select one of the following:		3-4
BIOL 206	Introductory Microbiology	
BIOL 318	Chordate Anatomy	
BIOL 351	Fundamentals of Microbiology	
BIOL 388	Principles of Animal Physiology	
ECCB 422	Behavioral Ecology	
ECCB 448	Fish Ecophysiology	
RWFM 447	Aquatic Animal Nutrition, Diet Formulation and Feeding	
VTPB 405	Biomedical Microbiology	
Ethical Dimensions		
Select one of the following:		3
AGEC 350	Environmental and Natural Resource Economics	
ECCB 308	Fundamentals of Environmental Decision- Making	
ECCB 318	Coupled Social and Ecological Systems	

ECCB 405	Forest Resource Assessment and Management	
ECCB 460/ RPTS 460	Nature, Values, and Protected Areas	
RWFM 308	Fish and Wildlife Laws and Administration	
RWFM 436	Natural Resources Policy	
Professional development ⁵		3
General elective ¹		2-3
Semester Credit Hours		13
Total Semester Credit Hours		120

¹ Select from any 100-499 course not used elsewhere.

² Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a general elective can be used to satisfy this requirement.

³ Select from ECCB 311, ECCB 315, ECCB 401, ECCB 402.

⁴ Select from ECCB 285, ECCB 314, ECCB 316, ECCB 324, ECCB 351, ECCB 385, ECCB 406/GEOL 462, ECCB 407, ECCB 417, ECCB 444, ECCB 446, ECCB 462, ECCB 484, ECCB 485, ECCB 491; ENTO 300/ECCB 300, ENTO 450/ECCB 450, ENTO 451/ECCB 451; PHYS 201, PHYS 202; RWFM 325, RWFM 400/ECCB 452, RWFM 408, RWFM 410, RWFM 484, RWFM 485, RWFM 491; STAT 307.

⁵ Select from ANSC 303/NUTR 303, ANSC 318, ANSC 320; CHEM 227 & CHEM 237, CHEM 228 & CHEM 238; ECCB 203, ECCB 311, ECCB 312, ECCB 313, ECCB 315, ECCB 401, ECCB 402, ECCB 420, ECCB 430; ENTO 201; OCNG 251; RWFM 301, RWFM 302, RWFM 314, RWFM 443, RWFM 470.

Must make a grade of C or better in BIOL 111, BIOL 112, and all ECCB major core coursework or any course substituted for an ECCB major core coursework requirement (ECCB 101, ECCB 205, ECCB 301, ECCB 302, ECCB 303, ECCB 304, ECCB 400, ECCB 403, and ECCB 485).

Ecology and Conservation Biology - Minor

This program provides students with a foundation in the complex interactions of Earth's biodiversity and ecosystems.

The minor in Ecology and Conservation Biology is offered as a supplement to other related majors. By completing the minor, students will gain a foundation in the complex interactions of the Earth's biodiversity and ecosystems. These basic principles may be applied to biodiversity conservation, assessment of environmental health, and the management of complex systems involving aspects of ecology ranging from genes to ecosystems and their interactions with landscape, hydrology, and climate.

Program Requirement

Code	Title	Semester Credit Hours
ECCB 205	Fundamentals of Ecology	3
Ecology core concepts		
Select from the following:		3
ECCB 303	Fire Ecology and Biogeochemistry	
ECCB 307	Forest Protection	

ECCB 309	Forest Ecology
ECCB 310	Forest Tree Physiology and Breeding
ECCB 320	Ecosystem Restoration and Management
ECCB 403	Population and Community Ecology
ECCB 422	Behavioral Ecology
ECCB 448	Fish Ecophysiology
RWFM 404	Aquatic Ecosystems
RWFM 447	Aquatic Animal Nutrition, Diet Formulation and Feeding
Ecology practice	
Select from the following:	
ECCB 215	Fundamentals of Ecology--Laboratory
ECCB 300/ ENTO 300	Field Studies ¹
ECCB 314	Down River: Biology of Gulf Coastal Fishes
ECCB 316	Field Herpetology
ECCB 324	Forest Measurements
ECCB 351	Geographic Information Systems for Resource Management
ECCB 407	Programming for Spatial Data Applications with R
ECCB 417	Prescribed Fire
ECCB 444	Remote Sensing of the Environment
ECCB 446	Drones for Environmental Remote Sensing
ECCB 450/ ENTO 450	Caribbean Conservation ¹
ECCB 451/ ENTO 451	Caribbean Research Seminar ¹
ECCB 462	Amazon River Tropical Biology
ECCB 485	Directed Studies
ECCB 491	Research
RWFM 400/Study Abroad in Natural Resources	
ECCB 452	
RWFM 410	Principles of Fisheries Techniques and Management
Human-environment interactions	
Select from the following:	
ECCB 304	Conservation Biology
ECCB 308	Fundamentals of Environmental Decision-Making
ECCB 319	Principles of Forestry
ECCB 420	Ecological Restoration of Wetland and Riparian Systems
RWFM 411	Ecosystem Management
RWFM 444	Aquaculture Hatchery Management
RWFM 470	Environmental Impact Assessment
Biodiversity	
Select from the following:	
ECCB 203	Forest Trees of North America

ECCB 301	Diversity and Evolution of Plants
ECCB 302	Diversity and Evolution of Vertebrates
ECCB 312	Diversity, Evolution, and Ecology of Grasses
ECCB 313	Diversity and Evolution of Invertebrates
ECCB 400	Molecular Ecology
RWFM 302	Wildland Plants of North America
Total Semester Credit Hours	
15	

¹ ECCB 300/ENTO 300, ECCB 450/ENTO 450, and ECCB 451/ENTO 451 require concurrent enrollment.

Department of Entomology

The Department of Entomology at Texas A&M University is one of the top entomology departments in the United States. We offer two undergraduate degrees, a Bachelor of Science degree in Entomology and a Bachelors of Science degree in Forensic and Investigative Sciences (FIVS). The FIVS degree has two tracks: Science (SCE) and Pre-Law (LWE). The FIVS-SCE degree is the only bachelors degree in the state of Texas that is nationally accredited by the Forensic Science Education Programs Accreditation Commission (FEPAC) of the American Academy of Forensic Sciences. Both undergraduate degrees provide students with the necessary curriculum requirements to pursue graduate study in entomology and related fields, as well as professional fields, such as law and medicine.

Faculty

Adelman, Zach N, Professor
Entomology
PHD, Colorado State University Fort Collins, 2000

Behmer, Spencer T, Professor
Entomology
PHD, University of Arizona, 1998

Bernal, Julio S, Professor
Entomology
PHD, University of California at Riverside, 1995

Brundage, Adrienne L, Instructional Associate Professor
Entomology
PHD, Texas A&M University, 2012

Coates, Craig J, Instructional Professor
Entomology
PHD, Australian National University, 1997

Coulson, Robert N, Professor
Entomology
PHD, University of Georgia, 1969

Fadamiro, Henry, Professor
Entomology
PHD, Green College, University of Oxford, 1995

Gillett-Kaufman, Jennifer Lynn, Instructional Associate Professor
Entomology
PHD, University of Florida Gainesville, 2003

Hamer, Gabriel L, Professor
Entomology
PHD, Michigan State University, 2008

Helms, Anjel Marie, Associate Professor
Entomology
PHD, The Pennsylvania State University, 2015

Kaufman, Phillip Edward, Professor
Entomology
PHD, University of Wyoming, 1997

Kmidowski, Shelby, Assistant Professor of the Practice
Entomology
MS, Duquesne University, 2023

Kovar, Scott J, Professor of the Practice
Entomology
MS, John Jay College of Criminal Justice, 2007

Magalhaes, Tereza, Assistant Professor
Entomology
PHD, University of Miami, 2005

Medina, Raul F, Professor
Entomology
PHD, University of Maryland, College Park, 2005

Motta, Erick, Assistant Professor
Entomology
PHD, University of Texas, 2019

Myles, Kevin M, Professor
Entomology
PHD, Colorado State University, 2003

Oswald, John D, Professor
Entomology
PHD, Cornell University, 1991

Penzes, Judit, Assistant Professor
Entomology
DVM, University of Veterinary Medicine Budapest, 2015
BVSc, University of Veterinary Medicine, 2009

Pietrantonio, Patricia, Professor
Entomology
PHD, University of California at Riverside, 1995

Rangel Posada, Juliana, Professor
Entomology
PHD, Cornell University, 2010

Song, Hojun, Professor
Entomology
PHD, The Ohio State University, 2006

Sword, Gregory A, Professor
Entomology
PHD, The University of Texas at Austin, 1998

Tamborindeguy Camacho, Cecilia, Professor
Entomology
PHD, Institut National Polytechnique de Toulouse, 2004

Tarone, Aaron M, Professor
Entomology
PHD, Michigan State University, 2007

Teel, Pete D, Research Professor
Entomology
PHD, Oklahoma State University, 1978

Tomberlin, Jeffery K, Professor
Entomology
PHD, University of Georgia, 2001

Wilson, Lloyd T, Professor
Entomology
PHD, University of California, Davis, 1977

Yoho, Kelie, Instructional Assistant Professor
Entomology
MS, Purdue University, 2019

Zhu Salzman, Keyan, Professor
Entomology
PHD, Purdue University, 1994

Majors

- Bachelor of Science in Entomology (p. 184)
- Bachelor of Science in Forensic and Investigative Sciences, Pre-Law Emphasis (p. 187)
- Bachelor of Science in Forensic and Investigative Sciences, Science Emphasis (p. 189)

Minors

- Entomology Minor (p. 190)

Certificates

- Public Health Entomology Certificate (p. 191)

Entomology - BS

Students in this program learn broadly about insects and their relationship to humans, the environment, and other organisms. Students gain a strong scientific foundation in entomology, biology, chemistry, mathematics, ecology and biotechnology, coupled with field experiences and lab work, which provides students with practical skills, needed for research or industry careers.

Entomology is a basic and applied science of insects and their relatives such as ticks and mites. Insects are one of the most numerous and diverse forms of life on earth; they are essential constituents of virtually every terrestrial and aquatic ecosystem. While society benefits from the diverse roles played by insects, some species may become limiting factors in the production, processing and storage of our food and fiber crops, and to the health and well being of humans and animals. The knowledge and skills possessed by entomologists are essential components of modern integrated pest management strategies designed to safely and efficiently produce adequate food supplies for a continuously expanding world population, and to impede the

transmission of insect-borne diseases, while at the same time protecting our endangered species and fragile ecosystems.

The Bachelor of Science degree in Entomology prepares students for career paths with strong employment demands among corporate and private agribusiness; urban pest management companies; scientific and technical organizations; public health agencies; local, state and federal governments; and international organizations. Employment opportunities exist in areas such as forensic entomology, conservation biology, environmental quality, food quality, regulatory inspection, public health and more. Our curriculum is sufficiently flexible such that students, in consultation with an academic advisor, may tailor the degree to meet their individual academic goals, including requirements for graduate studies and professional schools in health career areas (medical, veterinary, dental) as well as providing analytical skills needed for law school.

Students majoring in areas such as agronomy, animal science, horticulture, biology, genetics and biomedical sciences may wish to augment their knowledge and broaden their career opportunities by earning either a double major or a minor in entomology. Students interested in a double major or minor in entomology should contact an academic advisor for additional information.

Program Requirements

First Year

Fall		Semester Credit Hours
BIOL 111	Introductory Biology I	4
CHEM 119	Fundamentals of Chemistry I	4
ENTO 101 or AGLS 101	Introduction to Academic Success in Entomology ¹ or Modern Agricultural Systems and Renewable Natural Resources	1
ENTO 201	General Entomology ¹	3
MATH 140	Mathematics for Business and Social Sciences ²	3
Semester Credit Hours		15
Spring		
BIOL 112	Introductory Biology II	4
CHEM 120	Fundamentals of Chemistry II	4
ENTO 102	Continuing Academic Success in Entomology ¹	1
MATH 142	Business Calculus ³	3
Communication (p. 27)		3
Semester Credit Hours		15

Second Year

Fall		
CHEM 222	Elements of Organic and Biological Chemistry ⁴	3
ENTO 482	Occupational and Professional Development ¹	2
POLS 206	American National Government	3
American history (p. 30) ⁵		3
Social and behavioral sciences (p. 31) ⁵		3

General elective		1
Semester Credit Hours		15
Spring		
POLS 207	State and Local Government	3
American history (p. 30) ⁵		3
Communication (p. 27)		3
Language, philosophy and culture (p. 28) ⁵		3
Technical elective ⁶		3
Semester Credit Hours		15
Third Year		
Fall		
ENTO 306	Insect Structure and Function ¹	4
Technical electives ⁶		7
General elective		3
Semester Credit Hours		14
Spring		
ENTO 301	Biodiversity and Biology of Insects ¹	4
ENTO 424	Insect Ecology ¹	3
ENTO 481	Seminar ¹	1
GENE 301 & GENE 312	Comprehensive Genetics and Comprehensive Genetics Laboratory	4
Creative arts (p. 30) ⁵		3
Semester Credit Hours		15
Fourth Year		
Fall		
ENTO 428	Insect Biotechnology ¹	3
ENTO 429	Insect Biotechnology Laboratory ¹	1
Technical electives ⁶		7
General elective		5
Semester Credit Hours		16
Spring		
ENTO 435	Case Studies in Problem Solving ¹	3
ENTO 484 or ENTO 491	Professional Internship ¹ or Research	2
Technical electives ⁶		6
General electives		4
Semester Credit Hours		15
Total Semester Credit Hours		120

¹ Must earn a "C" or better in all required ENTO courses

² MATH 150, MATH 152 will be accepted in lieu of MATH 140.

³ MATH 151, PHIL 240 will be accepted in lieu of MATH 142.

⁴ CHEM 227, CHEM 257 will be accepted in lieu of CHEM 222.

⁵ To be selected in consultation with student's academic advisor in the department. Three hours of international and cultural diversity (p. 49) electives and three hours of cultural discourse (p. 48) are required for graduation; these courses may fulfill other degree requirements as well. See the list of approved courses.

⁶ Technical electives must be selected in consultation with the student's advisor or from the current list of approved electives published by the department. See Technical Electives table.

Additional Requirements for a Baccalaureate Degree

- Foreign Language (two years of the same language in high school or one year/two semester sequence in college)
- Writing Intensive Courses (two courses designated W in major or one W and one C course in major)
- International and Cultural Diversity Courses (three credit hours)
- Cultural Discourse Course (three credit hours)

Technical Electives

Code	Title	Semester Credit Hours
ACCT 209	Survey of Accounting Principles	3
AGEC 314	Marketing Agricultural and Food Products	3
AGEC 330	Financial Management in Agriculture	3
AGEC 340	Agribusiness Management	3
AGSM 335	Water and Soil Management	3
AGSM 337	Technology for Environmental and Natural Resource Engineering	3
ALED 440	Leading Change	3
ANSC 107	General Animal Science	3
ANSC 108	General Animal Science Laboratory	1
ANSC 303/ NUTR 303	Principles of Animal Nutrition	3
ANSC 305	Animal Breeding	3
ANSC 307	Meats	3
ANSC 318	Animal Feeds and Feeding	3
ANSC 320	Animal Nutrition and Feeding	3
ANSC 326/ FSTC 326	Food Bacteriology	3
ANSC 327/ FSTC 327	Food Bacteriology Lab	1
BESC 201	Introduction to Bioenvironmental Sciences	3
BESC 401	Bioenvironmental Microbiology	3
BESC 402	Microbial Processes in Bioremediation	3
BICH 303	Elements of Biological Chemistry	3
BICH 410	Comprehensive Biochemistry I	3
BICH 411	Comprehensive Biochemistry II	3
BICH 431/ GENE 431	Molecular Genetics	3
BIOL 206	Introductory Microbiology	4
BIOL 213	Molecular Cell Biology	3
BIOL 319	Integrated Human Anatomy and Physiology I	4
BIOL 320	Integrated Human Anatomy and Physiology II	4
BIOL 351	Fundamentals of Microbiology	4
BIOL 357	Ecology	3
BIOL 413	Cell Biology	3
BIOL 456	Medical Microbiology	3

CHEM 228	Organic Chemistry II	3
CHEM 238	Organic Chemistry Laboratory	1
CHEM 258	Organic Chemistry II - Reactivity and Applications	4
COMM 203	Public Speaking	3
ECCB 205	Fundamentals of Ecology	3
ENTO 208-299 (p. 1031)		
ENTO 320	Honey Bee Biology	3
ENTO 322	Insects and Human Society	3
ENTO 401	Principles of Integrated Pest Management	3
ENTO 402	Insects In Agriculture	3
ENTO 403	Urban Entomology	3
ENTO 423	Medical Entomology	2
ENTO 431/ FIVS 431	The Science of Forensic Entomology	3
ENTO 432/ FIVS 432	Applied Forensic Entomology	1
ENTO 441	Engineering Vector Populations	3
ENTO 442	Mosquito - A History of Humankind's Struggle for Survival with the Deadliest Animal on the Planet	3
ENTO 485	Directed Studies	0-4
ENTO 489	Special Topics in...	1-4
GENE 405/ BIMS 405	Mammalian Genetics	3
GENE 406/ BIOL 406	Bacterial Genetics	3
GENE 412	Population, Quantitative and Ecological Genetics	3
HORT 201	Horticultural Science and Practices	3
HORT 301	Garden Science	3
HORT 308	Plants for Sustainable Landscapes	3
HORT 313	Introduction to Plant Physiology	3
HORT 315	Issues in Horticulture	3
HLTH 331	Community Health	3
HLTH 334	Women's Health	3
HLTH 335	Human Diseases	3
HLTH 342/ PHLT 342	Human Sexuality	3
HLTH 353/ PHLT 353	Drugs and Society	3
HLTH 354/ PHLT 354	Medical Terminology for the Health Professions	3
HLTH 403/ PHLT 403	Consumer Health	3
HLTH 405/ PHLT 405	Rural Health	3
HLTH 407	Global Health	3
HLTH 429	Environmental Health	3
PHLT 301	Public Health Concepts	1
PHLT 302	Foundations of Public Health	3
PHLT 303	Social Context of Population Health	3

PHLT 304	Biological Basis of Public Health Diseases & Disorders	3
PHLT 305	Epidemiology in Public Health	3
PHLT 306	Border Health	3
PHLT 307	Public Health in the Global Context	3
PHLT 308	Comparative Global Health Systems	3
PHLT 309	Population Health Promotion	3
PHLT 310	Public Health Writing	1
PHLT 311	Narrative Approach to Public Health	1
PHLT 313	Health Care and Public Health System	3
PHLT 314	Public Health Data Management and Assessment I	2
PHLT 315	Public Health Data Management and Assessment II	2
PHLT 330	The Environment and Public Health	3
PHLT 331	Occupational Safety and Health I	3
PHLT 332	Occupational Safety and Health II	3
PHLT 333	Accident Investigation	3
PHLT 334	Fire Safety and Workplace Hazards	3
PHLT 335	Hazardous Materials	3
PHLT 370	Broad Street Learning Community II	3
PHLT 410	Public Health Communication	3
PHLT 411	Project Management in Public Health	3
PHLT 412	Health Advocacy and Policy	3
PHLT 413	Public Health Informatics	3
PHLT 414	Applications of Epidemiology in Public Health	3
PHLT 415	Emergency Management in Public Health	3
PHLT 416	Public Health Leadership and Ethics	3
PHLT 426/ MKTG 443	The Business of Healthcare	3
PHLT 432	Human Factors and Ergonomic Health and Safety	3
PHLT 433	Industrial Inspections and Audit Techniques	3
PHLT 434	Project Cost Benefit and Economics	3
PHLT 436	Infectious Disease in the Developing World: Risks, Challenges, and Solutions	3
PHLT 441	Strategies for Population Health Improvement	3
PHLT 445	Applications of Public Health	3
PHLT 470	Global Public Health Systems and Practice Experiences	1-3
PHLT 485	Directed Studies	1-4
PHLT 489	Special Topics In...	1-4
PHYS 201	College Physics	4
PHYS 202	College Physics	4
PLPA 301	Plant Pathology	3
PLPA 303	Plant Pathology Laboratory	1
SCSC 105	World Food and Fiber Crops	3

SCSC 301	Soil Science	4
SCSC 304	Plant Breeding and Genetics	3
SCSC 405	Soil and Water Microbiology	3
SCSC 422	Soil Fertility and Plant Nutrient Management	3
SCSC 455	Environmental Soil and Water Science	3
STAT 302	Statistical Methods	3
VTPB 405	Biomedical Microbiology	4
VTPB 409	Introduction to Immunology	3
VTPB 487	Biomedical Parasitology	4

Forensic and Investigative Sciences - BS, Pre-Law Emphasis

This program teaches students how to use the life sciences, from DNA to ecology, to analyze crime scene evidence or solve mysteries in industrial, regulatory, or medical settings. The Pre-Law Emphasis operates at the crossroads of science and the legal profession, where strong research skills, analytical and problem-solving skills, and critical reading abilities are pivotal.

Forensic and Investigative Sciences (BS - Pre-Law Emphasis) is a major offered by the Department of Entomology. Molecular, organismal, environmental, and ecological sources of information are often analyzed and interpreted in industrial, regulatory, legal, medical and associated professions. Graduates will be competitive for employment opportunities in homeland security and investigative services at local, state and national levels. Graduates will also be well prepared for opportunities to enter post-graduate studies or law school.

Forensic and investigative sciences operate at the crossroads of science and the legal profession and provide opportunities for students to consider pre-law preparation. There are growing demands for attorneys with knowledge and understanding of science and research to address legal issues and cases where the interpretation of science and/or scientific data and analyses are pivotal. Law schools often seek candidates with diverse backgrounds and interests, and they look closely at curricula that stress analytical and problem-solving skills, critical reading abilities, writing skills, oral communication and listening abilities, general research skills, and task organization and management skills. The Forensic and Investigative Sciences program provides students with opportunities to build these essential skills and knowledge areas through a combination of required and elective courses.

Forensic science is a critical element of the criminal justice system. Forensic scientists examine and analyze evidence from crime scenes and elsewhere to develop objective findings that can assist in the investigation and prosecution of perpetrators of crime or absolve an innocent person from suspicion.

The forensic scientist's skill is to use all the information available to determine facts. Issues of law and/or fact that may require forensic science expertise range from questions of the validity of a signature on a will, to a claim of products liability, to questions of whether a corporation is complying with environmental laws. The work of the forensic scientist reduces the number of cases entering the overloaded court system by assisting the decision-makers before a case reaches the court. This decision is based on scientific investigation, not circumstantial evidence or the sometimes-unreliable testimony of witnesses.

Many forensic scientists work for universities, police agencies (state, city, and local agencies), federal agencies, and criminal investigation arms of the military forces and their support laboratories. Others work for coroners, medical examiners, hospitals, and district attorney's offices.

As crime continues to evolve with technology and society, forensic scientists will be challenged to respond by adapting established technologies and, where necessary, developing new ones. These emerging forensic science disciplines will continue to be of vital importance to the courts and to society in general.

<https://entomology.tamu.edu/b-s-forensic-investigative-sciences/>

Program Requirements

First Year

Fall		Semester Credit Hours
BIOL 111	Introductory Biology I	4
FIVS 101 or AGLS 101	Introduction to Academic Success in Forensic and Investigative Sciences or Modern Agricultural Systems and Renewable Natural Resources	1
FIVS 205	Introduction to Forensic and Investigative Sciences	3
MATH 140	Mathematics for Business and Social Sciences ¹	3
Communication (p. 27)		3

Semester Credit Hours 14

Spring		
BIOL 112	Introductory Biology II	4
FIVS 102	Continuing Academic Success in Forensic and Investigative Sciences	1
MATH 142	Business Calculus ²	3
American history (p. 30)		3
Communication (p. 27)		3

Semester Credit Hours 14

Second Year

Fall		
CHEM 119	Fundamentals of Chemistry I	4
FIVS 210	Forensic Photography	3
FIVS 215	Forensic Microscopy	3
Government/Political science (p. 31)		3
Language, philosophy and culture (p. 28)		3

Semester Credit Hours 16

Spring		
CHEM 222	Elements of Organic and Biological Chemistry ³	3
FIVS 220	Impression Evidence	3
American history (p. 30)		3
Government/Political science (p. 31)		3
Social and behavioral sciences (p. 31)		3

Semester Credit Hours 15

Third Year

Fall

FIVS 282	Occupational and Professional Development	2
FIVS 308	Forensic Implications of Inheritance ⁴	4
STAT 303	Statistical Methods ⁵	3
Directed elective ⁶		3
Creative arts (p. 30)		3

Semester Credit Hours 15

Spring

BICH 303	Elements of Biological Chemistry	3
FIVS 422	Crime Scene Investigation ⁴	3
FIVS 481	Seminar	1
Directed elective ⁶		3
Directed elective ⁶		3
Select one of the following:		2-3

FIVS 401/ SCSC 401	Forensic Soil Science	
FIVS 405/ CYBR 405	Applied Digital Forensics and Incident Response	
FIVS 420	Controlled Substances	
FIVS 431/ ENTO 431	The Science of Forensic Entomology	

Semester Credit Hours 15

Fourth Year

Fall

FIVS 484 or FIVS 491	Internship or Research	2
Directed elective ⁶		3
Directed elective ⁶		3
Directed elective ⁶		3
General elective		4-5

Semester Credit Hours 16

Spring

Directed elective ⁶		3
Directed elective ⁶		3
Directed elective ⁶		3
Directed elective ⁶		6

Semester Credit Hours 15

Total Semester Credit Hours 120

¹ MATH 150 or MATH 152 will be accepted in lieu of MATH 140.

² PHIL 240 or MATH 151 will be accepted in lieu of MATH 142.

³ CHEM 227 or CHEM 257 will be accepted in lieu of CHEM 222.

⁴ This course fulfills a writing requirement. See Requirement for a Baccalaureate Degree (p. 34) section.

⁵ STAT 302 will be accepted in lieu of STAT 303.

⁶ See below the approved list of directed electives.

AGEC 105, AGEC 315, AGEC 344, AGEC 350, AGEC 429; ECON 202, ECON 203, ECON 323, ECON 420; MGMT 209; PBSI 100-499 (p. 1184); POLS 352, POLS 353, POLS 355; RWFM 308, RWFM 436; URPN 361, URPN 401, URPN 450; PHLT 300-499 (p. 1201); PHYS 201, PHYS 202; FIVS 401/SCSC 401, FIVS 405/CYBR 405, FIVS 420, FIVS 431/ENTO 431, FIVS 432/ENTO 432; CHEM 120, CHEM 237, CHEM 228, CHEM 238; PHIL 100-499 (p. 1198); COMM 203,

COMM 243, COMM 305, COMM 325, COMM 443; SOCI 200-499 (p. 1233); ALED 202, ALED 301, ALED 340, ALED 424, ALED 440; FIVS 289, FIVS 489; GENE 420/BICH 420; HIST 447; RWFM 470; ENTO 200-499 (p. 1031).

The Forensic and Investigative Sciences program requires students to earn a grade of C or better in all courses within the program curriculum.

University Graduation Requirements:

- Foreign Language (two years of the same language in high school or one year/ two semester sequence in college)
- Writing Intensive courses (two courses designated W in major or one W and one C course in major)
- International and Cultural Diversity (p. 49) courses (three credit hours)
- Cultural Discourse (p. 48) course (three credit hours)

Forensic and Investigative Sciences - BS, Science Emphasis

This program teaches students how to use the life sciences, from DNA to ecology, to analyze crime scene evidence or solve mysteries in industrial, regulatory, or medical settings. The Science Emphasis is ideal for students seeking careers that deal with the collection, preservation, processing and use of evidentiary information to solve problems.

Forensic and Investigative Sciences (BS - Science Emphasis), an accredited program by the Forensic Science Education Programs Accreditation Commission (FEPAC), is a life sciences-based education, which develops skills in problem solving and critical thinking, essential for many career opportunities.

Forensic and investigative scientists rely upon state-of-the-art scientific discoveries and technologies as tools to seek answers to critical questions in a variety of settings. Molecular, organismal, environmental, and ecological sources of information are often analyzed and interpreted in industrial, regulatory, legal, medical and associated professions. Graduates will be competitive for employment opportunities in forensic quality assurance laboratories, homeland security and investigative services at local, state and national levels. Graduates will also be well prepared for opportunities to enter post-graduate studies or professional schools including medicine, law, forensic nursing, dentistry, pharmacy, and veterinary medicine.

Forensic science is a critical element of the criminal justice system. Forensic scientists examine and analyze evidence from crime scenes and elsewhere to develop objective findings that can assist in the investigation and prosecution of perpetrators of crime or absolve an innocent person from suspicion.

The forensic scientist's skill is to use all the information available to determine facts. Issues of law and/or fact that may require forensic science expertise range from questions of the validity of a signature on a will, to a claim of products liability, to questions of whether a corporation is complying with environmental laws. The work of the forensic scientist reduces the number of cases entering the overloaded court system by assisting the decision-makers before a case reaches the court. This decision is based on scientific investigation, not circumstantial evidence or the sometimes-unreliable testimony of witnesses.

Common forensic science laboratory disciplines include forensic molecular biology (DNA), forensic chemistry, trace evidence examination (hairs and fibers, paints and polymers, glass, soil, etc.), latent fingerprint examination, firearms and toolmarks examination, handwriting analysis, fire and explosives examinations, forensic toxicology, and digital evidence. Some forensic disciplines practiced outside forensic laboratories include forensic pathology, forensic nursing, forensic psychiatry, forensic entomology, and forensic engineering.

Many forensic scientists work for universities, police agencies (state, city, and local agencies), federal agencies, and criminal investigation arms of the military forces and their support laboratories. Others work for coroners, medical examiners, hospitals, and district attorney's offices.

As crime continues to evolve with technology and society, forensic scientists will be challenged to respond by adapting established technologies and, where necessary, developing new ones. These emerging forensic science disciplines will continue to be of vital importance to the courts and to society in general.

<https://entomology.tamu.edu/b-s-forensic-investigative-sciences/>

Program Requirements

First Year

Fall		Semester Credit Hours
FIVS 101 or AGLS 101	Introduction to Academic Success in Forensic and Investigative Sciences or Modern Agricultural Systems and Renewable Natural Resources	1
BIOL 111	Introductory Biology I	4
CHEM 119	Fundamentals of Chemistry I	4
FIVS 205	Introduction to Forensic and Investigative Sciences	3
MATH 140	Mathematics for Business and Social Sciences ¹	3
Semester Credit Hours		15
Spring		
BIOL 112	Introductory Biology II	4
CHEM 120	Fundamentals of Chemistry II	4
FIVS 102	Continuing Academic Success in Forensic and Investigative Sciences	1
MATH 142	Business Calculus ²	3
Communication (p. 27)		3
Semester Credit Hours		15

Second Year

Fall		
Select one of the following:		4
CHEM 257	Organic Chemistry I - Structure and Function	
CHEM 227 & CHEM 237	Organic Chemistry I and Organic Chemistry Laboratory	
PHYS 201	College Physics	4
American history (p. 30)		3
Communication (p. 27)		3
Semester Credit Hours		14

Spring

PHYS 202	College Physics	4
Select one of the following:		4
CHEM 258	Organic Chemistry II - Reactivity and Applications	
CHEM 228 & CHEM 238	Organic Chemistry II and Organic Chemistry Laboratory	
American history (p. 30)		3
Language, philosophy and culture (p. 28)		3
Semester Credit Hours		14

Third Year**Fall**

BICH 410	Comprehensive Biochemistry I	3
BICH 412	Biochemistry Laboratory I	1
CHEM 315	Fundamentals of Quantitative Analysis	3
CHEM 318	Quantitative Analysis Laboratory	1
FIVS 282	Occupational and Professional Development	2
FIVS 308	Forensic Implications of Inheritance	4
Directed elective ³		2
Semester Credit Hours		16

Spring

BICH 411	Comprehensive Biochemistry II	3
FIVS 422	Crime Scene Investigation	3
Select one of the following:		3-4
FIVS 401/ SCSC 401	Forensic Soil Science	
FIVS 431/ ENTO 431 & FIVS 432/ ENTO 432	The Science of Forensic Entomology and Applied Forensic Entomology	
FIVS 481	Seminar ⁴	1
Government/Political science (p. 31)		3
Creative arts (p.)		3
Semester Credit Hours		16

Fourth Year**Fall**

FIVS 316	Biotechnology and Forensics	4
FIVS 484 or FIVS 491	Internship or Research	2
Government/Political science (p. 31)		3
Directed elective ³		3
Directed elective ³		3
Semester Credit Hours		15

Spring

FIVS 415	Practice and Principles of Science and Law	3
FIVS 435	Case Studies in Problem Solving ⁴	3
STAT 302	Statistical Methods	3
Social and behavioral sciences (p. 31)		3
General elective		2-3
Semester Credit Hours		15
Total Semester Credit Hours		120

¹ MATH 150 and MATH 152 will be accepted in lieu of MATH 140.

² MATH 151 will be accepted in lieu of MATH 142.

³ Students must choose directed electives in consultation with the student's advisor based on career and educational goals and from the current list of approved courses published by the department. Select from the following: ANSC 326/FSTC 326, ANTH 225, ANTH 425, ANTH 427; BIOL 213, BIOL 319, BIOL 320, BIOL 351, BIOL 413, BIOL 430, BIOL 454; CHEM 318, CHEM 325, CHEM 326, CHEM 327, CHEM 328, CHEM 362, CHEM 415, CHEM 434; ENTO 210, ENTO 403, ENTO 423, ENTO 426/VIBS 426, ENTO 428, ENTO 429, ENTO 441, ENTO 442; FIVS 200-499 (p. 1047); GENE 412, GENE 420/BICH 420; PHLT 300-499 (p. 1201); PHYS 221, PBSI 305, PBSI 306, PBSI 371; SCSC 301, SOCI 304; VIBS 305, VTPB 405, VTPP 425.

⁴ This course fulfills a writing requirement. See Requirement for a Baccalaureate Degree (p. 34) section.

The Forensic and Investigative Sciences program requires students to earn a grade of C or better in all courses within the program curriculum.

University Graduation Requirements:

- Foreign Language (two years of the same language in high school or one year/two semester sequence in college)
- Writing Intensive courses (two courses designated W in major or one W and one C course in major)
- International and Cultural Diversity (p. 49) courses (three credit hours)
- Cultural Discourse (p. 48) course (three credit hours)

Entomology - Minor

This program offers essential knowledge about how insects interact with ecology and public health, providing a strong foundation in the biological and ecological principles of insects.

Entomology is a basic and applied science of insects and their relatives such as ticks and mites. Insects are one of the most numerous and diverse forms of life on earth; they are essential constituents of virtually every terrestrial and aquatic ecosystem. While society benefits from the diverse roles played by insects, some species may become limiting factors in the production, processing and storage of our food and fiber crops, and to the health and well being of humans and animals. The knowledge and skills possessed by entomologists are essential components of modern integrated pest management strategies designed to safely and efficiently produce adequate food supplies for a continuously expanding world population, and to impede the transmission of insect-borne diseases, while at the same time protecting our endangered species and fragile ecosystems.

Students in majors such as agronomy, animal science, horticulture, biology, genetics and biomedical sciences may wish to augment their knowledge and broaden their career opportunities by electing to either double major or minor in entomology. All interested students should contact an academic advisor for additional information on these options.

Program Requirements

Code	Title	Semester Credit Hours
Select one of the following: ¹		3
ENTO 201	General Entomology	

ENTO 208	Veterinary Entomology & ENTO 209 and Veterinary Entomology Laboratory	
ENTO 301	Biodiversity and Biology of Insects ¹ or ENTO 321 or Insects and Human Society	3-4
Select 9 hours from the following:		9
ENTO 210	Global Public Health Entomology	
ENTO 300/ ECCB 300	Field Studies	
ENTO 306	Insect Structure and Function	
ENTO 320	Honey Bee Biology	
ENTO 401	Principles of Integrated Pest Management	
ENTO 402	Insects In Agriculture	
ENTO 403	Urban Entomology	
ENTO 423	Medical Entomology	
ENTO 424	Insect Ecology	
ENTO 428	Insect Biotechnology	
ENTO 429	Insect Biotechnology Laboratory	
ENTO 431/ FIVS 431	The Science of Forensic Entomology	
ENTO 432/ FIVS 432	Applied Forensic Entomology	
ENTO 435	Case Studies in Problem Solving	
ENTO 441	Engineering Vector Populations	
ENTO 442	Mosquito - A History of Humankind's Struggle for Survival with the Deadliest Animal on the Planet	
ENTO 450/ ECCB 450	Caribbean Conservation	
ENTO 451/ ECCB 451	Caribbean Research Seminar	
ENTO 481	Seminar	
ENTO 482	Occupational and Professional Development	
ENTO 484	Professional Internship	
ENTO 485	Directed Studies	
ENTO 489	Special Topics in...	
ENTO 491	Research	
Total Semester Credit Hours		15

¹ Substitutions are not allowed for core courses.

Students are encouraged to visit the Department of Entomology Advising Office to select the appropriate directed elective courses based on their individual educational and career interests.

Students must earn a grade of C or better in each course used for the minor.

Public Health Entomology - Certificate

This program is focused on insects and other arthropods that serve as vectors and reservoirs of disease pathogens and are responsible for the direct and indirect causation of disease.

Population growth and distribution predicted over future decades pose increased risks of disease outbreaks and emergence of new diseases worldwide. Scientists from many disciplines, physicians, veterinarians, health-care practitioners, public health workers and policy makers are needed to provide public health surveillance, make new discoveries, and find solutions to address these risks.

Employment opportunities in the public health sector include environmental and health service agencies, mosquito control districts, the Centers for Disease Control and Prevention (CDC), the Department of Defense, the World Health Organization, and the PanAmerican Health Organization.

Students completing this certificate will be competitive for employment upon graduation, for graduate programs in related disciplines, such as Master's programs in Public Health, Epidemiology, and Entomology, as well as professional schools.

Eligibility requirements for entrance:

1. Completion of a minimum of one (1) course from both Category I and II with a grade of B or better and a cumulative TAMU GPA of 2.0+
2. Students must complete Eligibility Requirement 1 and submit an application before completion of 75 total credit hours.

For additional information and to discuss the scheduling of course requirements upon successful completion of your entrance requirements, please contact a member of the Entomology Academic Advising Team to submit your Certificate in Public Health Entomology application.

Program Requirements

Code	Title	Semester Credit Hours
CATEGORY I		
Select one of the following: ¹		3
BESC 314	Pathogens, the Environment and Society	
ENTO 210	Global Public Health Entomology	
VTPB 221	Great Diseases of the World	
CATEGORY II		
ENTO 208 & ENTO 209	Veterinary Entomology and Veterinary Entomology Laboratory ¹	3
ENTO 423 & ENTO 427	Medical Entomology and Medical Entomology Laboratory ¹	3
CATEGORY III		
Select one of the following: ²		3
ENTO 403	Urban Entomology	
HLTH 354/ PHLT 354	Medical Terminology for the Health Professions	
PHLT 302	Foundations of Public Health	

PHLT 305	Epidemiology in Public Health
RWFM 309/Wildlife Diseases	
VTPB 301	
VIBS 204	Fundamentals of Food Toxicology and Safety
VIBS 413	Introduction to Epidemiology
VTPB 409	Introduction to Immunology
CATEGORY IV	
Select one of the following: ²	
ENTO 425	Disease Ecology
ENTO 426/	Methods in Vector-Borne Disease
VIBS 426	Ecology
ENTO 441	Engineering Vector Populations
ENTO 442	Mosquito - A History of Humankind's Struggle for Survival with the Deadliest Animal on the Planet
Total Semester Credit Hours	
15	

¹ Must make a grade of B or better.

² Must make a grade of C or better.

To be awarded the certificate, students must:

- Successfully complete courses in Category I-III **PRIOR** to enrollment in Category IV.
- Earn a cumulative 3.0 Program GPA or better in all certificate coursework.
- Complete exit survey.
- Meet the minimum qualifications for graduation as defined by Texas A&M University.

Department of Food Science and Technology

Food Science and Technology is an exciting multidisciplinary field that prepares majors with a comprehensive knowledge of the biological, physical and engineering sciences to develop new food products, design innovative processing technologies, improve food quality and nutritive value, enhance the safety of foods and ensure the wholesomeness of our food supply. Food Science majors apply the principles learned in the basic sciences such as food chemistry, biochemistry, genetics, microbiology, food engineering and nutrition to provide consumers with safe, wholesome and attractive food products that contribute to their health and well-being.

The undergraduate curriculum in food science and technology is approved by the Institute of Food Technologists (IFT) and offers two tracks, a food science option and an industry option. These tracks provide promising career opportunities in areas such as food product/process design, technical service, research and development, quality assurance, food safety, food law, regulatory oversight, technological innovation, marketing, corporate sales, sensory evaluation and operations management. There are numerous opportunities available for corporate internships, scholarships and study abroad programs that provide real-world experience and enhance opportunities for employment after completing a baccalaureate degree. The major also provides an excellent background for those interested in professional schools, graduate

studies, medicine, veterinary medicine, dentistry, pharmacy, physical therapy, nursing, occupational therapy and public health.

For more information, visit <https://foodscience.tamu.edu/>.

Faculty

Buckley, Rebecca Creasy, Instructional Associate Professor
Food Science and Technology
PHD, University of Florida, 2013

Castillo, Alex, Associate Professor
Food Science and Technology
PHD, Texas A&M University, 1998

Ku, Seockmo, Assistant Professor
Food Science and Technology
PHD, Purdue University, 2015

Murano, Elsa A, Professor
Food Science and Technology
PHD, Virginia Tech, 1990

Ovissipour, Reza, Assistant Professor
Food Science and Technology
PHD, Washington State University, 2017
PHD, Tarbiat Modares University, 2010

Pillai, Suresh D, Professor
Food Science and Technology
PHD, University of Arizona, 1989

Riaz, Mian N, Instructional Associate Professor
Food Science and Technology
PHD, The University of Maine, 1992

Talcott, Stephen T, Professor
Food Science and Technology
PHD, University of Arkansas, 2000

Talcott, Susanne U, Professor
Food Science and Technology
PHD, University of Florida, 2004

Majors

- Bachelor of Science in Food Science and Technology, Food Industry Option (p. 192)
- Bachelor of Science in Food Science and Technology, Food Science Option (p. 194)

Certificates

- Coffee Processing and Quality Certificate (p. 196)
- Food Diversity Certificate (p. 197)

Food Science and Technology - BS, Food Industry Option

This program integrates knowledge from the basic disciplines of chemistry, microbiology, physics and biology and applies scientific principles from food engineering, food processing operations, sensory evaluation, food safety, HACCP, quality assurance and management to produce foods that are wholesome, affordable and safe.

Food Science and Technology is an exciting multidisciplinary field that prepares majors with a comprehensive knowledge of the biological, physical and engineering sciences to develop new food products, design innovative processing technologies, improve food quality and nutritive value, enhance the safety of foods and ensure the wholesomeness of our food supply. Food Science majors apply the principles learned in the basic sciences such as food chemistry, biochemistry, genetics, microbiology, food engineering and nutrition to provide consumers with safe, wholesome and attractive food products that contribute to their health and well-being. For more information, visit <https://foodscience.tamu.edu>.

The undergraduate curriculum is approved by the Institute of Food Technologists (IFT) and offers two tracks, a Food Science Option and an Industry Option. These tracks provide promising career opportunities in areas such as food product/process design, technical service, research and development, quality assurance, food safety, food law, regulatory oversight, technological innovation, marketing, corporate sales, sensory evaluation and operations management. There are numerous opportunities available for corporate internships, scholarships and study abroad programs that provide real-world experience and enhance opportunities for employment after completing a baccalaureate degree. The major also provides an excellent background for those interested in professional schools, graduate studies, medicine, veterinary medicine, dentistry, pharmacy, physical therapy, nursing, occupational therapy and public health.

The goal of the Food Industry Option curriculum is to prepare Food Technologists for careers in the food and related industries. These careers may involve food processing, manufacturing, technical service, food product development, operations management, regulatory oversight and other technology based opportunities.

Program Requirements

First Year

Fall		Semester Credit Hours
CHEM 119	Fundamentals of Chemistry I	4
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition or Composition and Rhetoric	3
FSTC 201	Food Science	3
FSTC 210/ NUTR 210	Horizons in Nutrition and Food Science	1
Mathematics (p. 27) ¹		3
General elective ²		1
Semester Credit Hours		15

Spring

CHEM 120	Fundamentals of Chemistry II	4
Select one of the following:		3
AGEC 105	Introduction to Agricultural Economics	
ECON 202	Principles of Economics	
ECON 203	Principles of Economics	
American history (p. 30) ³		3
Language, philosophy and culture (p. 28) ³		3

Mathematics (p. 27) ¹ 3

Semester Credit Hours 16

Second Year

Fall

BIOL 111	Introductory Biology I	4
CHEM 257	Organic Chemistry I - Structure and Function	4
NUTR 202 or NUTR 203	Fundamentals of Human Nutrition or Scientific Principles of Human Nutrition	3
POLS 206	American National Government	3

Semester Credit Hours 14

Spring

ACCT 209	Survey of Accounting Principles	3
PHYS 201	College Physics	4
American history (p. 30) ³		3
Creative arts (p. 30) ³		3
General elective ²		3

Semester Credit Hours 16

Third Year

Fall

ENGL 210	Technical and Professional Writing	3
FSTC 311	Principles of Food Processing	3
POLS 207	State and Local Government	3
Select one of the following:		3

ANSC 307	Meats	
ANSC 457/ FSTC 457	Hazard Analysis and Critical Control Point System	
FSTC 281	Introduction to Fermentation and Brewing Sciences	
FSTC 305	Fundamental Baking	
FSTC 316	Food Biomanufacturing and Cellular Agriculture	
FSTC 319	Molecular Methods for Microbial Detection and Characterization	
FSTC 320/ NUTR 320	Understanding Obesity - A Social and Scientific Challenge	
FSTC 324	Food Safety and Preventive Controls for Human Food	
FSTC 416	Precision Fermentation and Future of Foods	
FSTC 420	Supervised Research in Mediterranean Nutrition and Food Processing in Italy	
FSTC 422	Food Processing for Sustainable Nutrition in Brazil	
FSTC 430	Innovative Functional Food Ingredients	
FSTC 457/ ANSC 457	Hazard Analysis and Critical Control Point System	
FSTC 485	Directed Studies	
FSTC 489	Special Topics in...	
FSTC 491	Research	
HORT 419	Viticulture and Small Fruit Culture	
HORT 420	Concepts of Wine Production	
HORT 421	Enology	

NUTR 211	Scientific Principles of Foods	
NUTR 300/ FSTC 300	Religious and Ethnic Foods	
NUTR 410/ FSTC 410	Nutritional Pharmacometrics of Food Compounds	
POSC 406	Poultry Further Processing	
General elective ²		4
Semester Credit Hours		16
Spring		
AGEC 314	Marketing Agricultural and Food Products	3
FSTC 312	Food Chemistry	3
FSTC 313	Food Chemistry Laboratory	1
MGMT 309	Survey of Management	3
Select one of the following:		3
STAT 301	Introduction to Biometry	
STAT 302	Statistical Methods	
STAT 303	Statistical Methods	
General elective ²		1
Semester Credit Hours		14
Fourth Year		
Fall		
FSTC 314	Food Analysis	3
AGSM 315/ FSTC 315	Food Process Engineering Technology	3
ANSC 326/ FSTC 326	Food Bacteriology	3
ANSC 327/ FSTC 327	Food Bacteriology Lab	1
Select one fo the following:		3
ANSC 307	Meats	
ANSC 457/ FSTC 457	Hazard Analysis and Critical Control Point System	
FSTC 281	Introduction to Fermentation and Brewing Sciences	
FSTC 305	Fundamental Baking	
FSTC 316	Food Biomanufacturing and Cellular Agriculture	
FSTC 319	Molecular Methods for Microbial Detection and Characterization	
FSTC 320/ NUTR 320	Understanding Obesity - A Social and Scientific Challenge	
FSTC 324	Food Safety and Preventive Controls for Human Food	
FSTC 416	Precision Fermentation and Future of Foods	
FSTC 430	Innovative Functional Food Ingredients	
FSTC 420	Supervised Research in Mediterranean Nutrition and Food Processing in Italy	
FSTC 422	Food Processing for Sustainable Nutrition in Brazil	
FSTC 457/ ANSC 457	Hazard Analysis and Critical Control Point System	
FSTC 485	Directed Studies	
FSTC 489	Special Topics in...	

FSTC 491	Research	
HORT 419	Viticulture and Small Fruit Culture	
HORT 420	Concepts of Wine Production	
HORT 421	Enology	
NUTR 211	Scientific Principles of Foods	
NUTR 300/ FSTC 300	Religious and Ethnic Foods	
NUTR 410/ FSTC 410	Nutritional Pharmacometrics of Food Compounds	
POSC 406	Poultry Further Processing	
Semester Credit Hours		13
Spring		
BICH 303 or BICH 410	Elements of Biological Chemistry or Comprehensive Biochemistry I	3
FSTC 401	Food Product Development	3
FSTC 444	Fundamentals of Food Law	3
FSTC 481	Seminar	1
General elective ²		6
Semester Credit Hours		16
Total Semester Credit Hours		120

¹ MATH prefix required.

² Students may achieve a business minor by taking the following courses as general electives: ISTM 209, MGMT 209, FINC 409, MKTG 409.

³ The graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) and 3 hours of Cultural Discourse (p. 48). Selection must be from courses on the approved list. Selection can be courses that also satisfy the requirement for social and behavioral sciences; creative arts; language, philosophy and culture; or electives. For more information on core requirements visit the University Core Curriculum (p. 26) catalog page.

A total of 120 hours is required for graduation; 36 hours of 300/400 level courses are required to meet the Texas A&M University residency requirement.

Food Science and Technology - BS, Food Science Option

This program provides a strong knowledge base and fundamental understanding of chemistry, biology, engineering, physics, statistics, genetics, biochemistry, microbiology and nutrition that is applied toward the preservation, processing, packaging and distribution on foods that are wholesome, affordable and safe.

Food Science and Technology is an exciting multidisciplinary field that prepares majors with a comprehensive knowledge of the biological, physical and engineering sciences to develop new food products, design innovative processing technologies, improve food quality and nutritive value, enhance the safety of foods and ensure the wholesomeness of our food supply. Food Science majors apply the principles learned in the basic sciences such as food chemistry, biochemistry, genetics, microbiology, food engineering and nutrition to provide consumers with safe, wholesome and attractive food products that contribute

to their health and well-being. For more information, visit <https://foodscience.tamu.edu> (<https://foodscience.tamu.edu/>).

The undergraduate curriculum is approved by the Institute of Food Technologists (IFT) and offers two tracks, a Food Science Option and an Industry Option. These tracks provide promising career opportunities in areas such as food product/process design, technical service, research and development, quality assurance, food safety, food law, regulatory oversight, technological innovation, marketing, corporate sales, sensory evaluation and operations management. There are numerous opportunities available for corporate internships, scholarships and study abroad programs that provide real-world experience and enhance opportunities for employment after completing a baccalaureate degree. The major also provides an excellent background for those interested in professional schools, graduate studies, medicine, veterinary medicine, dentistry, pharmacy, physical therapy, nursing, occupational therapy and public health.

The goal of the Food Science Option curriculum is to prepare Food Scientists for career opportunities in the food and allied industries or for further studies in graduate or professional schools. See an academic advisor for specific course listings.

Program Requirements

First Year

		Semester Credit Hours
Fall		
CHEM 119	Fundamentals of Chemistry I	4
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition or Composition and Rhetoric	3
FSTC 201	Food Science	3
FSTC 210/ NUTR 210	Horizons in Nutrition and Food Science	1
Mathematics (p. 27) ¹		3
General elective ²		1
Semester Credit Hours		15

Spring

BIOL 111	Introductory Biology I	4
CHEM 120	Fundamentals of Chemistry II	4
American history (p. 30)		3
Mathematics (p. 27) ¹		3
Semester Credit Hours		14

Second Year

Fall		
CHEM 257	Organic Chemistry I - Structure and Function	4
NUTR 202 or NUTR 203	Fundamentals of Human Nutrition or Scientific Principles of Human Nutrition	3
POLS 206	American National Government	3
Select one of the following:		3
AGEC 105	Introduction to Agricultural Economics	
ECON 202	Principles of Economics	
ECON 203	Principles of Economics	
Language, philosophy and culture (p. 28) ³		3
Semester Credit Hours		16

Spring

ACCT 209	Survey of Accounting Principles	3
CHEM 258	Organic Chemistry II - Reactivity and Applications	4
PHYS 201	College Physics	4
American history (p. 30)		3
Creative arts (p. 30) ³		3
Semester Credit Hours		17

Third Year

Fall		
CHEM 315	Fundamentals of Quantitative Analysis	3
CHEM 318	Quantitative Analysis Laboratory	1
ENGL 210	Technical and Professional Writing	3
FSTC 311	Principles of Food Processing	3
POLS 207	State and Local Government	3
General elective ²		3
Semester Credit Hours		16

Spring

FSTC 312	Food Chemistry	3
FSTC 313	Food Chemistry Laboratory	1
MGMT 309	Survey of Management	3
Select one of the following:		3
STAT 301	Introduction to Biometry	
STAT 302	Statistical Methods	
STAT 303	Statistical Methods	
Select one of the following:		3
ANSC 307	Meats	
ANSC 457/ FSTC 457	Hazard Analysis and Critical Control Point System	
FSTC 281	Introduction to Fermentation and Brewing Sciences	
FSTC 305	Fundamental Baking	
FSTC 316	Food Biomanufacturing and Cellular Agriculture	
FSTC 319	Molecular Methods for Microbial Detection and Characterization	
FSTC 320/ NUTR 320	Understanding Obesity - A Social and Scientific Challenge	
FSTC 324	Food Safety and Preventive Controls for Human Food	
FSTC 416	Precision Fermentation and Future of Foods	
FSTC 420	Supervised Research in Mediterranean Nutrition and Food Processing in Italy	
FSTC 422	Food Processing for Sustainable Nutrition in Brazil	
FSTC 430	Innovative Functional Food Ingredients	
FSTC 485	Directed Studies	
FSTC 489	Special Topics in...	
FSTC 491	Research	
HORT 419	Viticulture and Small Fruit Culture	
HORT 420	Concepts of Wine Production	
HORT 421	Enology	
NUTR 211	Scientific Principles of Foods	

NUTR 300/ FSTC 300	Religious and Ethnic Foods	
NUTR 410/ FSTC 410	Nutritional Pharmacometrics of Food Compounds	
POSC 406	Poultry Further Processing	
Semester Credit Hours		13

Fourth Year**Fall**

ANSC 326/ FSTC 326	Food Bacteriology	3
ANSC 327/ FSTC 327	Food Bacteriology Lab	1
FSTC 314	Food Analysis	3
Select one of the following:		3
ANSC 307	Meats	
ANSC 457/ FSTC 457	Hazard Analysis and Critical Control Point System	
FSTC 281	Introduction to Fermentation and Brewing Sciences	
FSTC 305	Fundamental Baking	
FSTC 316	Food Biomanufacturing and Cellular Agriculture	
FSTC 319	Molecular Methods for Microbial Detection and Characterization	
FSTC 320/ NUTR 320	Understanding Obesity - A Social and Scientific Challenge	
FSTC 324	Food Safety and Preventive Controls for Human Food	
FSTC 416	Precision Fermentation and Future of Foods	
FSTC 420	Supervised Research in Mediterranean Nutrition and Food Processing in Italy	
FSTC 422	Food Processing for Sustainable Nutrition in Brazil	
FSTC 430	Innovative Functional Food Ingredients	
FSTC 485	Directed Studies	
FSTC 489	Special Topics in...	
FSTC 491	Research	
HORT 419	Viticulture and Small Fruit Culture	
HORT 420	Concepts of Wine Production	
HORT 421	Enology	
NUTR 211	Scientific Principles of Foods	
NUTR 300/ FSTC 300	Religious and Ethnic Foods	
NUTR 410/ FSTC 410	Nutritional Pharmacometrics of Food Compounds	
POSC 406	Poultry Further Processing	
General elective ²		3
Semester Credit Hours		13

Spring

AGSM 315/ FSTC 315	Food Process Engineering Technology	3
BICH 303 or BICH 410	Elements of Biological Chemistry or Comprehensive Biochemistry I	3
FSTC 401	Food Product Development	3

FSTC 444	Fundamentals of Food Law	3
FSTC 481	Seminar	1
General elective ²		3
Semester Credit Hours		16
Total Semester Credit Hours		120

¹ MATH prefix required.² Students may earn a chemistry minor by taking 6 hours of additional chemistry courses from an approved list as general electives. See the Department of Chemistry for more details. Students seeking a minor in chemistry must complete the Declaration of Minor in Chemistry form and have it approved by the undergraduate advisor in chemistry and their FSTC advisor.³ The graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) and 3 hours of Cultural Discourse (p. 26). Selection must be from courses on the approved list. Selection can be courses that also satisfy the requirement for social and behavioral sciences; creative arts; language, philosophy and culture; or electives. For more information on core requirements visit the University Core Curriculum (p. 26) catalog page.

A total of 120 hours is required for graduation; 36 hours of 300/400 level courses are required to meet the Texas A&M University residency requirement.

Coffee Processing and Quality - Certificate

This program offers focused coursework on coffee production, processing, and quality evaluation, emphasizing their connections to various food products.

The Certificate in Coffee Processing and Quality, offered by the Department of Food Science and Technology, provides concentrated studies in coffee production, processing, and quality measurements as they relate to other food commodities. The program also explores the role of coffee and other food ingredients and products in human health and wellbeing. The undergraduate level stand-alone Certificate in Coffee Processing and Quality will prepare students in the College of Agriculture and Life Sciences, and other colleges, to effectively address the demand for a well-trained workforce in the coffee industry.

Program Requirements

Code	Title	Semester Credit Hours
FSTC 324	Food Safety and Preventive Controls for Human Food	3
	or ANSC 326/or Food Bacteriology FSTC 326	
FSTC 430	Innovative Functional Food Ingredients	3
FSTC 487/ ANSC 487	Sensory Evaluation of Foods	3
HORT 450	Processing Coffee and High-Value Horticultural Crops	3
Select one of the following:		3
AGEC 485	Directed Studies	

AGEC 489	Special Topics in...	
AGEC 491	Research	
BAEN 427	Engineering Aspects of Packaging	
FSTC 312	Food Chemistry	
FSTC 485	Directed Studies	
FSTC 491	Research	
HORT 485	Directed Studies	
HORT 491	Research	
Total Semester Credit Hours		15

Food Diversity - Certificate

This program provides an in-depth study of religious and ethnic foods, focusing on food processing, quality control, record keeping, and global certifications for foods and food ingredients.

Our food supply is internationally connected and highly dependent on additives and ingredients from around the world representing different cultures and processing regulations. As such, issues of food safety, food authentication, and food certifications are prevalent and issues of food diversity are a nexus between the food industries and consumers. The Food Diversity Innovation Program (FDIP) encompasses key principles of increasing importance to the global food industry including religious and ethnic foods and certified food systems, such as organic, non-GMO, gluten-free, allergen-free, and other personal/socially conscious certifications. Certified food systems require extensive employee training and record-keeping to verify authenticity, safety, processing adulterations, and fraud. Our endowed FDIP program was established in 2016 as a sustainable high-impact *research* and *education* model based on religious and ethnic foods and other certified foods to educate students through high-impact learning in concert with the food industry. The current research and education portfolio of FDIP also includes the training program for environmental health and the interdisciplinary program in toxicology at the graduate and undergraduate levels with research in human exposure to toxins in food and water and environmental impacts of food production. These programs provide high-impact-learning modules for existing courses and research activities for graduate and undergraduate students who are exploring complexities of diverse food systems, environmental and food toxicology, food safety, and food authentication/adulteration/fraud while engaging in experiential learning and critical-thinking activities that increase their ability to thrive and excel in diverse work-environments.

Program Requirements

Code	Title	Semester Credit Hours
NUTR 300/ FSTC 300	Religious and Ethnic Foods	3
Select four of the following:		12
ANSC 307	Meats	
FSTC 281	Introduction to Fermentation and Brewing Sciences	
FSTC 316	Food Biomanufacturing and Cellular Agriculture	
FSTC 324	Food Safety and Preventive Controls for Human Food	
FSTC 416	Precision Fermentation and Future of Foods	

FSTC 470/	Quality Assurance for the Food
ANSC 470	Industry
FSTC 485	Directed Studies

Total Semester Credit Hours 15

Department of Horticultural Sciences

The discipline of Horticultural Sciences encompasses an interdisciplinary blend of science, art, and technology. Horticultural food crops are unique in providing both nutrition and calories and include fruits, vegetables, and nuts. These crops are grown and utilized worldwide, constituting a significant proportion of the global food supply. Horticultural crops include trees, shrubs, ornamental plants, grasses, and flowers used in interior and exterior landscapes, botanical gardens, and parks. Consuming and interacting with Horticultural crops improves the quality of life, mental health, and overall wellness. The Department of Horticultural Sciences offers two undergraduate degrees: a Bachelor of Science in Horticulture and a Bachelor of Arts in Horticulture. Our flexible degree plans allow the students to develop programs tailored to their unique career goals. The horticulture industry is one of the largest in Texas economically and offers our graduates an abundance of employment and career opportunities.

Faculty

Arnold, Michael A, Professor
Horticultural Sciences
PHD, North Carolina State University, 1990

Burgner, Gerald S, Instructional Assistant Professor
Horticultural Sciences
PHD, Texas A&M University, 2019
MLA, Louisiana State University, 1994

Chavez, Luis R, Visiting Assistant Professor of the Practice
Horticultural Sciences
MBA, Universidad del Valle de Guatemala, 1998

Cisneros-Zevallos, Luis A, Professor
Horticultural Sciences
PHD, University of California at Davis, 1998

Crosby, Kevin M, Professor
Horticultural Sciences
PHD, Texas A&M University, 1999

Darwish, Ahmed, Assistant Professor
Horticultural Sciences
PHD, Hiroshima University, 2015

Dhingra, Amit, Professor
Horticultural Sciences
PHD, University of Delhi, 2002

Hall, Charlie, Professor
Horticultural Sciences
PHD, Mississippi State University, 1988

Klein, Patricia E, Professor
Horticultural Sciences
PHD, Texas A&M University, 1989

Koiwa, Hisashi, Professor
Horticultural Sciences
PHD, Kyoto University, 1996

Mahal, Navreet Kaur, Instructional Assistant Professor
Horticultural Sciences
DAG, Iowa State University, 2018

Masters, Gilbert Alan, Professor of the Practice
Horticultural Sciences
CERT, American Institute of Floral Designers, 2024

Osburn, Wendy Lynn, Assistant Professor of the Practice
Horticultural Sciences
BFA, University of North Texas, 1992

Patil, Bhimanagouda S, Professor
Horticultural Sciences
PHD, Texas A&M University, 1994

Riera-Lizarazu, Oscar, Professor
Horticultural Sciences
PHD, University of Minnesota, 1996

Rossi, Lorenzo, Assistant Professor
Horticultural Sciences
PHD, Scuola Superiore Sant'Anna, 2014

Svyantek, Andrej, Assistant Professor
Horticultural Sciences
PHD, North Dakota State University, 2021

Vales, Maria Isabel, Professor
Horticultural Sciences
PHD, University of Vigo, Spain, 1996

Zhen, Shuyang, Assistant Professor
Horticultural Sciences
PHD, University of Georgia, 2017

Majors

- Bachelor of Arts in Horticulture (p. 198)
- Bachelor of Science in Horticulture (p. 200)

Minors

- Horticulture Minor (p. 201)

Certificates

- Floral Design Certificate (p. 201)
- Viticulture and Enology Certificate (p. 202)

Horticulture - BA

This program blends horticultural sciences with plant-human interaction, preparing students for careers in floral design, education, marketing, event planning, and more.

This degree blends the concepts of horticultural sciences with the proven benefits of plant-human interaction. The students obtain the skills for preparing arrangements for various occasions, including everyday celebrations, weddings, funerals, and special events, by integrating the aesthetic and emotion-evoking aspects into floral masterpieces that

resonate on a personal level. This degree offers students the choice of pairing a horticulture degree with electives in social sciences, business, agricultural journalism, education, art, and design. The requirement of a minor of the student's choosing from outside of horticulture provides an opportunity for training in a complementary secondary area of emphasis. Employment opportunities include constructing educational programs for school gardens, preparing one for certification to teach in public schools, marketing and managing horticultural operations, sociohorticulture, agricultural journalism, planning gala events, operating floral shops, or pursuing advanced degrees. Graduates work in exciting and dynamic environments, including interior design firms, corporate settings, educational institutions, event and wedding planning companies, freelance entrepreneurial work, the hospitality industry, online floral services, theater and film production, museums, and cultural institutions.

Program Requirements

First Year

Fall		Semester Credit Hours
BIOL 101 or BIOL 111	Botany or Introductory Biology I	4
HORT 281	Professions in Horticulture	1
Language, philosophy and culture (p. 28) ¹		3
Mathematics (MATH or STAT prefix required) (p. 27)		3
Social and behavioral sciences (p. 31)		3
Semester Credit Hours		14
Spring		
HORT 201	Horticultural Science and Practices ²	3
HORT 202	Horticultural Science and Practices Laboratory	1
Creative arts (p. 30) ¹		3
Foreign Language ³		4
Government/Political science (p. 31)		3
Mathematics (MATH or STAT prefix required) (p. 27)		3
Semester Credit Hours		17

Second Year

Fall		
CHEM 119	Fundamentals of Chemistry I	4
HORT 203	Floral Design	3
Art or Art History		
Select one of the following:		3
ARCH 249	Survey of World Architecture History I	
ARCH 250	Survey of World Architecture History II	
ARCH 350	History and Theory of Modern and Contemporary Architecture	
ARTS 149	Art History Survey I	
ARTS 150	Art History Survey II	
ARTS 330	The Arts of America	
ARTS 349	The History of Modern Art	
LAND 240	History of Landscape Architecture	
Communication (p. 27)		3
Government/Political science (p. 31)		3
Semester Credit Hours		16

Spring

ECCB 205	Fundamentals of Ecology	3
ENGL 210	Technical and Professional Writing	3
Principles of Design		
Select one of the following:		3
HORT 308	Plants for Sustainable Landscapes	
HORT 332	Horticulture Landscape Graphics	
HORT 432	Horticulture Landscape Design	
HORT 442	Horticulture Landscape Design II	
HORT 451	Retail Floristry	
HORT 452	Floral Design: Weddings and Personal Flowers	
HORT 453	Floral Art	
HORT 454	Special Event Design and Production	
American history (p. 30)		3
General elective ^{1,4}		3
Semester Credit Hours		15

Third Year**Fall**

HORT 315	Issues in Horticulture ⁵	3
HORT 335	Sociohorticulture	3
Principles of Design		
Select one of the following:		3
HORT 308	Plants for Sustainable Landscapes	
HORT 332	Horticulture Landscape Graphics	
HORT 432	Horticulture Landscape Design	
HORT 442	Horticulture Landscape Design II	
HORT 451	Retail Floristry	
HORT 452	Floral Design: Weddings and Personal Flowers	
HORT 453	Floral Art	
HORT 454	Special Event Design and Production	
General elective ^{1,4}		6
Semester Credit Hours		15

Spring

Horticulture Management and Marketing		
Select one of the following:		3
HORT 425	Horticulture Landscape Installation	
HORT 426	International Floriculture Marketing	
HORT 451	Retail Floristry	
HORT 460	Landscape Estimating, Bidding, and Operations	
Communication (p. 27)		3
Directed electives ^{1,6}		3
General electives ^{1,4}		6
Semester Credit Hours		15

Fourth Year**Fall**

High Impact Learning		
Select one of the following:		1
HORT 400	Field Studies in Horticulture	
HORT 484	Internship	

HORT 485	Directed Studies	
HORT 491	Research	
HORT Study Abroad		
Horticulture Elective		3
HORT 300-499 (p. 1085) ⁷		
Directed elective ^{1,6}		10
Semester Credit Hours		14
Spring		
HORT 481	Seminar ⁸	2
American history (p. 30)		3
Directed elective ^{1,6}		6
General elective ^{1,4}		3
Semester Credit Hours		14
Total Semester Credit Hours		120

¹ The Graduation requirements include a requirement for 3 hours of I (p. 49)International and Cultural Diversity (p. 49) courses and 3 hours of C (p. 48)ultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free or directed elective can be used to satisfy this requirement. See academic advisor.

² For all HORT majors and minors, a C or better is required in HORT 201.

³ Student must successfully complete a course of a foreign language beyond that required by the university in general.

⁴ Selected general elective courses should include a student's required minor or dual major. Any university approved minor or major is acceptable, except a minor or major in Horticulture as the intent is to provide a concentration in a second field of expertise.

⁵ This course fulfills a writing requirement (see Requirements for a Baccalaureate Degree (p. 32)).

⁶ Hours to be selected from among the following AGECE 105, AGECE 223, AGECE 300-499 (p. 906); AGLS 101; AGSM 435, AGSM 201, AGSM 300-499 (p. 912); ALED 339, ALED 340, ALED 341, ALED 426, ALED 440, ALED 441; ANSC 307, ANSC 326/FSTC 326, ANSC 327/FSTC 327, ANSC 487/FSTC 487; ATMO 201; BESC 201, BESC 204, BESC 300-499 (p. 946); BICH 411; BIOL 112, BIOL 113, BIOL 206, BIOL 213, BIOL 349, BIOL 401; CHEM 300-499 (p. 964); COMM 203, COMM 205; COSC 253, COSC 354; ECON 202, ECON 203; ENGL 320; ENTO 300-499 (p. 1031); ECCB 351; FINC 409; ECCB 408; FSTC 201, FSTC 470/ANSC 470, FSTC 485; GENE 310, GENE 411/SCSC 411; HMG 201 HMG 300-499 (p. 1081); ISTM 209; MGMT 209, MGMT 300-499 (p. 1146); MKTG 300-499 (p. 1149); NUTR 300/FSTC 300, NUTR 485; PHIL 314; PHYS 100-499 (p. 1205); ECCB 215, RWFM 411, RWFM 351; SCSC 105, SCSC 205, SCSC 300-499; (p. 1229) SPAN 102, SPAN 201, SPAN 202; UGST 181 or hours to be selected with approval by the student's academic advisor and the associate department head from 100-400-level courses in ACCT (p. 895), AGCJ, (p. 904) AGECE (p. 906), AGLS (p. 910), ALEC (p. 914), ANTH (p. 922), ARTS (p. 935), BESC (p. 946), COMM (p. 975), ECON (p. 1016), ECCB, ENDS (p. 1021), ENTO (p. 1031), EPSY (p. 1034), FINC (p. 1043), FSTC (p. 1051), GEOG (p. 1055), GENE (p. 1053), HLTH (p. 1079), HMG 201 (p. 1081), HORT (p. 1085), INST (p. 1092), ISTM (p. 1098), KINE (p. 1109), LAND (p. 1113), MEPS (p. 1145), MGMT (p. 1146), MKTG (p. 1149), NUTR (p. 1175), PBSI (p. 1184), RWFM (p. 1222), SCSC (p. 1229), SCMT (p. 1227), SOCI (p. 1233), SPAN (p. 1238), SPED (p. 1242), STAT (p. 1248).

⁷ Hours to be selected based on the emphasis area chosen in consultation with the student's academic advisor.

⁸ This course fulfills a communications requirement.

Horticulture - BS

This program offers hands-on training in horticulture and landscape management, preparing students for diverse careers and advanced studies in life sciences.

This degree is structured to provide students with hands-on training, knowledge, and skills needed for producing, improving, managing, and marketing fruit, nut, vegetable, landscape, floral, and other ornamental crops or designing, building, and maintaining residential or small-scale commercial landscapes. This degree also prepares students for undertaking graduate studies so that they can pursue science, technology, research, and development-focused careers in life sciences. Career prospects range from managing the production of horticultural crops in fields and in controlled environments, managing landscape businesses for growing communities, designing sustainable residential landscapes of the future, working with clientele in botanic and community gardens to enhance urban environments, to growing and marketing fruits, nuts, and vegetables, including those for healthier lifestyles. Former students have become leaders in the horticulture industry or entrepreneurs owning their horticultural crop production, greenhouse, nursery, or landscape operations. Several others work in upper management of large corporations, facilitate the implementation and development of new horticultural products and production services, serve in educational institutions, government agencies, or community service organizations, or travel the world developing, improving, and marketing future horticultural crops.

Program Requirements

First Year

		Semester Credit Hours
Fall		
BIOL 101	Botany	4
or BIOL 111	or Introductory Biology I	
HORT 281	Professions in Horticulture	1
Language, philosophy and culture (p. 28)		3
Mathematics (MATH or STAT prefix required) (p. 27)		3
Social and behavioral sciences (p. 31)		3
Semester Credit Hours		14
Spring		
HORT 201	Horticultural Science and Practices ¹	3
HORT 202	Horticultural Science and Practices Laboratory	1
Communication (p. 27)		3
Creative arts (p. 30) ²		3
Government/Political science (p. 31)		3
Mathematics (MATH or STAT prefix required) (p. 27)		3
Semester Credit Hours		16

Second Year

Fall		
CHEM 119	Fundamentals of Chemistry I	4
ECCB 205	Fundamentals of Ecology	3
ENTO 201	General Entomology	3
American history (p. 30)		3
Government/Political science (p. 31)		3
Semester Credit Hours		16

Spring

CHEM 222	Elements of Organic and Biological Chemistry	3
or CHEM 227	or Organic Chemistry I	
HORT 326	Plant Propagation	4
Select one of the following:		3
GENE 310	Principles of Heredity	
GENE 320/ BIMS 320	Biomedical Genetics	
HORT 404	Plant Breeding	
SCSC 304	Plant Breeding and Genetics	
Directed electives ^{2,3}		5
Semester Credit Hours		15

Third Year

Fall		
HORT 315	Issues in Horticulture ⁴	3
SCSC 301	Soil Science	4
Horticultural Crop Production		
Select one of the following:		3
HORT 319	Fruit and Nut Production	
HORT 325	Vegetable Crop Production	
HORT 411	Hydroponic and Soilless Crop Production	
HORT 418	Nut Culture	
HORT 419	Viticulture and Small Fruit Culture	
HORT 420	Concepts of Wine Production	
HORT 423	Tropical Horticulture	
HORT 431	Nursery Production and Management	
Plant Identification/Characterization		
Select one of the following:		3
HORT 306	Trees and Shrubs for Sustainable Built Environments	
HORT 308	Plants for Sustainable Landscapes	
Directed electives ^{2,3}		3
Semester Credit Hours		16

Spring

HORT 313	Introduction to Plant Physiology	3
PLPA 301	Plant Pathology	3
PLPA 303	Plant Pathology Laboratory	1
Horticulture Crop Production		
Select one of the following:		3
HORT 425	Horticulture Landscape Installation	
HORT 426	International Floriculture Marketing	
HORT 428	Greenhouse Technology & Sustainable Crop Production Systems	
HORT 431	Nursery Production and Management	
HORT 460	Landscape Estimating, Bidding, and Operations	
Directed electives ^{2,3}		6
Semester Credit Hours		16

Fourth Year

Fall		
HORT 481	Seminar ⁵	2
Horticulture Elective		3

HORT 300-499 (p. 1085) ⁶	
American history (p. 30)	3
Directed electives ^{2,3}	6
Semester Credit Hours	14
Spring	
High Impact Learning	
Select one of the following: ⁴	1
HORT 400 Field Studies in Horticulture	
HORT 484 Internship	
HORT 485 Directed Studies	
HORT 491 Research	
Communication (p. 27)	3
Horticulture Elective	3
HORT 300-499 (p. 1085) ⁶	
Directed electives ^{2,3}	6
Semester Credit Hours	13
Total Semester Credit Hours	120

¹ For all HORT majors and minors, a C or better is required in HORT 201.

² The Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free or directed elective can be used to satisfy this requirement. See academic advisor.

³ Hours to be selected from among the following AGEC 105, AGEC 216, AGEC 223, AGEC 300-499 (p. 906); AGLS 101; AGSM 125, AGSM 201, AGSM 435, AGSM 300-499 (p. 912); ALEC 370, ALEC 371, ALEC 425, ALEC 478; ALED 339, ALED 340, ALED 341, ALED 344, ALED 426, ALED 440, ALED 441, ALED 494; ANSC 307, ANSC 487/FSTC 487; ATMO 201; BESC 201, BESC 204, BESC 300-499 (p. 946); BICH 410, BICH 411; BIOL 112, BIOL 113, BIOL 206, BIOL 213, BIOL 349, BIOL 401; CHEM 300-499 (p. 964); COMM 203, COMM 205, COMM 210; COSC 253, COSC 354; ECCB 205, ECCB 215, ECCB 351, ECCB 408; ECON 202, ECON 203; ENGL 320; ENTO 201, ENTO 300-499 (p. 1031); FINC 409; FSTC 201, FSTC 324, FSTC 470/ANSC 470, FSTC 485; GENE 310, GENE 411/SCSC 411; HMG 201, HMG 300-499 (p. 1081); ISTM 209; MGMT 209, MGMT 300-499 (p. 1146); MKTG 300-499 (p. 1149); NUTR 300/FSTC 300, NUTR 485; PHIL 314; PHYS 100-499 (p. 1205); RWFM 322, RWFM 411; SCSC 105, SCSC 205, SCSC 300-499 (p. 1229); SPAN 101, SPAN 102, SPAN 201, SPAN 202, UGST 181, or hours to be selected with approval by the student's academic advisor and the associate department head from 100-400-level courses in ACCT (p. 895), AGCJ (p. 904), AGEC (p. 906), AGLS (p. 910), ALEC (p. 914), ANTH (p. 922), ARTS (p. 935), BESC (p. 946), COMM (p. 975), ECCB (p. 1004), ECON (p. 1016), ENDS (p. 1021), ENTO (p. 1031), EPSY (p. 1034), FINC (p. 1043), FSTC (p. 1051), GENE (p. 1053), GEOG (p. 1055), HLTH (p. 1079), HMG 201, HORT (p. 1085), INST (p. 1092), ISTM (p. 1098), KINE (p. 1109), LAND (p. 1113), MEPS (p. 1145), MGMT (p. 1146), MKTG (p. 1149), NUTR (p. 1175), PBSI (p. 1184), RWFM (p. 1222), SCSC (p. 1229), SCMT (p. 1227), SOCI (p. 1233), SPAN (p. 1238), SPED (p. 1242), STAT (p. 1248).

⁴ This course fulfills a writing intensive course requirement.

⁵ This course fulfills a communications requirement.

⁶ Hours to be selected based on the emphasis area chosen in consultation with the student's academic advisor.

Horticulture - Minor

This program covers topics like crop production, enology, greenhouse management, floral design, and biotechnology, providing students with essential horticultural skills.

An undergraduate minor in Horticulture provides students with a concentration of courses focusing on horticulture and floriculture. These may range from a broad-based, comparative perspective to a narrower application within the field. Students may choose such diverse topics as herb, fruit, nut, and vegetable production, viticulture and wine production (enology), greenhouse and nursery management, floral and landscape design, science and biotechnology, urban and environmental horticulture, and much more. Earning a minor in Horticulture provides students with the skills required to have a basic working knowledge of the field of Horticulture.

Program Requirements

Code	Title	Semester Credit Hours
HORT 201	Horticultural Science and Practices	3
HORT 202	Horticultural Science and Practices Laboratory	1
Upper-level requirement		9
Select from HORT 300 to 499 (p. 1085)		
Electives		5
Select from HORT 100 to 499 (p. 1085)		
Total Semester Credit Hours		18

Students must make a grade of "C" or better in all courses and must be in good academic standing with a GPA of 2.00 or above.

Floral Design - Certificate

This program is designed to provide a knowledge base for individuals interested in pursuing a career in the varied aspects of the floral design industry.

The Floral Design Certificate, offered by the Department of Horticultural Sciences, provides a concentrated study in designing floral arrangements for special occasions, events, parties, and weddings. The certificate provides specialized knowledge and skills to individuals interested in pursuing a career or affiliation with the floral design industry's many and varied aspects. The certificate is open to all majors; however, students should consult an academic advisor before applying for the Floral Design Certificate program.

Program Requirement

Code	Title	Semester Credit Hours
HORT 203	Floral Design	3
HORT 451	Retail Floristry	3
HORT 452	Floral Design: Weddings and Personal Flowers	3
HORT 453	Floral Art	2
HORT 454	Special Event Design and Production	2
Select one of the following:		3

HORT 335 Sociohorticulture

HORT 416 Understanding Wine - From Vines to Wines and Beyond

HORT 429 Floriculture Crop Production

Total Semester Credit Hours**16**

Viticulture and Enology - Certificate

This program is designed to provide a knowledge base for individuals interested in pursuing a career in the wine industry.

The Viticulture and Enology Certificate, offered by the Department of Horticultural Sciences, provides a concentrated study of viticulture, pre- and post-fermentation wine-making processes, wine etiquette, and sensory evaluation. The certificate provides specialized knowledge and skills, career advancement opportunities, or a pathway to further education to those interested in the burgeoning wine industry.

Program Requirements

Code	Title	Semester Credit Hours
CHEM 222	Elements of Organic and Biological Chemistry	3
FSTC 487/ ANSC 487	Sensory Evaluation of Foods	3
HORT 416	Understanding Wine - From Vines to Wines and Beyond	3
	or HORT 420 or Concepts of Wine Production	
HORT 419	Viticulture and Small Fruit Culture	3
	or HORT 311 or Fruit and Nut Production	
HORT 421	Enology	3
Total Semester Credit Hours		15

Applicants must be currently enrolled in a degree program at Texas A&M University and, if required, have permission from their departmental advisor to apply for the program.

Any major at Texas A&M University can apply.

An overall Texas A&M University GPA of 2.0 or higher is required for acceptance into the program.

Must complete Certificate in Viticulture and Enology program application.

Department of Hospitality, Hotel Management and Tourism

Head: Brian King

Associate Department Head for Graduate and Undergraduate Programs: John Crompton

The Department of Hospitality, Hotel Management and Tourism consists of a team of student-centered faculty and staff offering degrees, certificates, and minors that lead to professional careers. Using a blend of in-person and online delivery, courses emphasize problem-solving skills and experiential learning. Students in this major learn how to incorporate social and life sciences into the design of meaningful experiences and to manage and market organizations associated with hospitality and hotels, recreation, events, and tourism. The academic

programs couple theoretical foundations in hospitality, recreation, and tourism with real-world applications that provide students with tangible skills. Courses engage students in the study of planning, positioning, leadership, problem-solving, innovation, policy, marketing, and finance to enhance the quality of life and livability within Texas and beyond. Students have opportunities to apply course concepts by engaging in service-learning experiences both on-campus and in the community.

Within the Bachelor of Science degree students select one of three tracks: Business Hospitality; Event, Tourism and Recreation Management; or Hotel and Resort Management. Graduates of this degree develop their management careers in a range of settings - hotels and resorts, event venues, destination marketing organizations, municipal parks, performing arts facilities and on military bases.

The Department offers two certificates which are open to all majors:

- Professional Event Management Certificate (PEMC)
- Hospitality Management Certificate

The Department's two minors are open to all Texas A&M undergraduate students:

- Recreation Management
- Tourism Management

Faculty

Chang, Wen, Assistant Professor
Hospitality Hotel Management & Tourism
PHD, University of Nevada, Las Vegas, 2015

Chen, Po-Ju, Professor
Hospitality Hotel Management & Tourism
PHD, The Pennsylvania State University, 2003

Clark, Connor, Assistant Professor
Hospitality Hotel Management & Tourism
PHD, Arizona State University, 2022

Crompton, John L, Distinguished Professor
Hospitality Hotel Management & Tourism
PHD, Texas A&M University, 1977

Daniel, Julianne, Visiting Lecturer
Hospitality Hotel Management & Tourism
MBA, Texas Tech University, 2000

Deng, Jinyang, Associate Professor
Hospitality Hotel Management & Tourism
PHD, University of Alberta, Canada, 2004

Eden, Heather, Instructional Assistant Professor
Hospitality Hotel Management & Tourism
PHD, University of Wollongong, 2014

Eichler, Dan, Assistant Professor of the Practice
Hospitality Hotel Management & Tourism
MA1, Conrad N Hilton College of Global Hospitality, 1996

Gip, Robert Huy, Assistant Professor
Hospitality Hotel Management & Tourism
PHD, Conrad N Hilton College of Global Hospitality, 2023

Kim, Jungkeun, Associate Professor
Hospitality Hotel Management & Tourism
PHD, Carlson School of Management, University of Minnesota, 2008

King, Brian, Professor
Hospitality Hotel Management & Tourism
PHD, Monash University, 1995

Kyle, Kelly T, Instructional Assistant Professor
Hospitality Hotel Management & Tourism
MS, Pennsylvania State University, 2000

Petrick, James F, Professor
Hospitality Hotel Management & Tourism
PHD, Clemson University, 1999

Shafer, C S, Professor
Hospitality Hotel Management & Tourism
PHD, Clemson University, 1993

Suess Raeisinafchi, Courtney, Associate Professor
Hospitality Hotel Management & Tourism
PHD, University of Nevada, Las Vegas, 2014

Sullins, Donna Lee, Instructional Associate Professor
Hospitality Hotel Management & Tourism
EDD, University of Georgia, 2016

Taheri, Babak, Professor
Hospitality Hotel Management & Tourism
PHD, University of Strathclyde, UK, 2012

Tang, Candy, Instructional Associate Professor
Hospitality Hotel Management & Tourism
PHD, Victoria University, Australia, 2012

Majors

- Bachelor of Science in Hospitality, Hotel Management and Tourism, Business Hospitality Track (p. 203)
- Bachelor of Science in Hospitality, Hotel Management and Tourism, Event, Tourism and Recreation Management Track (p. 204)
- Bachelor of Science in Hospitality, Hotel Management and Tourism, Hotel and Resort Management Track (p. 205)

Minors

- Recreation Management Minor (p. 207)
- Tourism Management Minor (p. 207)

Certificates

- Hospitality Management Certificate (p. 207)
- Professional Event Management Certificate (p. 208)
- Recreation and Park Management Certificate (p. 208)
- Tourism Management Certificate (p. 209)
- Youth Development Certificate (p. 209)

Hospitality, Hotel Management and Tourism - BS, Business Hospitality Track

This program offers coursework that covers planning media and promotion, operational logistics, evaluation contracting, sponsorship and fundraising, risk management and vendor management.

The four-year Bachelor of Science in Hospitality, Hotel Management and Tourism degree prepares professionals to manage organizations and innovate change in a diverse and expanding field. The degree provides an industry-responsive curriculum with a focus on experience design and implementation, management of organizations and human capital, data-driven decision-making, service quality, marketing, risk management and the financing of programs/services. Courses are offered in person, with some also available in online delivery format.

The Business Hospitality Track offers coursework that covers:

- Planning
- Media and promotion
- Operational logistics
- Evaluation
- Contracting
- Sponsorship and fundraising
- Risk management
- Vendor management

Program Requirements

First Year

Fall		Semester Credit Hours
HMGT 201	Foundations of Hospitality, Hotel Management and Tourism	3
MATH 140	Mathematics for Business and Social Sciences	3
American history (p. 30)		3
Language, philosophy and culture (p. 28)		3
Life and physical sciences (p. 27)		3
Semester Credit Hours		15
Spring		
MATH 142	Business Calculus	3
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
Select one of the following:		3
ENGL 103	Introduction to Rhetoric and Composition	
ENGL 104	Composition and Rhetoric	
ENGL 210	Technical and Professional Writing	
American history (p. 30)		3
Creative arts (p. 30)		3
Semester Credit Hours		15

Second Year**Fall**

ACCT 229	Introductory Accounting	3
HMGT 223	Managing Hospitality and Tourism Organizations	3
HMGT 314	Service Quality in Hospitality, Hotel Management, and Tourism	3
Government/Political science (p. 31)		3
Life and physical sciences (p. 27)		3
Semester Credit Hours		15

Spring

HMGT 210	Data-Driven Decision Making in Hospitality, Hotel Management and Tourism	3
HMGT 211	Planning and Implementation of Events and Programs	3
Select one of the following:		3
AGEC 105	Introduction to Agricultural Economics	
FINP 235	Foundations of Money Education	
ECON 202	Principles of Economics	
ECON 203	Principles of Economics	
Government/Political science (p. 31)		3
Semester Credit Hours		12

Third Year**Fall**

HMGT 312	Managing Human Capital in Hospitality, Hotel Management, and Tourism	3
HMGT 331	Marketing in the Digital Age for Hospitality, Hotel Management and Tourism	3
HMGT 340	Global Communities & Diverse Populations in Hospitality, Hotel Management and Tourism ¹	3
HMGT 352	Hotel and Resort Operations	3
ISTM 210	Fundamentals of Information Systems	3
Semester Credit Hours		15

Spring

HMGT 281	Career Planning in Hospitality, Hotel Management, and Tourism	1
HMGT 353	Food and Beverage Management	3
HMGT 384	Junior Internship	2
HMGT 450	Financing Hospitality, Hotel, and Tourism Services	3
FINC 341 or MGMT 311	Business Finance or Legal and Social Environment of Business	3
General elective		3
Semester Credit Hours		15

Summer

HMGT 484	Internship	3
Semester Credit Hours		3

Fourth Year**Fall**

HMGT 451	Law, Negotiation, and Risk Management in Hospitality, Tourism and Recreation	3
MKTG 321	Marketing	3

SCMT 364	Operations Management	3
General elective		6
Semester Credit Hours		15

Spring

MGMT 363	Managing People in Organizations	3
Life and physical sciences (p. 27)		3
Track elective ²		3
General elective		6
Semester Credit Hours		15
Total Semester Credit Hours		120

¹ This course fulfills the Cultural Discourse (CD) (p. 48) requirement.

² Select from FINC 341, FINC 371, MGMT 311, MGMT 439, MGMT 440, MKTG 345, MKTG 322, SCMT 334.

Hospitality, Hotel Management and Tourism - BS, Event, Tourism and Recreation Management Track

This program provides an industry-responsive curriculum with a focus on experience design and implementation, management of organizations and human capital, data-driven decision-making, service quality, marketing, risk management and financing of programs/services.

Through a four-year degree, the Bachelor of Science in Hospitality, Hotel Management and Tourism will prepare professionals to manage organizations and innovate change in a diverse and expanding field. The degree provides an industry-responsive curriculum with a focus on experience design and implementation, management of organizations and human capital, data-driven decision-making, service quality, marketing, risk management and financing of programs/services. Courses are offered in person, with some also available in distance formats.

The leisure experience industries continue to evolve and expand. University graduates who desire to work in the expansive hospitality and tourism industries require a knowledge and skillset that address the experiences people seek and the financial understanding required for economic viability. The hospitality industry (e.g., attractions, restaurants, resorts, hotel lodging) has become a major part of people's leisure, supporting tourism as one of the world's largest industries.

Program Requirements

First Year**Fall**

HMGT 201	Foundations of Hospitality, Hotel Management and Tourism	3
American history (p. 30)		3
Life and physical sciences (p. 27)		3
Language, philosophy and culture (p. 28)		3
Mathematics (p. 27)		3
Semester Credit Hours		15

Spring

Select one of the following:		3

COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
Select one of the following:		3
ENGL 103	Introduction to Rhetoric and Composition	
ENGL 104	Composition and Rhetoric	
ENGL 210	Technical and Professional Writing	
American history (p. 30)		3
Creative arts (p. 30)		3
Mathematics (p. 27)		3
Semester Credit Hours		15
Second Year		
Fall		
ACCT 229	Introductory Accounting	3
HMGT 223	Managing Hospitality and Tourism Organizations	3
Government/Political science (p. 31)		3
Life and physical sciences (p. 27)		3
Semester Credit Hours		12
Spring		
HMGT 210	Data-Driven Decision Making in Hospitality, Hotel Management and Tourism	3
HMGT 211	Planning and Implementation of Events and Programs	3
HMGT 314	Service Quality in Hospitality, Hotel Management, and Tourism	3
Government/Political science (p. 31)		3
Life and physical sciences (p. 27)		3
Semester Credit Hours		15
Third Year		
Fall		
HMGT 281	Career Planning in Hospitality, Hotel Management, and Tourism	1
HMGT 302	Application of Tourism Principles	3
HMGT 312	Managing Human Capital in Hospitality, Hotel Management, and Tourism	3
HMGT 340	Global Communities & Diverse Populations in Hospitality, Hotel Management and Tourism ¹	3
HMGT 384	Junior Internship	2
Select one of the following:		3
AGEC 105	Introduction to Agricultural Economics	
FINP 235	Foundations of Money Education	
ECON 202	Principles of Economics	
ECON 203	Principles of Economics	
Semester Credit Hours		15
Spring		
HMGT 331	Marketing in the Digital Age for Hospitality, Hotel Management and Tourism	3
HMGT 301 or HMGT 319	Recreation in American Culture or Event Management in Specialized Contexts	3

HMGT 402 or HMGT 426	Planning and Design of Hospitality, Tourism and Recreation Places or Sustainable Tourism	3
International experience ²		3
General elective		3
Semester Credit Hours		15
Summer		
HMGT 484	Internship	3
Semester Credit Hours		3
Fourth Year		
Fall		
HMGT 401	Entrepreneurship in Hospitality, Tourism and Events	3
HMGT 451	Law, Negotiation, and Risk Management in Hospitality, Tourism and Recreation	3
HMGT 320 or HMGT 446	Event Management and Operations or Information and Communication Technology in Hospitality, Hotel Management and Tourism	3
Track elective ³		3
General elective		3
Semester Credit Hours		15
Spring		
HMGT 450	Financing Hospitality, Hotel, and Tourism Services	3
HMGT 424 or HMGT 449	Event Management Capstone or Tourism Capstone	3
General elective		9
Semester Credit Hours		15
Total Semester Credit Hours		120

¹ This course fulfills the Cultural Discourse (CD) (p. 48) requirement.

² Complete an education abroad experience program for at least three or more academic credits or take HMGT 442.

³ Select from AGECE 420, ALEC 377, ALED 322, ALED 323, ALED 440, ANSC 470/FSTC 470, HMGT 207, HMGT 319, HMGT 412, HMGT 467, HMGT 476, HORT 416, HORT 420, HORT 421.

Hospitality, Hotel Management and Tourism - BS, Hotel and Resort Management Track

This program provides knowledge to develop skills and knowledge about food and beverage management, hotel and resort operations, entrepreneurship, and revenue management.

The four-year Bachelor of Science in Hospitality, Hotel Management and Tourism degree prepares professionals to manage organizations and innovate change in a diverse and expanding field. The degree provides an industry-responsive curriculum with a focus on experience design and implementation, management of organizations and human capital, data-driven decision-making, service quality, marketing, risk management and the financing of programs/services. Courses are offered in person, with some also available in distance format.

The leisure experience industries continue to evolve and expand. New businesses have emerged; both government and non-government agencies are looking towards more business-oriented operational models. University graduates who desire to work in the expansive hospitality and tourism industries require a knowledge and skillset that address the experiences that people are seeking and also the financial understanding that is needed to ensure economic viability. The hospitality industry (e.g., attractions, restaurants, resorts, hotel lodging) has become a major component of the leisure phenomenon, supporting tourism as one of the world's largest industries.

The Texas hotel industry generates over \$30 billion in annual wages. Significant career growth related to hospitality and hotels has been spurred by the increasing practice of blending business and leisure travel amongst travelers post-pandemic.

Program Requirements

First Year

Fall		Semester Credit Hours
HMGT 201	Foundations of Hospitality, Hotel Management and Tourism	3
American history (p. 30)		3
Life and physical sciences (p. 27)		3
Language, philosophy and culture (p. 28)		3
Mathematics (p. 27)		3
Semester Credit Hours		15
Spring		
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
Select one of the following:		3
ENGL 103	Introduction to Rhetoric and Composition	
ENGL 104	Composition and Rhetoric	
ENGL 210	Technical and Professional Writing	
American history (p. 30)		3
Creative arts (p. 30)		3
Mathematics (p. 27)		3
Semester Credit Hours		15
Second Year		
Fall		
ACCT 229	Introductory Accounting	3
HMGT 223	Managing Hospitality and Tourism Organizations	3
Government/Political science (p. 31)		3
Life and physical sciences (p. 27)		3
Semester Credit Hours		12
Spring		
HMGT 210	Data-Driven Decision Making in Hospitality, Hotel Management and Tourism	3
HMGT 211	Planning and Implementation of Events and Programs	3

HMGT 314	Service Quality in Hospitality, Hotel Management, and Tourism	3
Government/Political science (p. 31)		3
Life and physical sciences (p. 27)		3
Semester Credit Hours		15
Third Year		
Fall		
HMGT 281	Career Planning in Hospitality, Hotel Management, and Tourism	1
HMGT 312	Managing Human Capital in Hospitality, Hotel Management, and Tourism	3
HMGT 340	Global Communities & Diverse Populations in Hospitality, Hotel Management and Tourism ¹	3
HMGT 352	Hotel and Resort Operations	3
HMGT 384	Junior Internship	2
Select one of the following:		3
AGEC 105	Introduction to Agricultural Economics	
ECON 202	Principles of Economics	
ECON 203	Principles of Economics	
FINP 235	Foundations of Money Education	
Semester Credit Hours		15
Spring		
HMGT 331	Marketing in the Digital Age for Hospitality, Hotel Management and Tourism	3
HMGT 353	Food and Beverage Management	3
HMGT 452	Strategic Management for Hospitality and Tourism	3
HMGT 467	Seminar for the Visitor Economy	3
International experience ²		3
Semester Credit Hours		15
Summer		
HMGT 484	Internship	3
Semester Credit Hours		3
Fourth Year		
Fall		
HMGT 450	Financing Hospitality, Hotel, and Tourism Services	3
HMGT 465	Revenue Management	3
Track elective ³		3
General elective		6
Semester Credit Hours		15
Spring		
HMGT 401	Entrepreneurship in Hospitality, Tourism and Events	3
HMGT 451	Law, Negotiation, and Risk Management in Hospitality, Tourism and Recreation	3
General elective		9
Semester Credit Hours		15
Total Semester Credit Hours		120

¹ This course fulfills the Cultural Discourse (CD) requirement.

² Complete an education abroad experience program for at least three or more academic credits or take HMGT 442.

³ Select from AGECE 315, AGECE 324, AGECE 420, AGECE 424; ALED 322, ALED 323, ALED 440; NUTR 300/FSTC 300, FSTC 470/ANSC 470; HORT 416, HORT 420, HORT 421; HMGT 319, HMGT 320, HMGT 412, HMGT 424, HMGT 446.

Recreation Management - Minor

The minor in Recreation Management provides students with the historical and philosophical foundations of recreation and also offers the flexibility to select electives in an area of interest.

Program Requirements

Code	Title	Semester Credit Hours
HMGT 201	Foundations of Hospitality, Hotel Management and Tourism	3
HMGT 211	Planning and Implementation of Events and Programs	3
HMGT 223	Managing Hospitality and Tourism Organizations	3
Select two of the following:		6
HMGT 207	Interpretation of Natural and Cultural Resources	
HMGT 300	Supervised Field Studies	
HMGT 301	Recreation in American Culture	
HMGT 402	Planning and Design of Hospitality, Tourism and Recreation Places	
HMGT 476	Leadership for Outdoor Recreation	
HMGT 467	Seminar for the Visitor Economy	
Select one of the following:		3
ECCB 460/ RPTS 460	Nature, Values, and Protected Areas	
RWFM 322	Community Development and Sustainability	
RWFM 323	Parks and Protected Area Management	
RWFM 400/Study Abroad in Natural Resources		
ECCB 452		
Total Semester Credit Hours		18

Students must make a grade of C or better in all courses.

Tourism Management - Minor

The Department of Hospitality, Hotel Management and Tourism offers a minor in Tourism Management as a supplement to other majors. The minor focuses on the planning, management, development and promotion of places and events as tourism attractions. Together, the various tourism courses are designed to explore and explain the linkages between local places and cultures, host populations, and various public, private, and special interest groups. Students in this minor can pursue careers in private sector enterprises, government agencies, convention and visitor bureaus, and other tourism-related service organizations.

Program Requirements

Code	Title	Semester Credit Hours
HMGT 211	Planning and Implementation of Events and Programs	3
HMGT 302	Application of Tourism Principles	3
Select one of the following:		3
AGECE 315	Food and Agricultural Sales	
AGECE 324	Agribusiness Entrepreneurship – Budgeting	
AGECE 424	Agribusiness Entrepreneurship – Economic Analysis	
HMGT 319	Event Management in Specialized Contexts	
HMGT 411	Cruise Tourism	
HMGT 442	International Perspectives in Hospitality, Tourism and Events	
Select three of the following:		9
HMGT 223	Managing Hospitality and Tourism Organizations	
HMGT 314	Service Quality in Hospitality, Hotel Management, and Tourism	
HMGT 320	Event Management and Operations	
HMGT 331	Marketing in the Digital Age for Hospitality, Hotel Management and Tourism	
HMGT 340	Global Communities & Diverse Populations in Hospitality, Hotel Management and Tourism	
HMGT 352	Hotel and Resort Operations	
HMGT 353	Food and Beverage Management	
HMGT 424	Event Management Capstone	
HMGT 426	Sustainable Tourism	
HMGT 446	Information and Communication Technology in Hospitality, Hotel Management and Tourism	
HMGT 465	Revenue Management	
HMGT 467	Seminar for the Visitor Economy	
Total Semester Credit Hours		18

Students must make a grade of C or better in all courses.

Hospitality Management - Certificate

The Certificate in Hospitality Management offered by the Department of Hospitality, Hotel Management and Tourism provides students with an understanding of the planning, analysis, and decision-making techniques that are required by managers in the hospitality and tourism industries. Students will acquire skills and capabilities relating to the principles of management, sustainability, development, cultural intelligence, marketing, finance, and service quality as they apply to the hospitality and tourism industries.

This program is also approved for delivery via asynchronous distance education technology.

Program Requirements

Code	Title	Semester Credit Hours
Select five from the following:		15
HMGT 201	Foundations of Hospitality, Hotel Management and Tourism	
HMGT 211	Planning and Implementation of Events and Programs	
HMGT 223	Managing Hospitality and Tourism Organizations	
HMGT 312	Managing Human Capital in Hospitality, Hotel Management, and Tourism	
HMGT 314	Service Quality in Hospitality, Hotel Management, and Tourism	
HMGT 331	Marketing in the Digital Age for Hospitality, Hotel Management and Tourism	
HMGT 352	Hotel and Resort Operations	
Total Semester Credit Hours		15

Students must earn a grade of a C or better in each course used to meet the requirements.

Students must maintain a 2.5 GPA average in required courses.

Professional Event Management - Certificate

The Professional Event Management Certificate (PEMC) offered by the Department of Hospitality, Hotel Management and Tourism provides students with the knowledge and skills to plan, implement and evaluate festivals, fairs and special events in a variety of settings - governmental, not-for-profit and commercial. This certificate is open to all majors.

This program is also approved for delivery via asynchronous distance education technology.

Program Requirements

Code	Title	Semester Credit Hours
HMGT 211	Planning and Implementation of Events and Programs	3
HMGT 320	Event Management and Operations	3
HMGT 424	Event Management Capstone	3
Select one of the following:		3
HMGT 319	Event Management in Specialized Contexts	
HMGT 353	Food and Beverage Management	
HMGT 401	Entrepreneurship in Hospitality, Tourism and Events	
HMGT 412	International Event Management	
HMGT 451	Law, Negotiation, and Risk Management in Hospitality, Tourism and Recreation	
Select one of the following:		3

AGCJ 306	Theory and Practice of Public Relations in Agriculture and Life Sciences	
AGEC 315	Food and Agricultural Sales	
AGEC 324	Agribusiness Entrepreneurship – Budgeting	
AGEC 424	Agribusiness Entrepreneurship – Economic Analysis	
COMM 260	Introduction to Communication and Sports	
COMM 326	Event and Communication Planning	
HMGT 223	Managing Hospitality and Tourism Organizations	
HMGT 314	Service Quality in Hospitality, Hotel Management, and Tourism	
HMGT 331	Marketing in the Digital Age for Hospitality, Hotel Management and Tourism	
HMGT 484	Internship	
HORT 203	Floral Design	
HORT 416	Understanding Wine - From Vines to Wines and Beyond	
HORT 452	Floral Design: Weddings and Personal Flowers	
JOUR 451	Arts & Entertainment Journalism	
PERF 308	Performing Arts Administration	
SPMT 265	Professional Communication for the Sport Industry	
SPMT 366	Sport Facility and Event Management	
SPMT 412	Managing Sport Events	
THEA 245	Introduction to Theatrical Design	
Total Semester Credit Hours		15

The PEMC program requires a minimum of 15 credit hours in designated courses. Students must earn a grade of C or better in each course used to meet the requirements, and maintain a B average (3.0 GPA) in the required courses. Students who pursue the PEMC must complete all requirements prior to graduation. Details are available in the Undergraduate Programs Office of the Department of Hospitality, Hotel Management and Tourism and on our website.

Recreation and Park Management - Certificate

The Department of Hospitality, Hotel Management and Tourism (HMGT) offers a certificate in Recreation and Park Management.

Management of recreation, park and leisure-service agencies requires expertise in problem-solving, decision-making, assessment of social and environmental impacts, personnel, public relations, volunteer management, financing and fund-raising, marketing of services, and needs assessments. Skills in working with people in the legal and political environment are necessary, as well as the ability to assess and work with other organizations for cooperative developments in recreation and tourism. Students in this emphasis prepare for managerial careers

with public recreation and park agencies, youth agencies, not-for-profit recreation agencies, and commercial recreation enterprises.

Program Requirements

Code	Title	Semester Credit Hours
HMGT 402	Planning and Design of Hospitality, Tourism and Recreation Places	3
or RPTS 460/	or Nature, Values, and Protected Areas	
ECCB 460		
Select three of the following:		9
ALEC 370	Principles of Positive Youth Development	
HMGT 207	Interpretation of Natural and Cultural Resources	
RWFM 323	Parks and Protected Area Management	
RWFM 346	Park Ecology and Management	
RWFM 400/	Study Abroad in Natural Resources	
ECCB 452		
HMGT elective ¹		3
Total Semester Credit Hours		15

¹ Select from HMGT 200-499 (p. 1081); RWFM 346, RWFM 375, RWFM 400/ECCB 452.

Students must have a minimum 2.0 overall GPA in courses within the certificate.

Tourism Management - Certificate

The Department of Hospitality, Hotel Management and Tourism (HMGT) offers a certificate in Tourism Management.

Tourism is one of the world's largest and most diverse industries. To help students prepare for tourism careers, the certificate in Tourism Management introduces issues pertaining to the management, development, and promotion of places and events as tourism attractions. Courses in tourism are designed to collectively build understanding about the links that exist between local places, host populations, and various public, private and special interest groups. Students also develop competencies in assessing economic, environmental, social and political impacts of tourism, as well as in tourism marketing. Students in this certificate can pursue careers in private sector enterprises, government agencies, convention and visitor bureaus, and other tourism-related service organizations.

This program is also approved for delivery via asynchronous or synchronous distance education technology.

Program Requirements

Code	Title	Semester Credit Hours
HMGT 320	Event Management and Operations	3
HMGT 331	Marketing in the Digital Age for Hospitality, Hotel Management and Tourism	3
HMGT 426	Sustainable Tourism	3

Select one of the following:		3
HMGT 314	Service Quality in Hospitality, Hotel Management, and Tourism	
HMGT 352	Hotel and Resort Operations	
HMGT 300	Supervised Field Studies	
HMGT 489	Special Topics in...	
RPTS 321	Event Management and Operations II	
HMGT elective ¹		3
Total Semester Credit Hours		15

¹ Select from HMGT 200-499 (p. 1081); RWFM 346, RWFM 375, RWFM 400/ECCB 452.

Students must have a minimum 2.0 overall GPA in courses within the certificate.

Youth Development - Certificate

The Department of Hospitality, Hotel Management and Tourism (HMGT) offers a certificate in Youth Development.

This certificate focuses on programs and services that contribute to the development of young people's personal, physical, social and educational abilities in and out-of-school contexts. Youth workers are program developers, leaders and managers who need to be able to work with youth, families, organizations and communities. Coursework in this option focuses on positive youth development, program planning and evaluation, methods for working with young people, and societal factors that both contribute to and inhibit the development of young people. Students with an option in this field look forward to careers with non-profit, public and for-profit agencies that supply youth development opportunities for young people. Settings include after-school programs, community programs, camps, outdoor adventure and church-related recreation programs.

Program Requirements

Code	Title	Semester Credit Hours
ALEC 370	Principles of Positive Youth Development	3
ALEC 371	Skills and Techniques for Youth Development Professionals	3
ALEC 472	Grant Writing and Program Evaluation for Youth Development Organizations	3
ALEC 478	Youth Development Practice	3
HMGT elective ¹		3
Total Semester Credit Hours		15

¹ Select from HMGT 200-499 (p. 1081); RWFM 346, RWFM 375, RWFM 400/ECCB 452.

Students must have a minimum 2.0 overall GPA in courses within the certificate.

Department of Nutrition

Nutritional sciences prepares majors with a comprehensive knowledge of the biological and social sciences to understand the relationships between nutrients, food components and human health. Prevention of diseases that are related to lifestyle, particularly diet and nutrition, is a focus of the curriculum. Core courses emphasize the role of nutrients in biochemistry, genetics, physiology, microbiology and immunology that promotes wellness and enhances the quality of life. The major also provides an excellent background for those interested in pursuing graduate degrees in biological, nutritional or food sciences; professional degrees in human or veterinary medicine; degrees in dentistry, pharmacy, physical therapy, nursing, public health and other health professions; or dietetic internships.

The Didactic Program in Dietetics (DPD) and the Graduate Degree/ Dietetic Internship Program are accredited by the Accreditation Council for Education in Nutrition and Dietetics (ACEND). Students who successfully complete the DPD and a dietetic internship are eligible to take the Registration Examination to become a Registered Dietitian (RD).

Two curriculum tracks are offered (Didactic Program in Dietetics and Human Health) to provide flexibility in one's chosen career path. The Nutrition major prepares one for graduate school, corporate wellness positions, health promotion programs, the food industry, public health programs, pharmaceutical sales, clinical dietetics, medical and research laboratories, biotechnology firms, government agencies and related fields. For more information, visit <https://nutrition.tamu.edu/>.

Faculty

Beathard, Karen M, Instructional Professor
Nutrition
PHD, Texas A&M University, College Station, 2021

Chapkin, Robert S, Professor
Nutrition
PHD, University of California at Davis, 1986

Estrela, Sylvie, Assistant Professor
Nutrition
PHD, University of Edinburgh, 2015

Gilmore, Alicia, Clinical Associate Professor
Nutrition
MS, Oklahoma State University, 2002

Guo, Shaodong, Professor
Nutrition
PHD, Peking University, Beijing China, 1995

Hastings, Waylon James, Assistant Professor
Nutrition
PHD, Texas A&M University, 2020

Johnston, Bradley C, Associate Professor
Nutrition
PHD, University of Alberta, 2009

Krueger, Danielle H., Lecturer
Nutrition
MPH, Texas A&M University, 2014

Lee, Grace, Assistant Professor
Nutrition
PHD, Texas Tech University, 2022

Lorenz, Sandra G, Clinical Associate Professor
Nutrition
MS, Texas A&M University, 2002

Lynch, Christian, Lecturer
Nutrition
MS, Texas A&M University, 2019

Racine, Elizabeth, Professor
Nutrition
DrPH, Johns Hopkins University, 2003

Riviere, Aaron, Lecturer
Nutrition
MS, Texas A&M University, 2023

Ross, Catharine, Professor
Nutrition
PHD, Cornell University, 1976

Seguin-Fowler, Rebecca, Professor
Nutrition
PHD, Tufts University, 2008

Sun, Yuxiang, Professor
Nutrition
PHD, University of Manitoba, 2000

Suzuki, Masako, Assistant Professor
Nutrition
PHD, Gifu University, 2002

Threadgill, David W, Professor
Nutrition
PHD, Texas A&M University, 1989

Vanden Brink, Heidi K, Assistant Professor
Nutrition
PHD, Cornell University, 2019

Windham, Meghan E, Clinical Assistant Professor
Nutrition
MPH, University of Texas School of Public Health, 2010

Wu, Chaodong, Professor
Nutrition
PHD, Beijing Medical University, 1998

Wu, Chia Shan, Instructional Assistant Professor
Nutrition
PHD, University of Auckland, 2005

Xie, Linglin, Associate Professor
Nutrition
PHD, Kansas State University, 2008

Zhang, Ke, Associate Professor
Nutrition
PHD, Kansas State University, 2008

Majors

- Bachelor of Science in Nutrition, Didactic Program in Dietetics Track (p. 211)
- Bachelor of Science in Nutrition, Human Health Track (p. 212)

Minors

- Nutrition Minor (p. 214)

Certificates

- Culinary Health Certificate (p. 214)
- Sport Nutrition Certificate (p. 214)

Nutrition - BS, Didactic Program in Dietetics Track

Nutritional sciences prepares students with a comprehensive knowledge of the biological and social sciences to understand the relationships between nutrients, food components and human health.

Prevention of diseases that are related to lifestyle, particularly diet and nutrition, is a focus of the curriculum. Core courses emphasize the role of nutrients in biochemistry, genetics, physiology, microbiology and immunology that promotes wellness and enhances the quality of life. The major also provides an excellent background for those interested in pursuing graduate degrees in biological, nutritional or food sciences; professional degrees in human or veterinary medicine; degrees in dentistry, pharmacy, physical therapy, nursing, public health and other health professions; or dietetic internships.

The Didactic Program in Dietetics (DPD) and the Graduate Degree/ Dietetic Internship Program are accredited by the Accreditation Council for Education in Nutrition and Dietetics (ACEND). Students who successfully complete the DPD and a dietetic internship are eligible to take the Registration Examination to become a Registered Dietitian (RD).

Two curriculum tracks are offered (Didactic Program in Dietetics and Human Health) to provide flexibility in one's chosen career path. The Nutrition major prepares one for graduate school, corporate wellness positions, health promotion programs, the food industry, public health programs, pharmaceutical sales, clinical dietetics, medical and research laboratories, biotechnology firms, government agencies and related fields. For more information, visit <https://nutrition.tamu.edu/>.

Didactic Program in Dietetics Track

The Didactic Program in Dietetics (DPD) is accredited by the Accreditation Council for Education in Nutrition and Dietetics (ACEND) and is designed to prepare students for meeting the requirements for the credential of Registered Dietician (RD). The DPD provides a strong science base and foundational courses in nutrition for students desiring a dietetic practice in a clinical, therapeutic, community wellness, public health or food production/service setting.

Program Requirements

First Year

Fall

		Semester Credit Hours
AGLS 125	Life Sciences Learning Community I	0
BIOL 111	Introductory Biology I	4
CHEM 119	Fundamentals of Chemistry I	4
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition or Composition and Rhetoric	3
NUTR 202	Fundamentals of Human Nutrition	3
NUTR 204	Perspectives in Nutrition	1
NUTR 210/ FSTC 210	Horizons in Nutrition and Food Science	1

Semester Credit Hours 16

Spring

BIOL 112	Introductory Biology II	4
CHEM 120	Fundamentals of Chemistry II	4
NUTR 301	Nutrition Through Life	3
American history (p. 30)		3

Semester Credit Hours 14

Second Year

Fall

CHEM 257	Organic Chemistry I - Structure and Function	4
ENGL 210	Technical and Professional Writing	3
PBSI 107	Introduction to Psychology	3
American history (p. 30)		3
Mathematics (p. 27) ¹		3

Semester Credit Hours 16

Spring

CHEM 258	Organic Chemistry II - Reactivity and Applications	4
NUTR 211	Scientific Principles of Foods	4
POLS 206	American National Government	3
Mathematics (p. 27) ¹		3

Semester Credit Hours 14

Third Year

Fall

NUTR 307	Quantity Food Production	4
NUTR 366	Nutrients and the Human Body I	4
POLS 207	State and Local Government	3
Select one of the following:		3

NUTR 300/
FSTC 300 Religious and Ethnic Foods

NUTR 306 Nutrition in Sports

NUTR 320/
FSTC 320 Understanding Obesity - A Social and Scientific Challenge

NUTR 403 Advanced Nutrition in Sports

NUTR 410/
FSTC 410 Nutritional Pharmacometrics of Food Compounds

NUTR 454 Nutrigenomics and Precision Nutrition

NUTR 469 Experimental Nutrition Laboratory

NUTR 471	Critical Evaluation of Nutrition and Food Science Literature - Evidence Based Reviews	
NUTR 485	Directed Studies	
NUTR 489	Special Topics in...	
NUTR 491	Research	
Semester Credit Hours		14
Spring		
GENE 301	Comprehensive Genetics	3
GENE 312	Comprehensive Genetics Laboratory	1
NUTR 304	Food Service Systems and Management	3
NUTR 367	Nutrients and the Human Body II	4
NUTR 408	Professional Development in Nutrition and Dietetics	1
Creative arts (p. 30) ²		3
Semester Credit Hours		15
Fourth Year		
Fall		
BICH 409	Principles of Biochemistry	3
NUTR 404	Nutrition Assessment and Planning	3
NUTR 430	Community Nutrition	3
NUTR 440	Microbes and Microbiome in Nutrition	4
Select one of the following:		3
STAT 301	Introduction to Biometry	
STAT 302	Statistical Methods	
STAT 303	Statistical Methods	
Semester Credit Hours		16
Spring		
ANTH 205 or ANTH 210	Peoples and Cultures of the World or Social and Cultural Anthropology	3
NUTR 407	Nutrition Care and Therapy	4
NUTR 409	Nutrition Education and Counseling	2
NUTR 475	Nutrition and Physiological Chemistry	3
NUTR 481	Seminar	1
General elective ³		2
Semester Credit Hours		15
Total Semester Credit Hours		120

¹ MATH prefix required.² The Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) and 3 hours of Cultural Discourse (p. 48). Selection must be from courses on the approved list. Selection can be courses that also satisfy the requirement for social and behavioral sciences; creative arts; language, philosophy and culture; or electives. For more information on core requirements visit the University Core Curriculum (p.) catalog page. Use the Creative Arts Elective (p. 30) and ANTH 205, ANTH 210 as Language, Philosophy & Culture to satisfy degree requirements as well as international and cultural diversity and cultural discourse requirements.³ Select from any 100-499 course not used elsewhere.

A total of 120 hours is required for graduation; 36 hours of 300/400 level courses are required to meet the Texas A&M University residency requirement.

Nutrition - BS, Human Health Track

Nutritional sciences prepares students with a comprehensive knowledge of the biological and social sciences to understand the relationships between nutrients, food components and human health.

Prevention of diseases that are related to lifestyle, particularly diet and nutrition, is a focus of the curriculum. Core courses emphasize the integration of nutrients in biochemistry, genetics, physiology and anatomy, microbiology and immunology underlying wellness, disease, and enhancing the quality of life to promote a healthy lifespan. The major also provides an excellent background for those interested in pursuing graduate degrees in biological, nutritional or food sciences; professional degrees in medicine; dentistry, pharmacy, physician assistant, physical therapy, nursing, public health and other health professions; or dietetic internships.

The Didactic Program in Dietetics (DPD) and the Graduate Degree/ Dietetic Internship Program are accredited by the Accreditation Council for Education in Nutrition and Dietetics (ACEND). Students who successfully complete the DPD and a dietetic internship are eligible to take the Registration Examination to become a Registered Dietitian (RD).

Two curricular tracks are offered (Didactic Program in Dietetics and Human Health) to provide flexibility in one's chosen career path. In addition to post-graduate studies, the Nutrition major prepares students for corporate wellness positions, health promotion programs, the food industry, public health programs, pharmaceutical sales, clinical dietetics, medical and research laboratories, biotechnology firms, government agencies and related fields. For more information, visit the Department of Nutrition website. (<https://nutrition.tamu.edu>)

Human Health Track

The Human Health Track provides a wide range of approved electives in order to customize a degree suited to research interests and career objectives. Through this program, students are prepared to work in community nutrition programs, education, research, and as technical representatives in the nutrition and health industry. This program especially designed for students wanting to go to graduate or professional schools such as medicine, dentistry, physical therapy, physician assistant, or pharmacy.

Program Requirements

First Year

Fall		Semester Credit Hours
BIOL 111	Introductory Biology I	4
CHEM 119	Fundamentals of Chemistry I	4
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition or Composition and Rhetoric	3
NUTR 202	Fundamentals of Human Nutrition	3
NUTR 204	Perspectives in Nutrition	1
NUTR 210/ FSTC 210	Horizons in Nutrition and Food Science	1
Semester Credit Hours		16

Spring

BIOL 112	Introductory Biology II	4
CHEM 120	Fundamentals of Chemistry II	4

NUTR 301	Nutrition Through Life	3
American history (p. 30)		3
Semester Credit Hours		14

Second Year**Fall**

CHEM 257	Organic Chemistry I - Structure and Function	4
ENGL 210	Technical and Professional Writing	3
American history (p. 30)		3
Mathematics (p. 27) ¹		3
Social and behavioral science (p. 31) ²		3

Semester Credit Hours **16**

Spring

CHEM 258	Organic Chemistry II - Reactivity and Applications	4
POLS 206	American National Government	3
Creative arts (p. 30) ²		3
Mathematics (p. 27) ¹		3
General elective ³		1

Semester Credit Hours **14**

Third Year**Fall**

POLS 207	State and Local Government	3
NUTR 366	Nutrients and the Human Body I	4
Select one of the following:		3

NUTR 211	Scientific Principles of Foods	
NUTR 300/ FSTC 300	Religious and Ethnic Foods	
NUTR 306	Nutrition in Sports	
NUTR 320/ FSTC 320	Understanding Obesity - A Social and Scientific Challenge	
NUTR 365	Nutritional Physiology of Vitamins and Minerals	
NUTR 403	Advanced Nutrition in Sports	
NUTR 410/ FSTC 410	Nutritional Pharmacometrics of Food Compounds	
NUTR 430	Community Nutrition	
NUTR 454	Nutrigenomics and Precision Nutrition	
NUTR 469	Experimental Nutrition Laboratory	
NUTR 471	Critical Evaluation of Nutrition and Food Science Literature - Evidence Based Reviews	
NUTR 485	Directed Studies	
NUTR 489	Special Topics in...	
NUTR 491	Research	
Technical elective ⁴		3
General elective ³		3

Semester Credit Hours **16**

Spring

GENE 301	Comprehensive Genetics	3
NUTR 367	Nutrients and the Human Body II	4
GENE 312	Comprehensive Genetics Laboratory	1
Select one of the following:		3

STAT 301	Introduction to Biometry	
STAT 302	Statistical Methods	
STAT 303	Statistical Methods	
Technical elective ⁴		3

Semester Credit Hours **14**

Fourth Year**Fall**

BICH 409	Principles of Biochemistry	3
NUTR 440	Microbes and Microbiome in Nutrition	4
Select one of the following:		3

NUTR 211	Scientific Principles of Foods	
NUTR 300/ FSTC 300	Religious and Ethnic Foods	
NUTR 306	Nutrition in Sports	
NUTR 320/ FSTC 320	Understanding Obesity - A Social and Scientific Challenge	
NUTR 365	Nutritional Physiology of Vitamins and Minerals	
NUTR 403	Advanced Nutrition in Sports	
NUTR 410/ FSTC 410	Nutritional Pharmacometrics of Food Compounds	
NUTR 430	Community Nutrition	
NUTR 454	Nutrigenomics and Precision Nutrition	
NUTR 469	Experimental Nutrition Laboratory	
NUTR 471	Critical Evaluation of Nutrition and Food Science Literature - Evidence Based Reviews	
NUTR 485	Directed Studies	
NUTR 489	Special Topics in...	
NUTR 491	Research	
Technical elective ⁴		3

Semester Credit Hours **13**

Spring

NUTR 400	Ethics in Nutrition and Healthcare	1
NUTR 475	Nutrition and Physiological Chemistry	3
NUTR 481	Seminar	1
Language, philosophy and culture (p. 28) ²		3

Select from the following: 6

NUTR 211	Scientific Principles of Foods	
NUTR 300/ FSTC 300	Religious and Ethnic Foods	
NUTR 306	Nutrition in Sports	
NUTR 320/ FSTC 320	Understanding Obesity - A Social and Scientific Challenge	
NUTR 365	Nutritional Physiology of Vitamins and Minerals	
NUTR 403	Advanced Nutrition in Sports	
NUTR 410/ FSTC 410	Nutritional Pharmacometrics of Food Compounds	
NUTR 430	Community Nutrition	
NUTR 454	Nutrigenomics and Precision Nutrition	
NUTR 469	Experimental Nutrition Laboratory	

NUTR 471	Critical Evaluation of Nutrition and Food Science Literature - Evidence Based Reviews	
NUTR 485	Directed Studies	
NUTR 489	Special Topics in...	
NUTR 491	Research	
Technical elective ⁴		3
Semester Credit Hours		17
Total Semester Credit Hours		120

¹ MATH prefix required.

² The Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) and 3 hours of Cultural Discourse (p. 48). Selection must be from courses in the Core Curriculum. Selection can be courses that also satisfy the requirement for social and behavioral sciences; creative arts; language, philosophy and culture; or electives. For more information on core requirements visit the University Core Curriculum (p.) catalog page.

³ Select from any 100-499 course not used elsewhere.

⁴ Students may choose from the following technical electives: ACCT 209; BICH 431/GENE 431; BIOL 352, BIOL 413 or BIOL 414; CHEM 238, CHEM 315 and CHEM 318; COMM 203, COMM 315 or COMM 325; FINC 409; HLTH 236, HLTH 334, HLTH 354/PHLT 354, ISTM 209; MGMT 209, MGMT 309; MKTG 409, SOCI 205; PBSI 300-499 (p. 1184); PHYS 201, PHYS 202; VTPP 425.

A total of 120 hours is required for graduation; 36 hours of 300/400 level courses are required to meet the Texas A&M University residency requirement.

Nutrition - Minor

This program will prepare students with general knowledge about the role and impact of human nutrition on health and physiology and different nutritional requirements through the lifespan.

The Department of Nutrition offers a minor in Nutrition (NUTR). Students seeking the minor must complete a minor form (<https://nutrition.tamu.edu/minor-in-nutrition/>) and have it approved and signed by the NUTR undergraduate advisor and their major academic advisor.

Program Requirements

Code	Title	Semester Credit Hours
NUTR 202	Fundamentals of Human Nutrition ¹	3
	or NUTR 203 or Scientific Principles of Human Nutrition	
NUTR 301	Nutrition Through Life	3
NUTR 400	Ethics in Nutrition and Healthcare	1
NUTR 100-499 (p. 1175) ²		9
Total Semester Credit Hours		16

¹ NUTR 202 (non-majors only) or NUTR 203 (majors/minors only).

² At least 6 hours must be from the 300-400-level.

Culinary Health - Certificate

The certificate program in Culinary Health integrates scientific principles of nutrition, dietary recommendations, and food and cooking skills to facilitate healthy eating behaviors for health promotion.

Concepts from this program will be applied to recipe development and modification to meet dietary needs and sensory acceptability. Development of culinary presentations for community groups will provide a capstone using learned culinary skills and nutrition knowledge.

Program Requirements

Code	Title	Semester Credit Hours
CULN 305	Culinary Health	4
CULN 483	Culinary Health Practicum	2
NUTR 301	Nutrition Through Life	3
NUTR 404	Nutrition Assessment and Planning ¹	3
	or NUTR 41 or Nutritional Treatment of Disease	
NUTR 408	Professional Development in Nutrition and Dietetics ²	1
	or NUTR 400 or Ethics in Nutrition and Healthcare	
Total Semester Credit Hours		13

¹ Non-DPD students must complete NUTR 412.

² Non-DPD students must complete NUTR 400.

Sport Nutrition - Certificate

The certificate in Sports Nutrition equips students with the knowledge and skills necessary to optimize athletic performance through evidence-based nutrition practices.

This certificate is designed for dietetic students looking to enhance their understanding of the role of nutrition in sports, exercise, and overall health.

Through a dynamic curriculum, students will explore key topics such as macronutrient and micronutrient requirements for athletes, hydration strategies, recovery nutrition, and dietary supplements. Courses emphasize practical application, preparing students to assess individual needs, develop personalized nutrition plans, and work collaboratively with sports professionals in various settings.

Whether aiming to work with elite athletes or recreational fitness enthusiasts, this certificate provides a strong foundation in sports nutrition, integrating scientific principles with real-world experience.

Program Requirements

Code	Title	Semester Credit Hours
NUTR 301	Nutrition Through Life	3
NUTR 306	Nutrition in Sports	3
NUTR 403	Advanced Nutrition in Sports	3

NUTR 483	Practicum for Nutrition in Sports	3
Total Semester Credit Hours		12

Department of Plant Pathology and Microbiology

Our mission is to conduct leading edge research on plant diseases and plant-microbe interactions that directly and indirectly impact: Our ability to feed the world; human and animal health; environmental stewardship and sustainability. Educate and prepare leaders in the STEM fields of plant and environmental health through a creative and challenging educational environment that integrates scholarship, fundamental knowledge, and experiential learning. Convey information relevant to society through effective outreach and services that address plant health, food safety and environmental health to the citizens of Texas, the United States and the World.

An extension of this mission is to train the next generation of environmental professionals by providing them both the analytical and biological understanding to successfully protect the environment while promoting economic vitality.

Faculty

Antony Babu, Sanjay, Assistant Professor
Plant Pathology & Microbiology
PHD, Newcastle University, 2018

Arreola Vargas, Jorge, Instructional Assistant Professor
Plant Pathology & Microbiology
PHD, Instituto Potosino de Investigación Científica y Tecnológica, San Luis Potosí, Mexico, 2014

Chappell, Thomas M, Associate Professor
Plant Pathology & Microbiology
PHD, Duke University, 2010

Edwards, Joseph Andrew, Assistant Professor
Plant Pathology & Microbiology
PHD, University of California, Davis, 2017

Gonzalez, Carlos F, Professor
Plant Pathology & Microbiology
PHD, University of Nebraska at Lincoln, 1978

He, Baoye, Assistant Professor
Plant Pathology & Microbiology
PHD, Chinese Academy of Sciences, 2015

Kolomiets, Mikhailo V, Professor
Plant Pathology & Microbiology
PHD, Iowa State University, 1998

Magill, Clint W, Professor
Plant Pathology & Microbiology
PHD, Cornell University, 1969

Shaw, Brian D, Professor
Plant Pathology & Microbiology
PHD, Cornell University, 2000

Shim, Won Bo, Professor
Plant Pathology & Microbiology
PHD, Purdue University, 2000

Stoddard, Kati L, Instructional Associate Professor
Plant Pathology & Microbiology
PHD, University of North Texas, 2012

Verchot, Jeanmarie, Professor
Plant Pathology & Microbiology
PHD, Texas A&M University, 1995

Wilkinson, Heather H, Professor
Plant Pathology & Microbiology
PHD, Binghamton University, 1996

Majors

- Bachelor of Science in Bioenvironmental Sciences (p. 215)
- Bachelor of Science in Environmental Studies (p. 217)

Minors

- Bioenvironmental Sciences Minor (p. 218)

Bioenvironmental Sciences - BS

This program equips students with innovative science and technology skills to address environmental challenges, preparing them for diverse and impactful careers.

Major breakthroughs are taking place locally, regionally and globally concerning environmental awareness. Environmental hazards take many forms, including microbial threats, toxic wastes and the indirect impact of man's activities on a fragile ecosystem. As a result, there is a growing recognition that the solutions to environmental problems require innovative multi-disciplinary perspectives and technologically-intensive approaches. The Bioenvironmental Sciences curriculum (BESC) was designed in consultation with numerous industry representatives in order to comply with the most current thinking on the talents needed for tomorrow's environmental fields. Students will be prepared for a breadth of career choices in the environmental sciences. These choices include such areas as research and development, environmental consulting, remediation of wastes, site assessment and environmental sampling, and environmental law. Graduates from BESC find employment in federal, state and municipal environmental agencies; in industries concerned with the generation and clean-up of hazardous wastes; with environmental advocacy and educational groups. In addition, the strong science base in BESC prepares students for professional and graduate schools in a variety of disciplines.

The curriculum described combines a foundation of required courses of technical and free electives to allow the student the maximum flexibility to design a personalized course of study. Students are advised to focus on an area of emphasis with those electives that come from such categories as conservation/ecology, policy/ethics/regulations, the physical environment, engineering, plant studies, genetics/biotechnology and general environmental. The Department of Plant Pathology and Microbiology also supports the extracurricular activities needed to support a successful environmental professional.

Program Requirements

First Year

Fall		Semester Credit Hours
BESC 201	Introduction to Bioenvironmental Sciences	3
BIOL 111 or BIOL 101	Introductory Biology I or Botany	4
ECCB 205	Fundamentals of Ecology	3
ECCB 215	Fundamentals of Ecology–Laboratory	1
Social and behavioral sciences (p. 31) ¹		3
Semester Credit Hours		14

Spring

BIOL 112 or BIOL 107	Introductory Biology II or Zoology	4
Communication (p. 27) ¹		3
Government/Political science (p. 31) ¹		3
Language, philosophy and culture (p. 28) ¹		3
Bioenvironmental group elective ²		3
Semester Credit Hours		16

Second Year

Fall		
CHEM 119	Fundamentals of Chemistry I	4
PLPA 301	Plant Pathology	3
PLPA 303	Plant Pathology Laboratory	1
Government/Political science (p. 31) ¹		3
Bioenvironmental group elective ²		3
Semester Credit Hours		14

Spring

CHEM 120	Fundamentals of Chemistry II	4
American history (p. 30) ¹		3
Creative arts (p. 30) ¹		3
Bioenvironmental group elective ²		3
Technical elective ³		3
Semester Credit Hours		16

Third Year

Fall		
CHEM 222 or CHEM 227	Elements of Organic and Biological Chemistry or Organic Chemistry I	3
American history (p. 30) ¹		3
Mathematics (p. 27) ¹		3
Technical elective ³		3
General elective ¹		3
Semester Credit Hours		15

Spring

GENE 310	Principles of Heredity	3
Mathematics (p. 27) ¹		3
Bioenvironmental group elective ²		3
Technical elective ³		3
General elective ¹		3
Semester Credit Hours		15

Fourth Year

Fall

SCSC 301	Soil Science	4
Select one of the following:		3
STAT 201	Elementary Statistical Inference	
STAT 301	Introduction to Biometry	
STAT 302	Statistical Methods	
STAT 303	Statistical Methods	
Communication (p. 27) ¹		3
Bioenvironmental group elective ²		3
Technical elective ³		3
Semester Credit Hours		16

Spring

BESC 481	Seminar	1
BESC 484	Field Experience	3
Bioenvironmental group elective ²		3
Technical elective ³		4
General elective ¹		3
Semester Credit Hours		14
Total Semester Credit Hours		120

¹ Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/departments requirement, or a free elective can be used to satisfy this requirement. Select in consultation with an academic advisor.

² Select 18 hours from BESC 203, BESC 204, BESC 311, BESC 314, BESC 320, BESC 357, BESC 367, BESC 401, BESC 402, BESC 403, BESC 411, BESC 421, BESC 431, BESC 489, SCSC 405. Other courses may be approved by advisor.

³ Courses may be selected from categories designed to reflect the professional aspirations of the student. Courses to be selected in consultation with academic advisor. Select 16 hours from ACCT 209; AGECE 344, AGECE 350, AGECE 429; AGSM 335, AGSM 360, AGSM 337, AGSM 477; ANSC 326/FSTC 326, ANSC 327/FSTC 327; ATMO 201; BESC 485, BESC 491; BICH 303, BICH 410, BICH 411; BIOL 213, BIOL 214, BIOL 357, BIOL 440; CHEM 242, CHEM 228, CHEM 237, CHEM 238, CHEM 316, CHEM 318; ECCB 308, ECCB 309, ECCB 320, ECCB 351, ECCB 403, ECCB 460/RPTS 460; ENSS 105; ENTO 201, ENTO 424; FINC 409; GENE 412, GENE 431/BICH 431, GENE 432/BICH 432; GEOG 201, GEOG 202, GEOG 203, GEOG 205, GEOG 213, GEOG 330, GEOG 380, GEOG 390, GEOG 398, GEOG 434, GEOG 435, GEOL 101, GEOL 104, GEOL 410, GEOL 420; HIST 359, HORT 201, HORT 202, HORT 313; HMG 207; ISTM 209; FSTC 201; MGMT 209, MGMT 309; MKTG 409; OCNG 320; PHIL 314; PHLT 305, PHLT 330, PHLT 331; PHYS 201, PHYS 202, PHYS 206; POLS 306, POLS 347, POLS 461; RWFM 308, RWFM 314, RWFM 375, RWFM 405, RWFM 406, RWFM 411, RWFM 420, RWFM 436, RWFM 440, RWFM 470, SCSC 105, SCSC 201, SCSC 205, SCSC 302, SCSC 310, SCSC 311, SCSC 315, SCSC 330, SCSC 406, SCSC 410, SCSC 411/GENE 411, SCSC 420, SCSC 421, SCSC 444, SCSC 455, SCSC 458; SOCI 328; URPN 360; URPN 370; URPN 460; VTPB 221, VTPB 423, WFSC 425.

Environmental Studies - BS

This program is designed to educate students about the scientific, human-dimension and policy aspects of environmental issues facing our state and nation as they work in regulatory agencies, industry and non-governmental organizations to resolve problems.

The increasing demands that population growth and affluence put on Earth's natural resources and environment require greater numbers of trained professionals and informed citizens. This Bachelor of Science degree in Environmental Studies blends an interdisciplinary understanding of Earth's surface processes and environmental problems, along with the policy and decision-making components of human interactions with the environment. Students focus upper division coursework in one of five environmental themes: 1) urban environment, 2) occupational health and safety, 3) environmental regulation and compliance, 4) Geographic Information Science and Technology (GIST), and 5) global environment.

Program Requirements

First Year

Fall		Semester Credit Hours
BESC 201	Introduction to Bioenvironmental Sciences	3
BIOL 111 or BIOL 101	Introductory Biology I or Botany	4
ECCB 205	Fundamentals of Ecology	3
Social and behavioral sciences (p. 31) ¹		3
General elective ¹		1
Semester Credit Hours		14

Spring

CHEM 119	Fundamentals of Chemistry I	4
GEOG 201	Introduction to Human Geography	3
Communication (p. 27) ¹		3
Government/Political science (p. 31) ¹		3
Language, philosophy and culture (p. 28) ¹		3
Semester Credit Hours		16

Second Year

Fall		Semester Credit Hours
BESC 367	U.S. Environmental Regulations	3
GEOG 203	Planet Earth	3
GEOG 213	Planet Earth Lab	1
Government/Political science (p. 31) ¹		3
Environmental policy elective ²		3
General elective ¹		3
Semester Credit Hours		16

Spring

ECCB 309	Forest Ecology	3
American history (p. 30) ¹		3
Creative arts (p. 30) ¹		3
Environmental policy elective ²		3
Natural resource elective ³		3
Semester Credit Hours		15

Third Year

Fall

GEOG 304	Economic Geography	3
RWFM 375	Conservation of Natural Resources	3
American history (p. 30) ¹		3
Mathematics (p. 27) ¹		3
Natural resource elective ³		3
Semester Credit Hours		15

Spring

RWFM 306	Wildlife and the Changing Environment	3
Mathematics (p. 27) ¹		3
Environmental policy elective ²		3
Natural resource elective ³		3
General elective ¹		3
Semester Credit Hours		15

Fourth Year

Fall

ECCB 351 or RWFM 470	Geographic Information Systems for Resource Management or Environmental Impact Assessment	3
SCSC 301	Soil Science	4
Select one of the following:		3
STAT 201	Elementary Statistical Inference	
STAT 301	Introduction to Biometry	
STAT 302	Statistical Methods	
STAT 303	Statistical Methods	
Communication (p. 27) ¹		3
Environmental policy elective ²		3
Semester Credit Hours		16

Spring

BESC 481	Seminar	1
BESC 484	Field Experience	3
Environmental policy elective ²		3
Natural resource elective ³		3
General elective ¹		3
Semester Credit Hours		13

Total Semester Credit Hours 120

¹ Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. Select in consultation with an academic advisor.

² Select five from the following in consultation with academic advisor: AGEC 344, AGEC 350, AGEC 429; BESC 314, BESC 357; ECCB 308; ECON 202, ECON 203, ECON 323, ECON 412; ENSS 105; ENTO 210, ENTO 431/FIVS 431; GEOG 205, GEOG 401, GEOG 406; PHIL 205, PHIL 314; URPN 202, URPN 360, URPN 370, URPN 460; PSAA 440; POLS 229, POLS 231, POLS 306, POLS 340/PSAA 340, POLS 342, POLS 347, POLS 461; RWFM 308, RWFM 436; SOCI 312, SOCI 328, SCSC 330.

³ Select four from the following in consultation with academic advisor: AGSM 301, AGSM 335, AGSM 337, AGSM 477, BESC 204, BESC 320, BESC 401, BESC 403, ECCB 203, ECCB 304, ECCB 320,

ECCB 403, ECCB 444, ENTO 201, ENTO 320, ENTO 403, ENTO 424; HMGT 426; HORT 301, POSC 427, RPTS 460/ECCB 460, RWFM 301, RWFM 323, RWFM 405, RWFM 411, RWFM 420, SCSC 105, SCSC 201, SCSC 205, SCSC 302, SCSC 310, SCSC 311, SCSC 315, SCSC 410, SCSC 420, SCSC 421, SCSC 444, SCSC 458.

A minimum of 120 semester hours will be required for a BS degree.

Bioenvironmental Sciences - Minor

The Bioenvironmental Sciences minor prepares students for a breadth of career choices in the environmental sciences.

This minor is available to all students enrolled in majors at Texas A&M University outside of the Department of Plant Pathology and Microbiology.

The minor requirements can be found on the Program Requirements tab. Note that all prerequisites for each core and elective course also must be met. Prerequisite courses will not be applied to the minor requirements and do not count toward the number of hours needed to complete the minor.

Program Requirements

Code	Title	Semester Credit Hours
BESC 201	Introduction to Bioenvironmental Sciences	3
PLPA 301 or BESC 361	Plant Pathology or U.S. Environmental Regulations	3
Select 9 hours from the following:		9
BESC 204	Molds and Mushrooms: The Impact of Fungi on Society and the Environment	
BESC 311	International Perspectives on Environmental Issues	
BESC 314	Pathogens, the Environment and Society	
BESC 320	Water and the Bioenvironmental Sciences	
BESC 357	Biotechnology for Biofuels and Bioproducts	
BESC 401	Bioenvironmental Microbiology	
BESC 402	Microbial Processes in Bioremediation	
BESC 403	Sampling and Environmental Monitoring	
BESC 411	Environmental Health and Safety Compliance	
BESC 484	Field Experience	
BESC 485	Directed Studies	
BESC 489	Special Topics in...	
BESC 491	Research	
Total Semester Credit Hours		15

Department of Poultry Science

Growth of the poultry industry has created the need for scientific, technical and business knowledge in the various fields important to successful poultry production. In few fields of science is an understanding of the basic sciences, nutrition, genetics, physiology, diseases, biotechnology, processing and marketing more rewarding than in the modern, intensive methods of poultry and food production. Students are trained in the necessary background, analytical skills, problem solving and leadership for complex production units, hatcheries, integrated feed mills, processing plants and research laboratories. Rapid industry growth provides many career opportunities for graduates. Students are given two emphasis areas in which to specialize their education toward their selected career goals. The University Core Curriculum courses and the Poultry Science Core courses are required for both emphases. Students then complete a BS degree in either emphasis area by completing the respective emphasis area courses. All students are strongly encouraged to get early and frequent academic counseling which is readily available.

Faculty

Athrey, Giri, Associate Professor Poultry Science PHD, University of Louisiana at Lafayette, 2009
Domel, Jill, Instructional Assistant Professor Poultry Science PHD, Texas A&M University, 2020
Farnell, Morgan B, Professor Poultry Science PHD, Texas A&M University, 2003
Farnell, Yuhua Z, Instructional Associate Professor Poultry Science PHD, Texas A&M University, 2002
McElroy, Audrey P, Professor Poultry Science PHD, Texas A&M University, 1998
Meisinger, Brett, Lecturer Poultry Science MS, Texas A&M Univeristy, College Station, 2022
Milby-Blackledge, Ally, Instructional Assistant Professor Poultry Science PHD, Texas A&M University, 2024
Oladokun, Samson, Assistant Professor Poultry Science DAG, Dalhousie University, Canada, 2022
Reddy, Sanjay M, Professor Poultry Science BVSc, Andhra Pradesh Agricultural University, India, 1986 PHD, University of Maryland, College Park, 1994
Sams, Alan R, Professor Poultry Science PHD, University of Florida, 1987

Walzem, Rosemary L, Professor
Poultry Science
PHD, University of California at Davis, 1987

Xu, Ziteng, Assistant Professor
Poultry Science
PHD, University of Missouri- Columbia, 2023

Majors

- Bachelor of Science in Poultry Science, Industry Emphasis (p. 219)
- Bachelor of Science in Poultry Science, Technical Emphasis (p. 220)

Minors

- Poultry Science Minor (p. 221)

Poultry Science - BS, Industry Emphasis

Students are trained in the necessary background, analytical skills, problem solving and leadership roles for complex production units, hatcheries, integrated feed mills, processing plants and research laboratories.

Growth of the poultry industry has created the need for scientific, technical and business knowledge in the various fields important to successful poultry production. In few fields of science is an understanding of the basic sciences, nutrition, genetics, physiology, diseases, biotechnology, processing and marketing more rewarding than in the modern, intensive methods of poultry and food production. Rapid industry growth provides many career opportunities for graduates. Students are given two emphasis areas in which to specialize their education toward their selected career goals. The University Core Curriculum courses and the Poultry Science Core courses are required for both emphases. Students then complete a BS degree in either emphasis area by completing the respective emphasis area courses. All students are strongly encouraged to get early and frequent academic counseling which is readily available.

Students completing a BS degree in the industry emphasis find employment with the poultry and food industries in positions such as corporate management, quality assurance, sales or technical support in live production, processing or marketing. Students in this emphasis also get positions with pharmaceutical and equipment companies, with industry trade publications and in various university and public service positions.

Students completing a BS degree in the technical emphasis are prepared for advanced study in biochemistry, nutrition, physiology, molecular genetics, reproduction, processing technology, microbiology or environmental science and for eventual professional employment in research, teaching or public service. This curriculum can be easily tailored to meet the veterinary medicine preprofessional requirements.

Program Requirements

First Year		Semester Credit Hours
Fall		
AGEC 105	Introduction to Agricultural Economics	3
BIOL 111	Introductory Biology I	4
POSC 201	General Avian Science	3
POSC 302	Avian Science Laboratory	1
Communication (p. 27)		3
Semester Credit Hours		14
Spring		
CHEM 119	Fundamentals of Chemistry I	4
POSC 319	Breeder and Hatchery Management	3
American history (p. 30) ¹		3
Language, philosophy and culture (p. 28) ¹		3
Mathematics (p. 27)		3
Semester Credit Hours		16
Second Year		
Fall		
POSC 308	Avian Anatomy and Physiology	3
POSC 309	Poultry Meat Production	4
American history (p. 30) ¹		3
Mathematics (p. 27)		3
General elective ²		3
Semester Credit Hours		16
Spring		
POSC 381	Investigation of Professional Development in Poultry Science	2
Communication (p. 27)		3
Creative arts (p. 30) ¹		3
Government/Political science (p. 31)		3
General elective ²		3
Semester Credit Hours		14
Third Year		
Fall		
AGEC 314 or ACCT 209	Marketing Agricultural and Food Products or Survey of Accounting Principles	3
ANSC 326/ FSTC 326	Food Bacteriology	3
POSC 326	Commercial Egg Industry	3
POSC 414	Avian Genetics and Breeding	3
POSC 427	Animal Waste Management	3
Semester Credit Hours		15
Spring		
CHEM 222	Elements of Organic and Biological Chemistry	3
POSC 429	Advanced Food Bacteriology	4
Select one of the following:		3
ACCT 210	Survey of Managerial and Cost Accounting Principles	
AGEC 340	Agribusiness Management	

AGEC 344	Food and Agricultural Law	
ECON 202	Principles of Economics	
ECON 203	Principles of Economics	
ISTM 209	Business Information Systems Concepts	
MGMT 209	Principles of Business Regulations and Law	
MGMT 309	Survey of Management	
MGMT 311	Legal and Social Environment of Business	
MGMT 312	Commercial Law for Accountants and Managers	
Government/Political science (p. 31)		3
General elective ²		3
Semester Credit Hours		16
Fourth Year		
Fall		
POSC 405	Egg and Poultry Meat Processing	3
POSC 411	Poultry Nutrition	3
POSC 481	Poultry Science Systems	2
General electives ²		6
Semester Credit Hours		14
Spring		
POSC 406	Poultry Further Processing	4
POSC 412	Poultry Feed Formulation	1
STAT 301 or STAT 302	Introduction to Biometry or Statistical Methods	3
VTPB 334	Poultry Diseases	4
General elective ²		3
Semester Credit Hours		15
Total Semester Credit Hours		120

¹ The Graduation requirements include a requirement for 3 hours of International and Cultural Diversity courses and 3 hours Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. See academic advisor.

² To be utilized by students to enhance the science and/or business aspects of their undergraduate program.

Poultry Science - BS, Technical Emphasis

Students are trained in the necessary background, analytical skills, problem solving and leadership roles for complex production units, hatcheries, integrated feed mills, processing plants and research laboratories.

Growth of the poultry industry has created the need for scientific, technical and business knowledge in the various fields important to successful poultry production. In few fields of science is an understanding of the basic sciences, nutrition, genetics, physiology, diseases, biotechnology, processing and marketing more rewarding than in the modern, intensive methods of poultry and food production. Rapid industry growth provides many career opportunities for graduates. Students are given two emphasis areas in which to specialize their education toward their selected career goals. The University Core Curriculum courses and the Poultry Science Core courses are required for

both emphases. Students then complete a BS degree in either emphasis area by completing the respective emphasis area courses. All students are strongly encouraged to get early and frequent academic counseling which is readily available.

Students completing a BS degree in the industry emphasis find employment with the poultry and food industries in positions such as corporate management, quality assurance, sales or technical support in live production, processing or marketing. Students in this emphasis also get positions with pharmaceutical and equipment companies, with industry trade publications and in various university and public service positions.

Students completing a BS degree in the technical emphasis are prepared for advanced study in biochemistry, nutrition, physiology, molecular genetics, reproduction, processing technology, microbiology or environmental science and for eventual professional employment in research, teaching or public service. This curriculum can be easily tailored to meet the veterinary medicine preprofessional requirements.

Program Requirements

First Year

Fall		Semester Credit Hours
CHEM 119	Fundamentals of Chemistry I	4
POSC 201	General Avian Science	3
POSC 302	Avian Science Laboratory	1
Communication (p. 27)		3
Mathematics (p. 27)		3
Semester Credit Hours		14
Spring		
BIOL 111 or BIOL 107	Introductory Biology I or Zoology	4
CHEM 120	Fundamentals of Chemistry II	4
POSC 319	Breeder and Hatchery Management	3
Mathematics (p. 27)		3
Semester Credit Hours		14

Second Year

Fall		
CHEM 257	Organic Chemistry I - Structure and Function	4
POSC 308	Avian Anatomy and Physiology	3
POSC 309	Poultry Meat Production	4
American history (p. 30) ¹		3
Communication (p. 27)		3
Semester Credit Hours		17
Spring		
POSC 381	Investigation of Professional Development in Poultry Science	2
American history (p. 30) ¹		3
Government/Political science (p. 31)		3
Language, philosophy and culture (p. 28) ¹		3
Social and behavioral sciences (p. 31)		3
Semester Credit Hours		14

Third Year**Fall**

BIOL 351 or VTPB 405	Fundamentals of Microbiology or Biomedical Microbiology	4
POSC 326	Commercial Egg Industry	3
POSC 411	Poultry Nutrition	3
Government/Political science (p. 31)		3
General elective ²		3
Semester Credit Hours		16

Spring

BICH 303	Elements of Biological Chemistry	3
POSC 412	Poultry Feed Formulation	1
POSC 429	Advanced Food Bacteriology	4
Creative arts (p. 30) ¹		3
General elective ²		4
Semester Credit Hours		15

Fourth Year**Fall**

GENE 301 & GENE 312	Comprehensive Genetics and Comprehensive Genetics Laboratory	4
POSC 405	Egg and Poultry Meat Processing	3
POSC 427	Animal Waste Management	3
POSC 481	Poultry Science Systems	2
General elective ²		4
Semester Credit Hours		16

Spring

POSC 406	Poultry Further Processing	4
STAT 301 or STAT 302	Introduction to Biometry or Statistical Methods	3
VTPB 334	Poultry Diseases	4
General elective ²		3
Semester Credit Hours		14
Total Semester Credit Hours		120

¹ The graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core (p. 26) category, a college/department requirement, or a free elective can be used to satisfy this requirement. See academic advisor.

² To be utilized by students to enhance the science and/or business aspects of their undergraduate program.

Poultry Science - Minor

The main educational goal of this program is to provide students majoring in other fields with a basic knowledge of various fields within the poultry industry.

The minor in Poultry Science is available to all students enrolled at Texas A&M University. The courses required for this minor will cover information on major topics in the poultry industry.

Program Requirements

Code	Title	Semester Credit Hours
POSC 201	General Avian Science	3
POSC 309	Poultry Meat Production	4
Select three of the following:		9
POSC 308	Avian Anatomy and Physiology	
POSC 313	Game Birds and Ornamental Fowl	
POSC 319	Breeder and Hatchery Management	
POSC 326	Commercial Egg Industry	
POSC 333	Instincts and Behavior	
POSC 381	Investigation of Professional Development in Poultry Science	
POSC 405	Egg and Poultry Meat Processing	
POSC 406	Poultry Further Processing	
POSC 411	Poultry Nutrition	
POSC 414	Avian Genetics and Breeding	
POSC 427	Animal Waste Management	
POSC 429	Advanced Food Bacteriology	
POSC 444	International Poultry Production	
POSC 454	Animal Welfare	
VTPB 334	Poultry Diseases	
Total Semester Credit Hours		16

Must make a grade of C or better.

Department of Rangeland, Wildlife and Fisheries Management

Head: Roel Lopez

Associate Head: Gerard Kyle

Undergraduate Advisors: Michael Werner

The mission of the Department of Rangeland, Wildlife and Fisheries Management (RWFM) is to prepare the next generation of natural resource stewards to generate sound, innovative solutions to address increasing demands of natural resources and associated challenges, such as population growth and land use changes. RWFM curriculum integrates foundational knowledge from several disciplines—biological, physical, and social sciences—along with leadership training, promotion of critical thinking skills and experiential learning opportunities rooted in evidence-based science and practical application.

This program offers students field experiences to best shape them to be natural resources leaders. The department has several partnerships in place to offer facilitated internships where students can experience career-specific jobs and build resume credentials for future employment. Hands-on field experience is offered in the majority of RWFM courses to reinforce classroom principles, and the degree curriculum includes a two-week summer course between sophomore and junior years.

Upon graduation, students are equipped with the necessary background and skills to qualify for career building certifications required in natural resource professions. The undergraduate program prepares students to continue their education in graduate and other professional programs or pursue a wide range of careers in leading conservation and science-based agencies at state and federal levels, as well as private land enterprises and non-governmental organizations. In response to the

complexity and diversity of the field, the BS in RWFM program offers five unique specialization tracks to further tailor a student's degree to best meet post-graduation needs. The Department also offers a unique, five-year combination program with The Bush School of Government and Public Service (<https://bush.tamu.edu/>) enabling undergraduate students to continue into the Master of Public Service and Administration (<https://bush.tamu.edu/psaa/degrees/mpsa/>) program, completing both degrees upon graduation.

Faculty

Barboza, Perry S, Professor
Rangeland, Wildlife and Fisheries Management
PHD, University of New England, 1991

Evans, Steven Gary, Lecturer
Rangeland, Wildlife and Fisheries Management
MS, Colorado State University, 2018

Franks, Todd, Instructional Assistant Professor
Rangeland, Wildlife and Fisheries Management
PHD, Colorado State University, 2023

Hegde, Shraddha Gurupad, Assistant Professor
Rangeland, Wildlife and Fisheries Management
PHD, Mississippi State University, 2022

Kyle, Gerard T, Professor
Rangeland, Wildlife and Fisheries Management
PHD, Pennsylvania State University, 2001

Long, Ashley M, Associate Professor
Rangeland, Wildlife and Fisheries Management
PHD, Texas A&M University, 2014

Lopez, Roel R, Professor
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PHD, Texas A&M University, 2001

Lucero, Jacob Elias, Assistant Professor
Rangeland, Wildlife and Fisheries Management
PHD, University of Montana, 2017

Matarrita Cascante, David, Associate Professor
Rangeland, Wildlife and Fisheries Management
PHD, Pennsylvania State University, 2008

Mohammed, Haitham Hussien, Assistant Professor
Rangeland, Wildlife and Fisheries Management
DVM, Assiut University, Assiut, Egypt, 2003
PHD, Auburn University, 2015

Muhl, Rika M, Lecturer
Rangeland, Wildlife and Fisheries Management
PHD, Texas A&M University, 2018

Perotto, Humberto L, Associate Professor
Rangeland, Wildlife and Fisheries Management
PHD, Texas A&M University, 2005

Shehane, Melissa R, Instructional Assistant Professor
Rangeland, Wildlife and Fisheries Management
PHD, Texas A&M University, 2014

Silvy, Beth, Instructional Assistant Professor
Rangeland, Wildlife and Fisheries Management
PHD, Texas A&M University, 2019

Werdel, Ty, Assistant Professor
Rangeland, Wildlife and Fisheries Management
PHD, Kansas State University, 2022

Majors

- Bachelor of Science in Rangeland, Wildlife and Fisheries Management, Aquaculture and Fisheries Management Track (p. 222)
- Bachelor of Science in Rangeland, Wildlife and Fisheries Management, Natural Resources Management and Policy Track (p. 223)
- Bachelor of Science in Rangeland, Wildlife and Fisheries Management, Outdoor Enterprise Management Track (p. 225)
- Bachelor of Science in Rangeland, Wildlife and Fisheries Management, Rangeland Management Track (p. 226)
- Bachelor of Science in Rangeland, Wildlife and Fisheries Management, Wildlife Management Track (p. 227)
- Bachelor of Science in Rangeland, Wildlife and Fisheries Management and Master of Public Service Administration, 5-Year Degree Program (p. 228)

Minors

- Park and Natural Resource Management Minor (p. 229)
- Rangeland Management Minor (p. 230)
- Wildlife and Fisheries Management Minor (p. 230)

Rangeland, Wildlife and Fisheries Management - BS, Aquaculture and Fisheries Management Track

The Aquaculture and Fisheries Management track blends chemistry, mathematics, and biology basics with the advanced techniques necessary to sustainably manage wild fish populations or inland fishery/aquaculture operations.

Courses are designed to focus on the integration of applied fisheries management and aquaculture production disciplines, preparing students to handle traditional and emerging, complex issues. Core areas of study include fish biology and disease, hatchery management, commercial aquaculture production, restoration and stock enhancement aquaculture aquatic ecosystem management, and water quality management.

Upon graduation, students will meet the basic qualifications to apply for the American Fisheries Society's Associate Fisheries Professional certification, and later the Certified Fisheries Professional certification following professional experience, providing competitive credentials in today's job market. Students will be prepared to seek employment in a variety of careers spanning government agencies, such as Texas Parks and Wildlife and the U.S. Fish and Wildlife Service, or private aquaculture operations.

Program Requirements

First Year

Fall		Semester Credit Hours
AGEC 105	Introduction to Agricultural Economics	3
BIOL 111	Introductory Biology I	4
ENGL 210	Technical and Professional Writing	3
MATH 140	Mathematics for Business and Social Sciences ¹	3
RWFM 101	Exploring Rangeland, Wildlife and Fisheries Management ¹	1

Semester Credit Hours 14

Spring

BIOL 112	Introductory Biology II	4
COMM 203	Public Speaking	3
ECCB 205	Fundamentals of Ecology ¹	3
ECCB 215	Fundamentals of Ecology-Laboratory	1
MATH 142	Business Calculus ¹	3
Semester Credit Hours		14

Second Year

Fall		
CHEM 119	Fundamentals of Chemistry I	4
POLS 206	American National Government	3
RWFM 202	Concepts in Applied Plant Biology ¹	3
Creative arts (p. 30)		3
Language, philosophy and culture (p. 28)		3
Semester Credit Hours		16

Spring

POLS 207	State and Local Government	3
RWFM 305	Principles and Practices of Wildlife and Fisheries Management ¹	3
RWFM 314	Principles of Rangeland Management Around the World	3
RWFM 345 or RWFM 436	Human Dimensions of Natural Resource Management and Policy ¹ or Natural Resources Policy	3
Semester Credit Hours		12

Summer

RWFM 333	Rangeland, Wildlife & Fisheries Field Techniques ¹	3
Semester Credit Hours		3

Third Year

Fall		
ECCB 302	Diversity and Evolution of Vertebrates ¹	3
RWFM 321	Communicating Natural Resources ¹	3
RWFM 370	Aquatic Vegetation Identification and Management ¹	3
STAT 302	Statistical Methods	3
Directed elective ²		4
Semester Credit Hours		16

Spring

AGEC 325	Principles of Farm and Ranch Management	3

RWFM 308	Fish and Wildlife Laws and Administration ¹	3
RWFM 371	Fisheries and Small Impoundment Management ¹	3
RWFM 404 or RWFM 443	Aquatic Ecosystems ¹ or Aquaculture Production and Hatchery Management	3
General elective ³		2-3

Semester Credit Hours 15

Summer

RWFM 484	Internship ¹	1
Semester Credit Hours		1

Fourth Year

Fall		
ECCB 311	Ichthyology	3
RWFM 351	Geographic Information Systems for Resource Management	3
RWFM 375	Conservation of Natural Resources ¹	3
RWFM 410 or RWFM 447	Principles of Fisheries Techniques and Management ¹ or Aquatic Animal Nutrition, Diet Formulation and Feeding	3-4
American history (p. 30)		3
Semester Credit Hours		15

Spring

RWFM 350 or RWFM 445	Wildlife and Fisheries Population Dynamics ¹ or Fish Health and Diseases	3
RWFM 446	Fish Physiology ¹	3
RWFM 481	Senior Seminar ¹	1
American history (p. 30)		3
Directed elective ²		4
Semester Credit Hours		14

Total Semester Credit Hours 120

¹ Must make a grade of C or better.

² Select from CHEM 120, CHEM 222, CHEM 242, GEOG 203, GEOG 213, GEOL 101, GEOL 102, MARS 102, OCNG 251, OCNG 252, PHYS 201, SCSC 301.

³ Select any 100-499 course not used elsewhere.

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. Select in consultation with an academic advisor.

Rangeland, Wildlife and Fisheries Management - BS, Natural Resources Management and Policy Track

The Natural Resources Management and Policy track prepares students to examine environmental and conservation issues through a multi-disciplinary framework that includes political, cultural, social, economic, regulatory and ecological dimensions.

Courses emphasize development of skill sets that promote strong interpersonal skills, leadership and collaboration with varied stakeholder groups. These critical skills are taught in the classroom and through field experiences, working in tandem to enhance students' abilities to assess complex environmental issues, envision a desired conservation outcome, and design and implement a plan needed to bring visions to fruition.

The diverse coursework of this track prepares students for a variety of careers in industries such as public service, outdoor education, park and protected area management, environmental planning and consultation, and non-profit organizations.

Program Requirements

First Year

Fall		Semester Credit Hours
AGEC 105	Introduction to Agricultural Economics	3
BIOL 111	Introductory Biology I	4
ENGL 104	Composition and Rhetoric	3
MATH 140	Mathematics for Business and Social Sciences ¹	3
RWFM 101	Exploring Rangeland, Wildlife and Fisheries Management ¹	1
Semester Credit Hours		14

Spring		
BIOL 112	Introductory Biology II	4
ECCB 205	Fundamentals of Ecology ¹	3
ECCB 215	Fundamentals of Ecology--Laboratory	1
MATH 142	Business Calculus ¹	3
RWFM 202	Concepts in Applied Plant Biology ¹	3
Semester Credit Hours		14

Second Year

Fall		
CHEM 119	Fundamentals of Chemistry I	4
ENGL 210 or COMM 203	Technical and Professional Writing or Public Speaking	3
POLS 206	American National Government	3
RWFM 305	Principles and Practices of Wildlife and Fisheries Management ¹	3
Creative arts (p. 30)		3
Semester Credit Hours		16

Spring		
POLS 207	State and Local Government	3
RWFM 321	Communicating Natural Resources ¹	3
RWFM 375	Conservation of Natural Resources ¹	3
American history (p. 30)		3
Language, philosophy and culture (p. 28)		3
Semester Credit Hours		15

Summer		
RWFM 333	Rangeland, Wildlife & Fisheries Field Techniques ¹	3
Semester Credit Hours		3

Third Year

Fall		
RWFM 308	Fish and Wildlife Laws and Administration	3
RWFM 314	Principles of Rangeland Management Around the World ¹	3
RWFM 322	Community Development and Sustainability ¹	3
RWFM 323	Parks and Protected Area Management ¹	3
RWFM 405	Urban Wildlife and Fisheries ¹	3
Semester Credit Hours		15

Spring		
AGEC 325	Principles of Farm and Ranch Management	3
RWFM 336	Research Methods in the Human Dimensions of Natural Resources ¹	3
RWFM 345	Human Dimensions of Natural Resource Management and Policy ¹	3
RWFM 440	Wetland Delineation ¹	3
STAT 302	Statistical Methods	3
Semester Credit Hours		15

Summer		
RWFM 484	Internship ¹	1
Semester Credit Hours		1

Fourth Year

Fall		
RPTS 460/ ECCB 460	Nature, Values, and Protected Areas	3
RWFM 325	Watershed Analysis and Planning ¹	3
RWFM 351	Geographic Information Systems for Resource Management	3
RWFM 406 or BESC 367	Wildlife Habitat Management ¹ or U.S. Environmental Regulations	3
General elective ²		2
Semester Credit Hours		14

Spring		
RWFM 346	Park Ecology and Management ¹	3
RWFM 436	Natural Resources Policy ¹	3
RWFM 470	Environmental Impact Assessment ¹	3
RWFM 481	Senior Seminar ¹	1
American history (p. 30)		3
Semester Credit Hours		13
Total Semester Credit Hours		120

¹ Must make a grade of C or better.

² Select any 100-499 course not used elsewhere.

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. Select in consultation with an academic advisor.

Rangeland, Wildlife and Fisheries Management - BS, Outdoor Enterprise Management Track

The Outdoor Enterprise Management track is a cross-disciplinary program that provides training in the basic principles of wildlife and fisheries ecology, hospitality and food services, and business management.

Training in this program prepares graduates for employment at any of thousands of hunting and fishing lodges, ranches, corporate retreat facilities, and other consumptive and non-consumptive use facilities worldwide.

Economic expenditures for hunting, fishing, and nature-based tourism are at an all-time high, and service sector businesses that specialize in providing hunting, fishing, and nature-based adventures have substantially increased over the last decade. These popular destinations for outdoor enthusiasts are unique enterprises because their successful operation requires a balance among work activities associated with wildlife management and conservation, hospitality, and business. The most successful enterprises ensure that the consumptive and non-consumptive uses of wildlife and fishery resources meet the ethical standards of society while ensuring that the customer has the experience of a lifetime.

Program Requirements

First Year

Fall		Semester Credit Hours
AGEC 105	Introduction to Agricultural Economics	3
BIOL 111	Introductory Biology I ¹	4
MATH 140	Mathematics for Business and Social Sciences ¹	3
RWFM 101	Exploring Rangeland, Wildlife and Fisheries Management ¹	1
RWFM 103	Introduction to Outdoor Enterprise Management ¹	3
Semester Credit Hours		14
Spring		
BIOL 112	Introductory Biology II	4
ECCB 205	Fundamentals of Ecology ¹	3
ECCB 215	Fundamentals of Ecology-Laboratory ¹	1
ENGL 104	Composition and Rhetoric	3
MATH 142	Business Calculus ¹	3
Creative arts (p. 30)		3
Semester Credit Hours		17

Second Year

Fall		
CHEM 119	Fundamentals of Chemistry I	4
HMG 201	Foundations of Hospitality, Hotel Management and Tourism	3
POLS 206	American National Government	3
RWFM 202	Concepts in Applied Plant Biology ¹	3

American history (p. 30)		3
Semester Credit Hours		16
Spring		
ACCT 209	Survey of Accounting Principles	3
POLS 207	State and Local Government	3
RWFM 305	Principles and Practices of Wildlife and Fisheries Management ¹	3
American history (p. 30)		3
Language, philosophy and culture (p. 28)		3
Semester Credit Hours		15
Summer		
RWFM 333	Rangeland, Wildlife & Fisheries Field Techniques ¹	3
Semester Credit Hours		3
Third Year		
Fall		
AGEC 314	Marketing Agricultural and Food Products	3
HMG 312	Managing Human Capital in Hospitality, Hotel Management, and Tourism	3
RWFM 321	Communicating Natural Resources ¹	3
RWFM 351	Geographic Information Systems for Resource Management ¹	3
STAT 302	Statistical Methods	3
Semester Credit Hours		15
Spring		
AGEC 330	Financial Management in Agriculture	3
HMG 314	Service Quality in Hospitality, Hotel Management, and Tourism	3
RWFM 308	Fish and Wildlife Laws and Administration ¹	3
RWFM 314	Principles of Rangeland Management Around the World ¹	3
RWFM 330	Conservation Principles and the Role of Hunting ¹	3
Semester Credit Hours		15
Summer		
RWFM 484	Internship ¹	1
Semester Credit Hours		1
Fourth Year		
Fall		
COMM 205 or ENGL 210	Communication for Technical Professions or Technical and Professional Writing	3
HMG 353	Food and Beverage Management	3
RWFM 344	Principles of Nature-Based Enterprises ¹	3
RWFM 375	Conservation of Natural Resources ¹	3
Semester Credit Hours		12
Spring		
AGEC 325	Principles of Farm and Ranch Management	3
HMG 451	Law, Negotiation, and Risk Management in Hospitality, Tourism and Recreation	3
RWFM 465	Managing Outdoor Enterprises ¹	3
RWFM 481	Senior Seminar ¹	1

General elective	2
Semester Credit Hours	12
Total Semester Credit Hours	120

¹ Must make a grade of C or better.

Rangeland, Wildlife and Fisheries Management - BS, Rangeland Management Track

The Rangeland Management track combines the disciplines of ecology and range management to best promote the production, conservation, function and stewardship of rangelands found around the world.

Our curriculum focuses on fundamental ecological and rangeland principles used in addressing leading challenges, such as watershed health, invasive exotic plant control and wildland fires. Included in this track is a summer field camp providing intense field experience to solidify principles students will need to pursue advanced coursework in focal management areas.

The Society for Rangeland Management has recognized this track as an accredited program, exceeding acceptable standards in the profession. Upon graduation, students will meet the basic qualifications to apply for certificates as a Certified Professional in Rangeland Management and Certified Range Management Consultants, providing competitive credentials in today's job market. Students will be prepared to seek employment with government agencies, such as the Natural Resources Conservation Service, or head into environmental and natural resources consulting or private sector ranch management.

Program Requirements

First Year

Fall		Semester Credit Hours
AGEC 105	Introduction to Agricultural Economics	3
BIOL 111	Introductory Biology I	4
ENGL 104	Composition and Rhetoric	3
MATH 140	Mathematics for Business and Social Sciences ¹	3
RWFM 101	Exploring Rangeland, Wildlife and Fisheries Management ¹	1
Semester Credit Hours		14
Spring		
BIOL 112	Introductory Biology II	4
ECCB 205	Fundamentals of Ecology ¹	3
ECCB 215	Fundamentals of Ecology-Laboratory	1
MATH 142	Business Calculus ¹	3
RWFM 202	Concepts in Applied Plant Biology ¹	3
Semester Credit Hours		14
Second Year		
Fall		
CHEM 119	Fundamentals of Chemistry I	4

ENGL 210 or COMM 203	Technical and Professional Writing or Public Speaking	3
POLS 206	American National Government	3
RWFM 305	Principles and Practices of Wildlife and Fisheries Management ¹	3
Creative arts (p. 30)		3
Semester Credit Hours		16
Spring		
POLS 207	State and Local Government	3
RWFM 375	Conservation of Natural Resources ¹	3
American history (p. 30)		3
Language, philosophy and culture (p. 28)		3
Directed elective ²		3
Semester Credit Hours		15
Summer		
RWFM 333	Rangeland, Wildlife & Fisheries Field Techniques ¹	3
Semester Credit Hours		3
Third Year		
Fall		
RWFM 302	Wildland Plants of North America ¹	3
RWFM 308	Fish and Wildlife Laws and Administration	3
RWFM 314	Principles of Rangeland Management Around the World ¹	3
SCSC 301	Soil Science	4
Directed elective ²		3
Semester Credit Hours		16
Spring		
RWFM 301	Wildland Watershed Management ¹	3
RWFM 313	Vegetation Sampling Methods and Designs in Ecosystems ¹	3
RWFM 317	Vegetation Management ¹	3
RWFM 321	Communicating Natural Resources ¹	3
STAT 302	Statistical Methods	3
Semester Credit Hours		15
Summer		
RWFM 484	Internship ¹	1
Semester Credit Hours		1
Fourth Year		
Fall		
RWFM 316	Range Ecology ¹	3
RWFM 351	Geographic Information Systems for Resource Management	3
RWFM 415	Range Analysis and Management Planning ¹	4
Select one of the following:		3
ECCB 312	Diversity, Evolution, and Ecology of Grasses ¹	
RWFM 370	Aquatic Vegetation Identification and Management ¹	
RWFM 480	Plant Identification and Undergraduate Range Management Exam ¹	
Semester Credit Hours		13

Spring

AGEC 325	Principles of Farm and Ranch Management	3
RWFM 349	Rangeland and Wildlife Animal Nutrition ¹	3
RWFM 401	Rangeland Plant and Herbivory Dynamics ¹	3
RWFM 481	Senior Seminar ¹	1
American history (p. 30)		3
Semester Credit Hours		13
Total Semester Credit Hours		120

¹ Must make a grade of C or better.

² Select from AGECE 350, ANSC 107, ANSC 108, ANSC 302, ECCB 304, ECCB 416, RWFM 406, RWFM 345, RWFM 436, RWFM 440, RWFM 480, SCSC 310.

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. Select in consultation with an academic advisor.

Rangeland, Wildlife and Fisheries Management - BS, Wildlife Management Track

The Wildlife Management track builds a strong foundation in managing wildlife populations and their habitats, with courses targeting key topics such as wildlife population dynamics, anatomy and physiology, habitat management principles and wildlife techniques.

Included in this track are summer field practicum and internship requirements providing intense field experience opportunities to solidify principles students will need to understand to pursue advanced coursework in focal management areas.

Upon graduation, students will meet the basic qualifications to apply for The Wildlife Society's Associate Wildlife Biologist certification, and later the Certified Wildlife Biologist certification following professional experience, providing competitive credentials in today's job market. This program is designed to teach the necessary background and experience to seek careers in the growing wildlife management field and to prepare students to lead in the wildlife profession through advanced technical skills, professional communication, and scientific expertise. Students will be prepared to seek employment with government agencies, such as Texas Parks and Wildlife and the U.S. Fish and Wildlife Service, or venture into biological consulting, environmental non-profit agencies, or research-oriented professions.

Program Requirements

First Year

Fall		Semester Credit Hours
AGEC 105	Introduction to Agricultural Economics	3
BIOL 111	Introductory Biology I	4
ENGL 104	Composition and Rhetoric	3
MATH 140	Mathematics for Business and Social Sciences ¹	3

RWFM 101	Exploring Rangeland, Wildlife and Fisheries Management ¹	1
Semester Credit Hours		14

Spring

BIOL 112	Introductory Biology II	4
ECCB 205	Fundamentals of Ecology ¹	3
ECCB 215	Fundamentals of Ecology-Laboratory	1
MATH 142	Business Calculus ¹	3
RWFM 202	Concepts in Applied Plant Biology ¹	3
Semester Credit Hours		14

Second Year**Fall**

CHEM 119	Fundamentals of Chemistry I	4
ENGL 210	Technical and Professional Writing	3
or COMM 203	or Public Speaking	
POLS 206	American National Government	3
RWFM 375	Conservation of Natural Resources ¹	3
Creative arts (p. 30)		3
Semester Credit Hours		16

Spring

POLS 207	State and Local Government	3
RWFM 305	Principles and Practices of Wildlife and Fisheries Management ¹	3
American history (p. 30)		3
Language, philosophy and culture (p. 28)		3
Physical science elective ²		4
Semester Credit Hours		16

Summer

RWFM 333	Rangeland, Wildlife & Fisheries Field Techniques ¹	3
Semester Credit Hours		3

Third Year**Fall**

ECCB 302	Diversity and Evolution of Vertebrates ¹	3
RWFM 302	Wildland Plants of North America ¹	3
RWFM 314	Principles of Rangeland Management Around the World	3
RWFM 351	Geographic Information Systems for Resource Management	3
STAT 302	Statistical Methods	3
Semester Credit Hours		15

Spring

RWFM 308	Fish and Wildlife Laws and Administration ¹	3
RWFM 321	Communicating Natural Resources ¹	3
RWFM 350	Wildlife and Fisheries Population Dynamics ¹	3

Select one of the following:		3
ECCB 315	Herpetology	
ECCB 401	General Mammalogy	
ECCB 402	General Ornithology	
Directed elective ³		3
Semester Credit Hours		15

Summer

RWFM 484	Internship ¹	1
Semester Credit Hours		1

Fourth Year**Fall**

RWFM 370	Aquatic Vegetation Identification and Management ¹	3
RWFM 406	Wildlife Habitat Management ¹	3
Physical science elective ²		4
American history (p. 30)		3
Semester Credit Hours		13

Spring

AGEC 325	Principles of Farm and Ranch Management	3
RWFM 408	Techniques of Wildlife Management ¹	3
RWFM 481	Senior Seminar ¹	1
RWFM 345 or RWFM 436	Human Dimensions of Natural Resource Management and Policy ¹ or Natural Resources Policy	3
Directed elective ³		3
Semester Credit Hours		13
Total Semester Credit Hours		120

¹ Must make a grade of C or better.

² Select from CHEM 120, CHEM 222, CHEM 242, GEOG 203, GEOG 213, GEOL 101, GEOL 102, MARS 102, OCNG 251, OCNG 252, PHYS 201, SCSC 301.

³ Select from ECCB 311 or any RWFM 300-499 (p. 1222) course not used elsewhere.

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. Select in consultation with an academic advisor.

Rangeland, Wildlife and Fisheries Management- 5-year Bachelor of Science and Master of Public Service Administration

This program integrates the science and practice of managing fish and wildlife populations with policies for these public resources on both public and private lands.

The five-year degree program with the Bush School of Government and Public Service allows undergraduate students in Rangeland, Wildlife and Fisheries Management to enter the Master of Public Service and Administration program at the beginning of their fourth year. Students are prepared for careers in conservation with a foundation in life and physical sciences, mathematics, and problem-solving skills that accommodate animals and their habitats within larger ecological systems. Upon graduation, students are prepared for a wide variety of post-graduate opportunities including employment in local, state, or federal government, non-profit organizations and private industry.

Program Requirements

First Year**Fall**

		Semester Credit Hours
AGEC 105	Introduction to Agricultural Economics	3
BIOL 111	Introductory Biology I	4
ENGL 104	Composition and Rhetoric	3
MATH 140	Mathematics for Business and Social Sciences ¹	3
Creative arts (p. 30)		3
Semester Credit Hours		16

Spring

BIOL 112	Introductory Biology II	4
ECCB 205	Fundamentals of Ecology	3
MATH 142	Business Calculus	3
American history (p. 30)		3
Language, philosophy and culture (p. 28)		3
Semester Credit Hours		16

Second Year**Fall**

CHEM 119	Fundamentals of Chemistry I	4
COMM 203 or ENGL 210	Public Speaking or Technical and Professional Writing	3
ECCB 302	Diversity and Evolution of Vertebrates	3
POLS 206	American National Government	3
American history (p. 30)		3
Semester Credit Hours		16

Spring

CHEM 222	Elements of Organic and Biological Chemistry	3
ECCB 215	Fundamentals of Ecology–Laboratory	1
POLS 207	State and Local Government	3
RWFM 202	Concepts in Applied Plant Biology	3
RWFM 351	Geographic Information Systems for Resource Management	3
Biodiversity		3
Select one of the following:		
ECCB 315	Herpetology	
ECCB 401	General Mammalogy	
ECCB 402	General Ornithology	
Semester Credit Hours		16

Third Year**Fall**

RWFM 302 or RWFM 370	Wildland Plants of North America or Aquatic Vegetation Identification and Management	3
RWFM 308	Fish and Wildlife Laws and Administration	3
RWFM 314	Principles of Rangeland Management Around the World	3
RWFM 350	Wildlife and Fisheries Population Dynamics	3
RWFM 408	Techniques of Wildlife Management	3

SCSC 301	Soil Science	4
Semester Credit Hours		19
Spring		
RWFM 305	Principles and Practices of Wildlife and Fisheries Management	3
RWFM 345	Human Dimensions of Natural Resource Management and Policy	3
RWFM 349	Rangeland and Wildlife Animal Nutrition	3
RWFM 406	Wildlife Habitat Management	3
RWFM 419	Wildlife Restoration	3
RWFM 481	Senior Seminar	1
STAT 302	Statistical Methods	3
Semester Credit Hours		19
Fourth Year		
Fall		
BUSH 631	Quantitative Methods in Public Management I ²	3
PSAA 601	Foundations of Public Service ²	3
PSAA 621	Economic Analysis ²	3
PSAA 643	Foundations of the Nonprofit Sector ²	3
Semester Credit Hours		12
Spring		
PSAA 611	Public Policy Formation ²	3
Select one of the following:		3
BUSH 632	Quantitative Methods in Public Management II	
BUSH 635	Quantitative Methods in Public Management II: Policy Analysis Emphasis	
PSAA 630	Program Evaluation in Public and Nonprofit Organizations	
Select one of the following:		3
PSAA 622	Public Finance	
PSAA 634	Public Management	
PSAA 644	Management and Leadership of Nonprofit Organizations	
RWFM directed elective ^{2,3}		3
Semester Credit Hours		12
Fifth Year		
Fall		
PSAA 675	Public Service and Administration Capstone Seminar	3
Select one of the following:		3
PSAA 615	Policy Analysis	
PSAA 623	Budgeting in Public Service	
PSAA 632	Fiscal Management for Nonprofits	
Directed electives ⁴		6
Semester Credit Hours		12
Spring		
PSAA 676	Public Service and Administration Capstone Seminar II	3
Directed electives ⁴		9
Semester Credit Hours		12
Total Semester Credit Hours		150

¹ Must make a grade of C or better.

² Courses taken for credit in both the undergraduate and graduate degree for a combined total of 18 credits: BUSH 631, PSAA 601, PSAA 611, PSAA 621, PSAA 643, and RWFM directed elective.

³ Select a 600-level course from ECCB or RWFM.

⁴ Directed electives to be chosen to meet requirements for one of the three degree tracks in Master of Public Service and Administration (MPSA): Public Policy Analysis (PPA), Public Management (PM), or Non-Profit Management (NPM).

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. Select in consultation with an academic advisor.

The program includes a total of 168 hours which up to 18 hours may be applied toward both the Bachelor of Science in Rangeland, Wildlife and Fisheries Management and the Master of Public Service Administration.

Total Program Hours 168

Park and Natural Resource Management - Minor

This program focuses on integrating concepts of bio-environmental sciences, social and behavioral sciences, and policy and administrative decision-making to equip future land managers and related professionals with the background and skills necessary for the management of natural and cultural resources associated with conserving parks and other protected areas.

The minor in Park and Natural Resource Management is offered from the Department of Rangeland, Wildlife and Fisheries Management (RWFM) for undergraduate majors to further refine their studies.

This minor is ideal for students interested in careers in recreation, park, and tourism fields, including those offered by state and federal agencies, private enterprises, non-profit organizations, youth camps, and environmental education programs.

Program Requirements

Code	Title	Semester Credit Hours
RWFM 323	Parks and Protected Area Management	3
RWFM 345	Human Dimensions of Natural Resource Management and Policy	3
RWFM 346	Park Ecology and Management	3
RWFM 436	Natural Resources Policy	3
Select from the following: ¹		6
ECCB 460/ RPTS 460	Nature, Values, and Protected Areas	
RWFM 322	Community Development and Sustainability	
RWFM 336	Research Methods in the Human Dimensions of Natural Resources	
RWFM 375	Conservation of Natural Resources	

RWFM 400/Study Abroad in Natural Resources
ECCB 452
RWFM 470 Environmental Impact Assessment

Total Semester Credit Hours**18**

¹ Students are responsible to check each course for required prerequisites.

Must make a grade of C or better in each course used towards minor.

Minimum of 6 hours must be 300-400 level.

Rangeland Management - Minor

This program focuses on developing and integrating the disciplines of ecology and range management to best promote the production, conservation, function, and stewardship of rangelands found around the world.

The minor in Rangeland Management is offered from the Department of Rangeland, Wildlife and Fisheries Management (RWFM) for undergraduate majors to further refine their studies. The minor is available to students in all majors except for RWFM students within Rangeland Management. Our curriculum focuses on fundamental ecological and rangeland principles used in addressing leading challenges, such as watershed health, invasive exotic plant control and wildland fires.

An internship, RWFM 484, is available for minors above the required 18 hours.

Program Requirements

Code	Title	Semester Credit Hours
RWFM 202	Concepts in Applied Plant Biology	3
RWFM 302	Wildland Plants of North America	3
RWFM 314	Principles of Rangeland Management Around the World	3
RWFM 316	Range Ecology	3
Select two of the following:		6
RWFM 301	Wildland Watershed Management	
RWFM 313	Vegetation Sampling Methods and Designs in Ecosystems	
RWFM 317	Vegetation Management	
RWFM 349	Rangeland and Wildlife Animal Nutrition	
RWFM 411	Ecosystem Management	
Total Semester Credit Hours		18

Minimum required 2.5 GPA to declare minor.

Must make a grade of C or better in each course used towards minor.

Minimum of 6 hours at 300-400 level.

Wildlife and Fisheries Management - Minor

This program focuses on developing a foundation in techniques of wildlife and fisheries management, including managing wildlife populations and their habitats as well as integration of applied fisheries management, preparing students to handle traditional and emerging, complex issues.

The minor in Wildlife and Fisheries Management provides the student with an introduction to the fundamentals of this area of study. The minor is available to students in all majors except for RWFM students within Wildlife Management or Aquaculture and Fisheries Management. The minor is administered by the Department of Rangeland, Wildlife and Fisheries Management.

An internship, RWFM 484, is available for minors above the required 18 hours.

Program Requirements

Code	Title	Semester Credit Hours
RWFM 305	Principles and Practices of Wildlife and Fisheries Management	3
RWFM 350	Wildlife and Fisheries Population Dynamics	3
Wildlife emphasis		
Select two of the following:		6
RWFM 405	Urban Wildlife and Fisheries	
RWFM 406	Wildlife Habitat Management	
RWFM 408	Techniques of Wildlife Management	
Fisheries emphasis		
Select two of the following:		6
RWFM 370	Aquatic Vegetation Identification and Management	
RWFM 371	Fisheries and Small Impoundment Management	
RWFM 404	Aquatic Ecosystems	
Total Semester Credit Hours		18

Minimum required 2.5 GPA to declare minor.

Must make a grade of C or better in each course used towards minor.

Minimum of 6 hours at 300-400 level.

Department of Soil and Crop Sciences

Undergraduate students who complete the undergraduate course of study receive the degree of Bachelor of Science in Plant and Environmental Soil Science or Turfgrass Science.

The BS degrees require a minimum of 120 credit hours. Details of course requirements are given in the Texas A&M University Undergraduate Catalog by accessing the program pages. Information on undergraduate admissions can be obtained from the Office of Admissions (<http://>

admissions.tamu.edu/). We encourage prospective students to make an appointment with an academic advisor prior to applying.

Soil and Crop Sciences offers a wide variety of experiential learning opportunities for students to achieve their graduation needs. Undergraduates are required to complete an internship or undergraduate research experience. Study Abroad opportunities are also offered as an elective. Students are able to complete their experiential learning requirement regionally, nationally, or internationally. Information about undergraduate research and internship opportunities can be obtained from students' academic advisors and professors.

Faculty

Aburto Guerrero, Felipe Andres, Associate Professor
Soil & Crop Sciences
PHD, University of California Davis, 2014

Bagavathiannan, Muthukumar V, Professor
Soil & Crop Sciences
PHD, University of Manitoba, Canada, 2010

Baltensperger, David D, Professor
Soil & Crop Sciences
PHD, New Mexico State University, 1981

Carson, Katherine H, Instructional Assistant Professor
Soil & Crop Sciences
PHD, University of Arkansas, 1999

Deng, Youjun, Professor
Soil & Crop Sciences
PHD, Texas A&M University, 2001

Finlayson, Scott A, Associate Professor
Soil & Crop Sciences
PHD, University of Calgary, 1994

Gentry, Terry J, Professor
Soil & Crop Sciences
PHD, University of Arizona, 2003

Hays, Dirk B, Professor
Soil & Crop Sciences
PHD, University of Calgary, 1997

Howe, Julie A, Professor
Soil & Crop Sciences
PHD, University of Wisconsin, Madison, 2004

Hussey, Mark Allen, Professor
Soil & Crop Sciences
PHD, Texas A&M University, 1983

Ibrahim, Amir M, Professor
Soil & Crop Sciences
PHD, Colorado State University, 1998

Jessup, Russell W, Professor
Soil & Crop Sciences
PHD, Texas A&M University, 2005

Liu, Shuyu, Professor
Soil & Crop Sciences
PHD, University of Missouri-Columbia, 2003

McInnes, Kevin J, Professor
Soil & Crop Sciences
PHD, Kansas State University, 1985

Murray, Seth C, Professor
Soil & Crop Sciences
PHD, Cornell University, 2008

Okumoto, Sakiko, Associate Professor
Soil & Crop Sciences
PHD, Tübingen University, 2003

Rajan, Nithya, Professor
Soil & Crop Sciences
PHD, Texas Tech University, 2007

Rooney, William L, Professor
Soil & Crop Sciences
PHD, University of Minnesota, 1992

Septiningsih, Endang M, Professor
Soil & Crop Sciences
PHD, Cornell University, 2002

Smith, A. Peyton, Associate Professor
Soil & Crop Sciences
PHD, University of Wisconsin, Madison, 2013

Smith, C W, Professor
Soil & Crop Sciences
PHD, University of Tennessee, 1974

Stelly, David M, Professor
Soil & Crop Sciences
PHD, University of Wisconsin, Madison, 1983

Szerlag, Kathryn Daria, Assistant Professor
Soil & Crop Sciences
PHD, University of Delaware, 2021

Thomson, Michael J, Professor
Soil & Crop Sciences
PHD, Cornell University, 2002

Verhoef, Aart, Assistant Professor
Soil & Crop Sciences
PHD, Ludwig-Maximilians-Universität München, 2007

Wang, Ying, Assistant Professor
Soil & Crop Sciences
PHD, University of California, 2019

Wherley, Benjamin G, Professor
Soil & Crop Sciences
PHD, North Carolina State University, 2008

Wyatt, Briana, Associate Professor
Soil & Crop Sciences
PHD, Oklahoma State University, 2019

Zhang, Hongbin, Research Professor
Soil & Crop Sciences
PHD, University of California at Davis, 1990

Majors

- Bachelor of Science in Plant and Environmental Soil Science, Crops Emphasis (p. 232)
- Bachelor of Science in Plant and Environmental Soil Science, Soil and Water Emphasis (p. 233)
- Bachelor of Science in Turfgrass Science (p. 234)

Minors

- Agronomy Minor (p. 235)
- Environmental Soil Science Minor (p. 236)
- Plant Breeding Minor (p. 236)

Plant and Environmental Soil Science - BS, Crops Emphasis

Students in this program develop and utilize basic scientific knowledge to understand the most fundamental resources, including plants, soils, and water, and the interaction of these resources in different environmental settings.

Curriculum in Plant and Environmental Soil Science is administered by the Department of Soil and Crop Sciences. The required courses provide an essential foundation in several disciplines, while the elective courses can be selected to meet the interests, needs and objectives of individual students.

Based on professional goals and objectives, students majoring in Plant and Environmental Soil Science will select an emphasis in crops or soil and water. The crops emphasis focuses on the principles of production, management, marketing and use of fiber, forage, grain, biofuel and oilseed crops. The graduate in Plant and Environmental Soil and Science with a crops emphasis may choose a career in: education such as consulting, extension, or public relations, or in production agriculture such as biofuel or seed production, farming, or farm management.

Flexible curricula are provided so that each student, in consultation with their academic advisor, can design a degree program that best serves the student's career objectives.

Program Requirements

First Year

Fall		Semester Credit Hours
BIOL 101 or BIOL 111	Botany or Introductory Biology I	4
POLS 206	American National Government ¹	3
SCSC 205	Problem Solving in Plant and Soil Systems	3
Communication (p. 27) ¹		3
Mathematics (p. 27) ³		3
Semester Credit Hours		16
Spring		
POLS 207	State and Local Government	3
SCSC 301	Soil Science	4
Select one of the following:		3
AGEC 105	Introduction to Agricultural Economics	
ECON 202	Principles of Economics	

ECON 203	Principles of Economics	
Life and physical sciences ²		4
Mathematics (p. 27) ³		3
Semester Credit Hours		17
Second Year		
Fall		
COMM 203	Public Speaking	3
ENTO 201	General Entomology	3
American history (p. 30) ¹		3
Language, philosophy and culture (p. 28) ¹		3
Life and physical sciences ²		4
Semester Credit Hours		16
Spring		
PLPA 301	Plant Pathology	3
PLPA 303	Plant Pathology Laboratory	1
SCSC 307	Crop Biology and Physiology	4
American history (p. 30) ¹		3
PSSC science elective ⁴		3
Semester Credit Hours		14
Third Year		
Fall		
SCSC 311	Principles of Crop Production	3
SCSC 402	Crop Stress Management	4
Select one of the following: ⁵		3
STAT 201	Elementary Statistical Inference	
STAT 301	Introduction to Biometry	
STAT 302	Statistical Methods	
STAT 303	Statistical Methods	
STAT 312	Statistics for Biology	
Creative arts (p. 30)		3
Semester Credit Hours		13
Spring		
SCSC 309	Water in Soils and Plants	3
Select one of the following:		3
GENE 301	Comprehensive Genetics	
GENE 310	Principles of Heredity	
SCSC 304	Plant Breeding and Genetics	
Directed elective ⁶		6
General elective		3
Semester Credit Hours		15
Fourth Year		
Fall		
SCSC 422	Soil Fertility and Plant Nutrient Management	3
SCSC 432	Soil Fertility and Plant Nutrient Management Laboratory	1
SCSC 446	Weed Management and Ecology	3
SCSC 484 or SCSC 491	Internship or Research	3
Directed electives ⁶		4
Semester Credit Hours		14

Spring

SCSC 481	Senior Seminar	2
Directed electives ⁶		7
General elective		6
Semester Credit Hours		15
Total Semester Credit Hours		120

¹ Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a University Core Curriculum (p.) category, a college/department requirement, or a general elective can be used to satisfy this requirement. Select in consultation with an academic advisor.

² Select from BIOL 112, CHEM 119, CHEM 120, GEOL 101 and GEOL 102, HORT 201 and HORT 202, PHYS 201, PHYS 202.

³ Select from MATH 135, MATH 136, MATH 140, MATH 142, MATH 147, MATH 148, MATH 150, MATH 151, MATH 152, MATH 167, MATH 168, MATH 171, MATH 172.

⁴ Select from CHEM 222, CHEM 227, CHEM 316, BIOL 206, ECCB 205.

⁵ Statistics course should be selected in consultation with an academic advisor.

⁶ In consultation with academic advisor select from AGCJ 404, AGEC 325, AGEC 340, AGSM 201, AGSM 335, AGSM 301, AGSM 310, AGSM 435, ALED 339, ANSC 107, ANSC 320, ATMO 210, BESC 320, BESC 367, BESC 401, BESC 403, BICH 303, BICH 409, BICH 431/ GENE 431, BICH 432/GENE 432, BICH 450/BIOL 450, BIOL 112, BIOL 113, BIOL 206, BIOL 350, CHEM 119, CHEM 120, CHEM 222, CHEM 227, CHEM 228, CHEM 237, CHEM 238, CHEM 257, CHEM 258, CHEM 316, CHEM 318, CHEM 327, CHEM 328, CHEM 362, CHEM 383, CHEM 415, CSCE 111, ENTO 201, ENTO 401, ENTO 402, ECCB 311, ECCB 351, ECCB 406/GEOG 462, ECCB 407, ECCB 444, ECCB 446, GENE 301, GENE 312, GENE 412, GEOL 390, GEOL 101, GEOL 102, GEOL 443/GEOL 443, MATH 140, MATH 142, MATH 147, MATH 148, MATH 150, MATH 151, MATH 152, MATH 167, MATH 168, MATH 171, MATH 172, MATH 251, MATH 253, MGMT 309, OCNG 469, PHYS 201, PHYS 202, PHYS 206, PHYS 207, PLPA 301, PLPA 334, POSC 427, ECCB 205, RWFM 314, RWFM 317, RWFM 325, RWFM 440, SCSC 105-499 (p. 1229), STAT 404.

Plant and Environmental Soil Science - BS, Soil and Water Emphasis

Students in this program develop and utilize basic scientific knowledge to understand the most fundamental resources, including plants, soils, and water, and the interaction of these resources in different environmental settings.

Curriculum in Plant and Environmental Soil Science is administered by the Department of Soil and Crop Sciences. The required courses provide an essential foundation in several disciplines, while the elective courses can be selected to meet the interests, needs and objectives of individual students.

Based on professional goals and objectives, students majoring in Plant and Environmental Soil Science will select an emphasis in crops or soil and water. In the soil and water emphasis, students will study the nature, properties, management, conservation, and use of soils and water. The graduate in Plant and Environmental Soil and Science with a soil and water emphasis may choose a career in: soil and water resource management such as soil surveying, land appraisal, land use planning,

conservation and pollution abatement, or watershed management, or in environmental areas such as pollution control and environmental protection as affected by plant-soil-water interactions.

Flexible curricula are provided so that each student, in consultation with their academic advisor, can design a degree program that best serves the student's career objectives.

Program Requirements

First Year

		Semester Credit Hours
Fall		
POLS 206	American National Government ¹	3
SCSC 205	Problem Solving in Plant and Soil Systems	3
Communication (p. 27) ¹		3
Life and physical sciences ²		4
Mathematics (p. 27) ³		3
Semester Credit Hours		16

Spring

POLS 207	State and Local Government ¹	3
SCSC 301	Soil Science	4
Select one of the following:		3
AGEC 105	Introduction to Agricultural Economics	
ECON 202	Principles of Economics	
ECON 203	Principles of Economics	
Life and physical sciences ²		4
Mathematics (p. 27) ³		3
Semester Credit Hours		17

Second Year

Fall		
COMM 203	Public Speaking	3
American history (p.) ¹		3
Language, philosophy and culture (p. 28) ¹		3
Life and physical sciences ²		4
Soils emphasis elective ⁴		3
Semester Credit Hours		16

Spring

SCSC 307	Crop Biology and Physiology	4
American history (p.) ¹		3
PSSC science elective ⁵		3
Directed electives ⁶		4
Semester Credit Hours		14

Third Year

Fall		
Select one of the following: ⁷		3
STAT 201	Elementary Statistical Inference	
STAT 301	Introduction to Biometry	
STAT 302	Statistical Methods	
STAT 303	Statistical Methods	
STAT 312	Statistics for Biology	
Creative arts (p.)		3
Soils emphasis elective ⁴		3

Directed electives ⁶	4
Semester Credit Hours	13
Spring	
SCSC 309 Water in Soils and Plants	3
Select one of the following:	3
GENE 301 Comprehensive Genetics	
GENE 310 Principles of Heredity	
SCSC 304 Plant Breeding and Genetics	
Directed elective ⁶	3
General elective	3
Semester Credit Hours	12
Fourth Year	
Fall	
SCSC 422 Soil Fertility and Plant Nutrient Management	3
SCSC 432 Soil Fertility and Plant Nutrient Management Laboratory	1
SCSC 484 Internship or SCSC 491 or Research	3
Soils emphasis elective ⁴	3
Directed electives ⁶	6
Semester Credit Hours	16
Spring	
SCSC 481 Senior Seminar	2
Directed electives ⁶	9
General electives	5
Semester Credit Hours	16
Total Semester Credit Hours	120

¹ Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core (p. 26) category, a college/department requirement, or a general elective can be used to satisfy this requirement. Select in consultation with an academic advisor.

² Select from BIOL 101, BIOL 111, BIOL 112, CHEM 119, CHEM 120, GEOL 101 and GEOL 102, HORT 201 and HORT 202, PHYS 201, PHYS 202.

³ Select from MATH 135, MATH 136, MATH 140, MATH 142, MATH 147, MATH 148, MATH 150, MATH 151, MATH 152, MATH 167, MATH 168, MATH 171, MATH 172.

⁴ Select from SCSC 310, SCSC 405, SCSC 424, SCSC 455, SCSC 458.

⁵ Select from CHEM 222, CHEM 227, CHEM 316, BIOL 206, ECCB 205.

⁶ In consultation with academic advisor select from the following AGCJ 404, AGECE 325, AGECE 340, AGSM 201, AGSM 335, AGSM 301, AGSM 310, AGSM 435, ALED 339, ANSC 107, ANSC 320, ATMO 210, BESC 320, BESC 367, BESC 401, BESC 403, BICH 303, BICH 409, BICH 431/GENE 431, BICH 432/GENE 432, BICH 450/BIOL 450, BIOL 111, BIOL 112, BIOL 113, BIOL 206, BIOL 350, CHEM 119, CHEM 120, CHEM 222, CHEM 227, CHEM 228, CHEM 237, CHEM 238, CHEM 257, CHEM 258, CHEM 316, CHEM 318, CHEM 327, CHEM 328, CHEM 362, CHEM 383, CHEM 415, CSCE 111, ENTO 201, ENTO 401, ENTO 402, ECCB 311, ECCB 351, ECCB 406/GEOG 462, ECCB 407, ECCB 444, ECCB 446, GENE 301, GENE 312, GENE 412, GEOG 390, GEOL 101, GEOL 102, GEOL 443/GEOG 443, MATH 140, MATH 142, MATH 147, MATH 148, MATH 150, MATH 151, MATH 152, MATH 167, MATH 168, MATH 171, MATH 172, MATH 251, MATH 253, MGMT 309, OCNG 469, PHYS 201, PHYS 202, PHYS 206, PHYS 207, PLPA 301,

PLPA 303, PLPA 334, POSC 427, ECCB 205, RWFM 314, RWFM 317, RWFM 325, RWFM 440, SCSC 105-499 (p. 1229), STAT 404. At least 6 hours must be 300-level or above.

⁷ Statistics course to be selected in consultation with academic advisor.

Turfgrass Science - BS

Students in this program develop and utilize basic scientific knowledge to understand the most fundamental resources, including turfgrass, soils, and water, and the interaction of these resources in different environmental settings.

Curriculum in Turfgrass Science is administered by the Department of Soil and Crop Sciences. The required courses provide an essential foundation, while the elective courses (i.e., ornamental horticulture, plant protection, business, landscape architecture) can be selected to meet the interests, needs and objectives of individual students.

Turfgrass Science prepares graduates for careers in: management—golf courses, athletic fields, public, private or commercial grounds; production agriculture—turfgrass production, or plant breeding; agribusiness—seed sales, turf equipment and supplies, landscape contractor, commercial or home lawn care specialists; education—consulting, extension, or public relations.

Program Requirements

First Year

Fall	Semester Credit Hours
SCSC 205 Problem Solving in Plant and Soil Systems	3
American history (p. 30) ¹	3
Communication (p. 27) ¹	3
Government/Political science (p. 31) ¹	3
Mathematics (p. 27) ²	3
Semester Credit Hours	15
Spring	
AGEC 105 Introduction to Agricultural Economics	3
COMM 203 Public Speaking	3
American history (p. 30) ¹	3
Government/Political science (p. 31) ¹	3
Mathematics (p. 27) ²	3
Semester Credit Hours	15

Second Year

Fall	Semester Credit Hours
CHEM 119 Fundamentals of Chemistry I	4
Select one of the following:	3
ENTO 201 General Entomology	
ENTO 401 Principles of Integrated Pest Management	
PLPA 334 Turfgrass Pathology	
SCSC 446 Weed Management and Ecology	
Language, philosophy and culture (p. 28) ¹	3
Directed elective ³	3
General elective	1-2
Semester Credit Hours	15

Spring

HORT 201	Horticultural Science and Practices	3

Select one of the following:		3-4

CHEM 222	Elements of Organic and Biological Chemistry	

CHEM 227	Organic Chemistry I	

CHEM 257	Organic Chemistry I - Structure and Function	

Select one of the following:		4

BIOL 101	Botany	

BIOL 111	Introductory Biology I	

CHEM 120	Fundamentals of Chemistry II	

GEOL 101 & GEOL 102	Principles of Geology and Principles of Geology Laboratory	

PHYS 201	College Physics	

Select one of the following:		3

ENTO 201	General Entomology	

ENTO 401	Principles of Integrated Pest Management	

PLPA 334	Turfgrass Pathology	

SCSC 446	Weed Management and Ecology	

Creative arts (p. 30) ¹		3

Semester Credit Hours	16

Third Year**Fall**

SCSC 301	Soil Science	4

SCSC 302	Recreational Turf	3

SCSC 312	Professional Development in Turfgrass	1

Select one of the following: ⁴		3

RWFM 313	Vegetation Sampling Methods and Designs in Ecosystems	

STAT 201	Elementary Statistical Inference	

STAT 302	Statistical Methods	

Directed elective ³		3

Semester Credit Hours	14

Spring

ECCB 205 or SCSC 444	Fundamentals of Ecology or Forage Ecology and Management	3

SCSC 309	Water in Soils and Plants	3

SCSC 428	Advanced Turf Ecology and Physiology	3

Directive elective ³		3

General elective		4

Semester Credit Hours	16

Fourth Year**Fall**

MGMT 309	Survey of Management	3

SCSC 429	Turf Management Systems	4

Select one of the following: ⁵		3

SCSC 420	Brazilian Agriculture and Food Production Systems	

SCSC 421	International Agricultural Research Centers - Mexico	

SCSC 484	Internship	

SCSC 491	Research	

General elective	6

Semester Credit Hours	16

Spring

SCSC 307	Crop Biology and Physiology	4

SCSC 427	Sports Field Construction	4

SCSC 430	Turfgrass Maintenance	3

SCSC 481	Senior Seminar	2

Semester Credit Hours	13

Total Semester Credit Hours	120

¹ Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a core category, a college/department requirement, or a free elective can be used to satisfy this requirement. Select in consultation with an academic advisor.

² Select from MATH 135, MATH 136, MATH 140, MATH 142, MATH 147, MATH 148, MATH 150, MATH 151, MATH 152, MATH 167, MATH 168, MATH 171, MATH 172.

³ To be selected from SCSC 300-499 (p. 1229) courses not counting elsewhere on the degree plan and in consultation with an academic advisor.

⁴ Statistics course should be selected after consultation with academic advisor.

⁵ Students will complete an internship, study abroad or independent research experience.

Agronomy - Minor

The minor in Agronomy prepares agricultural majors for a career in the nation's food, feed, fiber, greenspace, shelter and bioenergy industries.

The Department of Soil and Crop Sciences offers a minor in Agronomy. Exposure to this academic discipline could lead students to the pursuit of advanced degrees and a career in the field of agronomy or several related agricultural fields. Agronomy is the cornerstone of modern agriculture that provides the necessities of human existence at a level unprecedented in human history. Continued advancement in productivity must be made in order to feed, clothe, shelter, and meet other basic human needs as global population continues to expand.

Please speak with an advisor concerning courses prior to registering.

Program Requirements

Code	Title	Semester Credit Hours

Required Courses:

SCSC 105	World Food and Fiber Crops	3

or SCSC 201	or Problem Solving in Plant and Soil Systems	

SCSC 301	Soil Science	4

SCSC 302-489 (p. 1229) ^{1, 2}		8

Total Semester Credit Hours	15

¹ Except SCSC 481, SCSC 484, SCSC 491

² Students with a major in the Department of Soil and Crop Sciences may not use courses already used elsewhere in their degree program.

Students must make a grade of C or better in all courses.

Environmental Soil Science - Minor

The minor in Environmental Soil Science prepares agricultural majors for a career in industry, government, and non-government organizations that address environmental issues related to soil, soil science, and water quality.

The Department of Soil and Crop Sciences offers a minor in Environmental Soil Science. Additional career avenues include industry and agencies dealing with food, feed, fiber, greenspace, shelter, and bioenergy. Exposure to this academic discipline could lead students to the pursuit of advanced degrees and a career in the field of soil science or several related agricultural fields. See an advisor for more details.

Program Requirements

Code	Title	Semester Credit Hours
SCSC 301	Soil Science	4
Select from the following:		11
SCSC 309	Water in Soils and Plants	
SCSC 310	Soil Morphology and Interpretations	
SCSC 401/ FIVS 401	Forensic Soil Science	
SCSC 405	Soil and Water Microbiology	
SCSC 406	Soil and Water Microbiology Laboratory	
SCSC 422	Soil Fertility and Plant Nutrient Management	
SCSC 432	Soil Fertility and Plant Nutrient Management Laboratory	
SCSC 455	Environmental Soil and Water Science	
SCSC 458	Watershed, Water and Soil Quality Management	
Total Semester Credit Hours		15

Students must make a grade of C or better in all courses.

Plant Breeding - Minor

The minor in plant breeding prepares agricultural majors for a career in nation's variety development industry and exposes the student to an academic discipline that could lead to the pursuit of advanced degrees and a career in the field of plant breeding.

The Department of Soil and Crop Sciences offers a Minor in Plant Breeding. Plant breeders develop new varieties that are the cornerstone of modern agriculture and improve the genetic basis of improved yield, quality, and resistance to biotic and abiotic stresses affecting or nation's food, feed, fiber, greenspace, shelter, and bioenergy plants.

The Plant Breeding minor offers the opportunity for students to explore their interest in applied biological sciences in the areas of plant breeding, crop improvement, crop biotechnology, and genetics. Students must have an overall GPA of 2.75 or better to enter the program.

Program Requirements

Code	Title	Semester Credit Hours
GENE 310	Principles of Heredity ¹	3
SCSC 304	Plant Breeding and Genetics	3
Select nine hours of the following:		9
GENE 411/ SCSC 411	Biotechnology for Crop Improvement	
SCSC 301	Soil Science	
SCSC 305	Professional Development in Agronomy	
SCSC 311	Principles of Crop Production	
SCSC 402	Crop Stress Management	
SCSC 410	International Agricultural Systems	
Total Semester Credit Hours		15

¹ GENE 301 may be substituted for GENE 310.
Must have an overall GPA of 2.75 to enter program.

COLLEGE OF ARCHITECTURE

Administrative Officers

Interim Dean - Patrick C. Suermann, PhD

Executive Associate Dean - Chanam Lee, PhD

Associate Dean for Academic Affairs - Shelley D. Holliday, ME

Associate Dean for International Programs and Facilities - Leslie Feigenbaum, MS

Assistant Dean for Graduate Programs - Katherine R. Reed, PhD

Assistant Dean for Business Services - Kevin Gustavus, MBA

General Statement

The College of Architecture offers undergraduate and graduate professional programs to prepare individuals to enter the professions of architecture, landscape architecture, construction management, urban and regional planning and land and property development. The planning, design and construction of the world's buildings, cities and landscapes involve a variety of professional skills. The faculty of architects, urban planners, landscape architects, engineers, computer scientists, constructors, lawyers, historians and artists, in collaboration with educators in the language, philosophy and culture and natural and social sciences, help students develop an understanding of the physical, social, economic and political forces that shape our environment.

Undergraduate degree programs are offered in architecture, landscape architecture, construction science, urban and regional planning, and university studies with a concentration in global arts, planning, design and construction. Minors in art and architectural history; global art, design and construction; architectural fabrication and product design; architectural heritage conservation and sustainable architecture and planning are offered through the Department of Architecture. A minor in urban and regional planning is offered through the Department of Landscape Architecture and Urban Planning. Minors in facility management; and leadership in the design and construction professions are offered through the Department of Construction Science. Master's degree programs are offered in architecture, landscape architecture, urban planning, land and property development and construction management. Doctor of Philosophy degrees are offered in architecture, construction science and urban and regional sciences.

Personal Computers

Because of the important role of computing in the disciplines housed within the College of Architecture, all entering students are required to possess a portable, network-ready personal computer capable of running software appropriate to their academic program. Financial aid is available to assist students in their computer purchases. No student will be denied admission to Texas A&M University based on an inability to purchase a computer. Additional information is available on the College of Architecture (<https://www.arch.tamu.edu/>) website.

Enrollment Management Policy

Students in the College of Architecture admitted into Architecture (p. 239) (ARCL) and Construction Science (p. 244) (COSL) enter with a lower level classification. Landscape Architecture (p. 250) (LAND), Urban and Regional Planning (p. 250) (URPN) and University

Studies Global Arts, Planning, Design and Construction (<https://www.arch.tamu.edu/academics/undergraduate-programs/majors/university-studies/>) (USAR) do not have a lower level classification. All students must comply with the guidelines in terms of coursework and process to be considered for upper level. Until students are accepted into upper level they could be prohibited from taking 300 and 400 level courses in their major.

Admission will be effective upon successful completion of in-progress courses. If all requirements are not met prior to the start of the following semester, admission will not be granted and registration in all upper level coursework in the College of Architecture will be cancelled. Admission is not guaranteed. If there are more qualified applicants than there is space available, preference will be given to students based on their academic achievement.

Transfer Students

Transfer students, who meet the University entrance requirements and who desire to enter a major field of study in the College of Architecture, will be admitted based on available space and current College of Architecture entrance criteria. This is a competitive review process. Transfer students may be admitted into the college with a lower-level classification and may apply for upper-level status after at least one semester at Texas A&M University. A minimum of a 2.5 GPA may be required to matriculate into an upper-level classification

Transfer students accepted into the Bachelor of Science in Architecture degree program must submit a portfolio to the Department of Architecture to receive credit for drawing and design studio classes taken at another university or college, unless the course is listed as an equivalent under the Texas common course numbering system. The review of the portfolio will ensure appropriate studio placement. Additional information may be found on the Department of Architecture (<https://www.arch.tamu.edu/academics/undergraduate-programs/majors/bachelor-of-science-in-architecture/>) website.

Change of Major

Students currently enrolled in another major at Texas A&M University with fewer than 60 hours who desire to change their major field of study into the College of Architecture must fill out a Change of Curriculum application. For more information on deadlines and requirements, please refer to:

<https://us.tamu.edu/change-of-major> (<https://us.tamu.edu/change-of-major/>)

<https://tap.tamu.edu/change-of-major/index.html> (<https://tap.tamu.edu/change-of-major/>)

Not all majors have summer/spring applications

The College of Architecture will admit the best-qualified applicants based on the number of spaces available in their program of choice. Acceptance is limited and meeting the requirements alone will not guarantee acceptance. The admission process is a competitive application process.

Semester Away

The College of Architecture requires all upper-level undergraduate students to spend one semester studying abroad, at another university, or in a professional internship. Specific information on these programs is available through each department or the Texas A&M Education Abroad Office.

Academic Policies

For Architecture, Construction Science, Landscape Architecture, Urban Planning and University Studies Global Arts, Planning, Design and Construction: Students must make a grade of C or better in every College of Architecture course (ARCH, CARC, COSC, ENDS, LAND, LDEV, URPN) used to satisfy degree requirements. Students must also make a grade of C or better in any course used as an equivalent substitution for College of Architecture courses that satisfy degree requirements. All majors within the college require students to maintain a 2.0 or better GPA (for upper level consideration, may be a higher GPA requirement); the college does not offer academic probation.

Majors

College of Architecture

- Bachelor of Science in University Studies, Global Arts, Planning, Design and Construction Concentration (p. 260)

Department of Architecture

- Bachelor of Science in Architecture (p. 241)

Department of Construction Science

- Bachelor of Science in Construction Science (p. 248)

Department of Landscape Architecture and Urban Planning

- Bachelor of Landscape Architecture in Landscape Architecture (p. 252)
- Bachelor of Science in Urban and Regional Planning, Urban Design Track (p. 253)
- Bachelor of Science in Urban and Regional Planning, Urban Policy Track (p. 254)
- Bachelor of Science in Urban and Regional Planning and Master of Land and Property Development, 5-Year Degree Program (p. 256)
- Bachelor of Science in Urban and Regional Planning and Master of Landscape Architecture, 6-Year Degree Program (p. 255)
- Bachelor of Science in Urban and Regional Planning and Master of Urban Planning, 5-Year Degree Program (p. 258)

Minors

Department of Architecture

- Architectural Fabrication and Product Design Minor (p. 242)
- Architectural Heritage Conservation Minor (p. 243)
- Art and Architecture History Minor (p. 243)
- Sustainable Architecture and Planning Minor (p. 244)

Department of Construction Science

- Facility Management Minor (p. 249)
- Leadership in the Design and Construction Professions Minor (p. 249)

Department of Landscape Architecture and Urban Planning

- Urban and Regional Planning Minor (p. 259)

Masters

Department of Architecture

- Master of Architecture in Architecture (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/architecture/architecture/march/>)
- Master of Architecture in Architecture and Master of Urban Planning Combined Degree Program (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/architecture/architecture/combined-mar-mup/>)
- Master of Land and Property Development and Master of Architecture Combined Degree Program (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/architecture/landscape-architecture-urban-planning/combined-mlp-mar/>)
- Master of Science in Architecture (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/architecture/architecture/ms/>)
- Master of Science in Architecture and Master of Architecture in Architecture Combined Degree Program (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/architecture/architecture/combined-ms-mar/>)

Department of Construction Science

- Master of Land and Property Development and Master of Science in Construction Management Combined Degree Program (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/architecture/landscape-architecture-urban-planning/combined-mlp-ms-comg/>)
- Master of Science in Construction Management (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/architecture/construction-science/ms/>)

Department of Landscape Architecture and Urban Planning

- Master of Architecture and Master of Urban Planning Combined Degree Program (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/architecture/architecture/combined-mar-mup/>)
- Master of Land and Property Development in Land and Property Development (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/architecture/landscape-architecture-urban-planning/land-property-development-masters/>)
- Master of Land and Property Development and Master of Architecture Combined Degree Program (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/architecture/landscape-architecture-urban-planning/combined-mlp-mar/>)
- Master of Land and Property Development and Master of Real Estate Combined Degree Program (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/architecture/landscape-architecture-urban-planning/combined-mlp-mre/>)
- Master of Land and Property Development and Master of Science in Construction Management Combined Degree Program (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/architecture/landscape-architecture-urban-planning/combined-mlp-ms-comg/>)
- Master of Land and Property Development and Master of Urban Planning Combined Degree Program (<https://catalog.tamu.edu/>)

graduate/colleges-schools-interdisciplinary/architecture/landscape-architecture-urban-planning/combined-mlp-mup/)

- Master of Landscape Architecture in Landscape Architecture (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/architecture/landscape-architecture-urban-planning/mla/>)
- Master of Landscape Architecture and Doctor of Philosophy (URSC) Combined Degree Program (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/architecture/landscape-architecture-urban-planning/combined-mla-phd/>)
- Master of Urban Planning in Urban and Regional Planning (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/architecture/landscape-architecture-urban-planning/ms-urban-planning/>)

Doctoral

Department of Architecture

- Doctor of Philosophy in Architecture (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/architecture/architecture/phd/>)

Department of Construction Science

- Doctor of Philosophy in Construction Science (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/architecture/construction-science/construction-science-phd/>)

Department of Landscape Architecture and Urban Planning

- Doctor of Philosophy in Urban and Regional Science (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/architecture/landscape-architecture-urban-planning/urban-regional-science-phd/>)

Department of Architecture

The undergraduate curriculum in Architecture at Texas A&M University is offered through the Department of Architecture. The four-year Bachelor of Science (BS) degree prepares students for challenging careers in industries supporting the built environments. The program produces graduates who are prepared to influence society with informed and visionary designs—designs that ensure resilience by responding to cultural, social, economic and ecological factors.

Students interested in professional registration as an architect must complete a National Architectural Accreditation Board (NAAB) accredited Master of Architecture program in addition to the four-year undergraduate Bachelor of Science degree.

Enrollment in Architecture Upper Level Program

1. Students must have satisfactorily completed at least 54 hours of coursework with a minimum GPA of 2.5 for those courses completed at Texas A&M University.
2. Students must satisfactorily complete the following courses as part of the 54 hours of coursework with a minimum of a 2.5 GPA to apply for upper level.

Code	Title	Semester Credit Hours
ARCH 105	Design and Visual Communications Foundations I	5
ARCH 106	Design and Visual Communication Foundations II	5
ARCH 115	Visual Communication Foundations I	3
ARCH 205	Architecture Design I	5
ARCH 206	Architecture Design II	5
ARCH 212	Social and Behavioral Factors in Design	3
ARCH 249	Survey of World Architecture History I	3
ARCH 250	Survey of World Architecture History II	3
ARCH 281	Seminar in Contemporary Architecture	1
CARC 481	Seminar	1
ENGL 104	Composition and Rhetoric	3
Select one of the following:		6
MATH 140 Mathematics for Business and Social Sciences & MATH 142nd Business Calculus		
MATH 151 Engineering Mathematics I and Engineering Mathematics II & MATH 15		
PHYS 201	College Physics	4
Total Semester Credit Hours		47

3. Students must apply to the upper level through the department. The application is to be submitted by the following date.
 - March 1 for Summer and Fall admission
4. Students applying for upper level must submit a portfolio that provides documentation of the applicant's design representation and creative problem solving ability. Portfolios will be reviewed as evidence supporting design ability. Guidelines are outlined on the application form and in the Office of Student Services.

Preparation for Professional Studies in Architecture

Although the four-year BS degree at Texas A&M University is a pre-professional degree and is not accredited by the National Architectural Accrediting Board (NAAB), those who have completed this pre-professional degree can apply to an accredited Master of Architecture program, which is offered at Texas A&M University.

In the United States, most state architectural registration boards require, as the prerequisites for licensure, a degree from a National Architectural Accrediting Board (NAAB) accredited professional degree program, the fulfillment of the National Council of Architectural Registration Board's (NCARB) Internship Development Program (IDP), and the successful completion of NCARB's Architectural Licensing Examination (ARE). The NAAB, which is the sole agency authorized to accredit U.S. professional degree programs in architecture, recognizes three types of degrees: the Bachelor of Architecture (BArch), the Master of Architecture (MArch), and the Doctor of Architecture (DArch). Students should consult the Texas A&M Master of Architecture, NAAB and NCARB websites for additional information.

Transfer and Change of Major Students

Transfer and change of major students (students currently enrolled in another major at Texas A&M University) who are admitted to the Department of Architecture are classified as lower level (ARCL). Transfer students who meet all the criteria for admittance to upper-level studies may immediately apply for admittance to upper level.

Transfer students who have completed at least 24 graded transferable hours, and change of major students who have completed at least 12 graded transferable hours are encouraged to participate in two 5-week summer design studio modules offered by the Department of Architecture. The summer modules are designed to provide an intensive first-year design studio sequence that will enable change of major and transfer students to qualify for sophomore design studios the following semester. These summer modules can enable Transfer and Change of Major students to complete the four-year degree in a more efficient and timely manner.

Transfer students accepted into the Bachelor of Science degree program must submit a portfolio to the Department of Architecture to receive credit for drawing and design studio classes taken at another university or college, unless the course is listed as an equivalent under the Texas common course numbering system. The review of the portfolio will ensure appropriate studio placement. Additional information may be found on the Department of Architecture website.

Faculty

Aimar, Fabrizio, Assistant Professor of the Practice
Architecture
PHD, Polytechnic University of Turin, 2022

Ali, Ahmed K, Associate Professor
Architecture
PHD, Virginia Polytechnic Institute, 2012

Baaske, Benjamin E, Instructional Assistant Professor
Architecture
PHD, Texas A&M University, 2022

Baltazar, Juan Carlos, Professor
Architecture
PHD, Texas A&M University, 2006

Beltran, Liliana O, Associate Professor
Architecture
PHD, University of California at Berkeley, 1997

Billingsley, Andrew J, Assistant Lecturer
Architecture
MS, Texas A&M University, 2020

Borges Gonzalez, Alejandro, Associate Professor
Architecture
MAR, Cornell University, 1994

Caffey, Stephen M, Instructional Associate Professor
Architecture
PHD, The University of Texas - Austin, 2008

Campagnol, Gabriela, Instructional Associate Professor
Architecture
PHD, University of Sao Paulo - USP, 2008

Chen, Shirley, Assistant Professor of the Practice
Architecture
MAR, Princeton University, 2023

Clayton, Mark J, Professor
Architecture
PHD, Stanford University, 1998

Culp, Charles H, Professor
Architecture
PHD, Iowa State University, 1976

De Lima Vaz Xavier, Davi, Assistant Professor of the Practice
Architecture
BAR, University of Brazil, 2010

Ennemoser, Benjamin, Assistant Professor
Architecture
MAR, University of Innsbruck, 2014

Erminy Castillo, Marcel, Professor of the Practice
Architecture
BAR, Central University of Venezuela, 1987

Gessner, Thomas, Associate Professor of the Practice
Architecture
BEN, Texas A&M University, 1997

Gibbs, Brian C, Assistant Professor of the Practice
Architecture
MAR, Texas A&M University, 2006

Glowacki, Kevin T, Associate Professor
Architecture
PHD, Bryn Mawr College, 1991

Haberl, Jeff, Professor
Architecture
PHD, University of Colorado, 1986

Hawkins, Andrew G, Associate Professor of the Practice
Architecture
MAR, University of Oregon, 1999

He, Weiling, Associate Professor
Architecture
PHD, Georgia Institute of Technology, 2005

Holliday, Ray W, Assistant Professor of the Practice
Architecture
MLA, Texas A&M University, 2000
MAR, Texas A&M University, 1992

Holliday, Shelley D, Associate Professor of the Practice
Architecture
MEN, Texas A&M University, 2001

Hunter, Christopher S, Associate Professor of the Practice
Architecture
PHD, Texas A&M University, 2018

Ihle, Marc, Visiting Assistant Professor
Architecture
MAR, University of Innsbruck, 2012

Jafari, Roxana, Assistant Professor
Architecture
PHD, Clemson University, 2021

Jain, Priya, Associate Professor
Architecture
MAR, The University of Arizona, 2007

Jimenez Inieta, David, Visiting Associate Professor of the Practice
Architecture
MAR, University de Alicante, 2014

Key, Sora, Assistant Professor
Architecture
PHD, Carnegie Mellon University, 2012

Klein, Nancy L, Associate Professor
Architecture
PHD, Bryn Mawr College, 1991

Lopez-Dinardi, Marcelo, Associate Professor
Architecture
MS, Columbia University, New York, 2013

Loureiro, Livia, Lecturer
Architecture
PHD, Texas A&M University, 2020

Lu, Zhipeng, Assistant Professor
Architecture
PHD, Texas A&M University, 2009

Luhan, Gregory Anthony, Professor
Architecture
PHD, Texas A&M University, 2016

Obrien, Michael J, Professor
Architecture
MAR, Virginia Tech, 1982

Penalver, Maria, Visiting Associate Professor of the Practice
Architecture
MAR, Universidad de Alicante, 2014

Pentecost, Ray, Professor of the Practice
Architecture
DrPH, University of Texas, School of Public Health, 1982

Steffes, Hans, Instructional Assistant Professor
Architecture
MAR, Southern California Institute of Architecture, 2022

Stewart, Zachary, Associate Professor
Architecture
PHD, Columbia University, 2015

Tate, James Michael, Associate Professor
Architecture
MAR, Yale University, 2007

Tripp, Andrew Reed, Associate Professor
Architecture
PHD, University of Pennsylvania, 2017

Vanegas, Jorge A, Professor
Architecture
PHD, Stanford University, 1988

Warden, Robert B, Professor
Architecture
MAR, Texas A&M University, 1986

Yan, Wei, Professor
Architecture
MAR, University of California at Berkeley, 2004

Zhu, Xuemei, Professor
Architecture
PHD, Texas A&M University, 2008

Majors

- Bachelor of Science in Architecture (p. 241)

Minors

- Architectural Fabrication and Product Design Minor (p. 242)
- Architectural Heritage Conservation Minor (p. 243)
- Art and Architecture History Minor (p. 243)
- Sustainable Architecture and Planning Minor (p. 244)

Architecture - BS

The four-year Bachelor of Science in Architecture degree prepares students for challenging careers in industries that support the built environment.

The program fosters creativity and problem-solving skills, provides access to extensive knowledge, and cultivates high levels of capability, interweaving the academic areas of design; architectural history, theory, and criticism; representation; building technology; as well as social, professional, and community engagement. Coursework encourages multidisciplinary and comparative perspectives that allow opportunities for communication and team-oriented methods of production. Global perspectives through mandatory semester-long study abroad and study away experiences and internships at national and international offices encourage students to bring the knowledge from the classroom out into the world and back to the university and their home communities to deepen lessons learned in a variety of contexts.

Students develop skills and acquire knowledge through a studio-based experience with a variety of theoretical, experimental, and practical design projects. Design studio projects place a shared emphasis on the technical and expressive content of design work; the processes by which students research, synthesize and document their design ideas; and create tangible products that achieve a high quality of graphic and physical craft.

The program encompasses a variety of design subjects that will enable students to pursue careers in graphic design, industrial design, interior design, robotics, and architecture design. Students interested in professional architecture registration must complete a National Architectural Accreditation Board (NAAB) accredited Master of Architecture program after completing the four-year undergraduate degree. Often, students earning the BS supplement their studies with Minors offered through the Department of Architecture. Those options include the Art and Architectural History, the Sustainable Architecture and

Planning, Architectural Fabrication and Product Design, and Architectural Heritage Conservation.

Program Requirements

First Year

Fall		Semester Credit Hours
ARCH 105	Design and Visual Communications Foundations I ¹	5
ARCH 249	Survey of World Architecture History I ¹	3
ARCH 281	Seminar in Contemporary Architecture ¹	1
Select one of the following:		3
MATH 140	Mathematics for Business and Social Sciences	
MATH 152	Engineering Mathematics II	
MATH 168	Finite Mathematics	
Semester Credit Hours		12
Spring		
ARCH 106	Design and Visual Communication Foundations II ¹	5
ARCH 250	Survey of World Architecture History II ¹	3
ENGL 104	Composition and Rhetoric	3
MATH 142	Business Calculus	3
or MATH 151	or Engineering Mathematics I	
Cultural discourse (p. 48) ²		3
Semester Credit Hours		17

Second Year

Fall		
ARCH 205	Architecture Design I ¹	5
ARCH 212	Social and Behavioral Factors in Design ¹	3
ARCH 330	The Making of Architecture ¹	3
PHYS 201	College Physics	4
Government/Political science (p. 31)		3
Semester Credit Hours		18
Spring		
ARCH 206	Architecture Design II ¹	5
ARCH 213	Sustainable Architecture ¹	3
CARC 481	Seminar ¹	1
American history (p. 30)		3
Life and physical sciences (p. 27)		4
Semester Credit Hours		16

Third Year

Fall		
ARCH 305	Architecture Design III ¹	5
ARCH 331	Architectural Structures ¹	3
ARCH 335	Architectural Systems ¹	3
Communication (p. 27)		3
Life and physical sciences (p. 27)		1
Semester Credit Hours		15
Spring		
Study Away		
Select one of the following:		12

Option 1:

ARCH 494	Internship ¹
Study away elective ³	

Option 2:

CARC 301	Field Studies in Design Innovation ¹
Study away elective ^{1,3}	

Semester Credit Hours

12

Fourth Year

Fall		
ARCH 405	Architecture Design IV ¹	6
ARCH 431	Integrated Structures ¹	2
ARCH 435	Integrated Systems ¹	2
American history (p. 30)		3
Government/Political science (p. 31)		3
Semester Credit Hours		16
Spring		
ARCH 350	History and Theory of Modern and Contemporary Architecture ¹	3
ARCH 406	Architecture Design V ¹	5
Directed elective ^{1,4}		3
Directed elective ^{1,4}		3
Semester Credit Hours		14
Total Semester Credit Hours		120

¹ Must make a grade of C or better.

² To be selected from 100-499 level courses designated as cultural discourse (p. 48) (CD) not used elsewhere (such as CARC 101).

³ Study away electives will be selected with approval of the Assistant Dean for International Programs and Initiatives.

⁴ Select from ARCH 216, ARCH 246, ARCH 260, ARCH 317, ARCH 327, ARCH 328, ARCH 345, ARCH 421, ARCH 430, ARCH 433, ARCH 434, ARCH 438, ARCH 441, ARCH 458, ARCH 463, ARCH 481, ARCH 484; ARTS 330; COSC 253; GEOG 330; LAND 301; RWFM 375; URPN 340, URPN 361, URPN 370, URPN 470.

All proposals for undergraduate independent study must be signed by the supervising faculty and submitted to the department for approval; forms are available from the Department of Architecture Undergraduate Advisor.

Students must also make a grade of C or better in any course used as an equivalent substitution for School of Architecture courses satisfying degree requirements.

Architectural Fabrication and Product Design - Minor

The minor in Architectural Fabrication and Product Design complements several major fields of study and is open to all Texas A&M University undergraduate students.

The structure of the minor encourages students to gain a broad understanding of the terminology, history, prototyping and professional practices in Architectural Fabrication and Product Design. The minor includes six (6) credit hours of foundation coursework and nine (9) credit hours of design, theory and practice coursework.

Program Requirements

Code	Title	Semester Credit Hours
ENDS 101	Design Process	3
ARCH 216	Computational Methods in Architecture	3
ARCH 353	History of Product Design	3
ARCH 381	Design Seminar ¹	1
ARCH 317	Digital Fabrication for Architecture	3
Total Semester Credit Hours		15

¹ This is a 1 credit hour course that must be taken three times for a total of 3 credits.

Must make a grade of C or better in all courses.

Architectural Heritage Conservation - Minor

The minor in Architectural Heritage Conservation provides an interdisciplinary and global approach to understanding heritage conservation and its importance to sustainable conservation of the built environment.

The curriculum emphasizes an awareness of principles and theories impacting architectural heritage conservation. In addition, the minor enables students to explore technological advancements critical to documenting and assessing the built environment. The minor in Architectural Heritage Conservation can serve as a complement to several major fields of study and is open to all Texas A&M undergraduates. The structure of the minor encourages students to gain a broad understanding of the foundations of conservation before advancing to specialized areas of interest.

Program Requirements

Code	Title	Semester Credit Hours
Foundation		
ARCH 246	Foundations of Historic Preservation	3
ARCH 346	Architecture, Heritage and Culture	3
Architectural History		
Select one of the following:		3
ARCH 350	History and Theory of Modern and Contemporary Architecture	
ARCH 430	History of Ancient Architecture in the Near East, Egypt, Greece and Rome	
ARCH 434	The Role of Sculpture and Painting in Ancient Architecture	
ARCH 438	World Religious Architecture	
ARCH 444	American Architecture	
Electives ¹		
Select two of the following:		6
ANTH 202	Introduction to Archaeology	
ANTH 313	Historical Archaeology	

ANTH 402	Archaeological Artifact Conservation	
ANTH 421/ MUST 421	Advanced Museum Studies	
ARCH 260	Comparative Theory in the Built and Virtual Environments	
ARCH 345	History of Building Technology	
ARCH 347	Documentation of Historic Buildings and Sites	
ARCH 489	Special Topics in... (Architectural Heritage or Conservation)	
HMG2 207	Interpretation of Natural and Cultural Resources	
ECCB 351	Geographic Information Systems for Resource Management	
RWFM 375	Conservation of Natural Resources	
URPN 201	The Evolving City	
URPN 240	More Than Monuments: Preservation as Social Justice	
URPN 460	Sustainable Communities	
Total Semester Credit Hours		15

¹ Eligible undergraduate students meeting prerequisite requirements may enroll in the ARCH 648.

Students must obtain a C or better in each course listed above (or in any transfer course used as an equivalent).

Students must complete a minimum of 6 hours in residence at the 300-400 level.

Students applying for a minor in Architectural Heritage Conservation must have a 2.0 or better overall GPR. Some colleges and departments outside the College may permit their students to minor.

Coordination with Bachelor of Science in Architecture (BS-ARCH) Degree Plan - For students pursuing the BS-ARCH degree, upper level coursework for the minor may be applied to general or free electives, but may not be applied to directed electives or any other requirements for the BS-ARCH degree plan.

Art and Architecture History - Minor

The minor in Art and Architecture History provides undergraduate students with an interdisciplinary, global, and multicultural approach to understanding visual arts and the built environment.

The curriculum emphasizes an awareness of global cultures and historical traditions, an appreciation of context, visual understanding, and critical thinking. The Minor in Art and Architecture History can serve as a complement to several major fields of study and is open to all Texas A&M undergraduates. The structure of the minor encourages students to gain a broad chronological understanding of art and architectural history before advancing to specialized areas of interest.

The application form can be found on the Department of Architecture's website. Per university guidelines, the student's home unit/department is responsible for advising students pursuing the Minor in Art and Architecture History.

Program Requirements

Code	Title	Semester Credit Hours
ARTS 149 or ARCH 249	Art History Survey I or Survey of World Architecture History I	3
ARTS 150 or ARCH 25	Art History Survey II or Survey of World Architecture History II	3
Select three of the following: ^{1,2,3}		9
ANTH 353/ CLAS 353	Archaeology of Ancient Greece	
ANTH 354/ CLAS 354	Archaeology of Ancient Italy	
ARCH 345	History of Building Technology	
ARCH 350	History and Theory of Modern and Contemporary Architecture	
ARCH 430	History of Ancient Architecture in the Near East, Egypt, Greece and Rome	
ARCH 434	The Role of Sculpture and Painting in Ancient Architecture	
ARCH 437	The Gothic Cathedral	
ARCH 438	World Religious Architecture	
ARCH 441	Baroque and Rococo Architecture	
ARCH 443	Aegean Art and Architecture	
ARCH 444	American Architecture	
ARCH 489	Special Topics in... (Art and Architectural History)	
ARTS 330	The Arts of America	
ARTS 335	The Art and Architecture of Rome	
ARTS 339	Themes in Contemporary Art	
ARTS 349	The History of Modern Art	
ARTS 350	The Arts and Civilization	
ARTS 445	Byzantine Art and Architecture	
ARTS 489	Special Topics in... (Art and Architectural History)	
Total Semester Credit Hours		15

¹ Coordination with Bachelor of Science (BS) in Architecture (ARCH) Degree Plan - For students pursuing the BS degree, upper level coursework for the minor may be applied to general or free electives, but may not be applied to directed electives or any other requirements for the BS-ARCH degree plan.

² Coordination with University Studies Architecture (USAR) Degree Plan - Students pursuing the University Studies Architecture degree cannot use a course in the concentration area for the Art and Architectural History Minor or the second minor, and no courses taken within the AAH Minor can count toward the concentration or the second minor. Courses that count toward University Core Curriculum can count for both the AAH minor and that specific core requirement.

³ Students must complete a minimum of 6 hours in residence at the 300-400 level.

Sustainable Architecture and Planning - Minor

The minor in Sustainable Architecture and Planning (SARP) provides undergraduate students with a multidisciplinary approach to understanding sustainability of the built environment.

The curriculum emphasizes an awareness of responsible practices at a variety of scales impacting the built environment: buildings, communities, architectural systems, global resource management, and social equity. Students will become aware of responsible architectural design and develop critical thinking skills to address the multifaceted issues facing the profession today.

The Minor in Sustainable Architecture and Planning can serve as a complement to several major fields of study and is open to all Texas A&M undergraduates. The structure of the minor encourages students to gain a broad understanding before advancing to specialized areas of interest. Per University guidelines, the student's home school/department is responsible for advising students pursuing the Minor in Sustainable Architecture and Planning.

Program Requirements

Code	Title	Semester Credit Hours
ARCH 213	Sustainable Architecture	3
URPN 460	Sustainable Communities	3
Select three courses from the following: ^{1,2,3}		9
ARCH 246	Foundations of Historic Preservation	
ARCH 421	Energy and Sustainable Architecture	
ENGR 101	Energy: Resources, Utilization and Importance to Society	
GEOG 202	Geography of the Global Village	
GEOG 306	Introduction to Urban Geography	
GEOG 330	Resources and the Environment	
PHIL 205	Technology and Human Values	
URPN 202	Building Better Cities	
URPN 361	Urban Issues	
Total Semester Credit Hours		15

¹ At least three of the nine hours must be at the 300-400 level. Six of the nine hours may be in coursework taken outside of the College.

² BED majors may not use directed electives to satisfy both the minor and graduation requirements. USAR majors may not use coursework to satisfy both the minor and the concentration area.

³ Students must complete a minimum of 6 hours in residence at the 300-400 level.

Students must make a grade of "C" or better in all courses.

Department of Construction Science

The construction industry is among the largest industry in the nation with more than 8 million employees who annually produce more than 5 percent of the nation's Gross Domestic Product. Managing the construction process requires a broad understanding of the principles of

construction science as well as leadership skills in motivating teams and integrating a wide range of tasks to produce a completed project.

The primary mission of the Department of Construction Science is to prepare students for successful careers and future leadership roles in construction and construction-related industries. The program integrates principles of architecture, technology, engineering, business and project management preparing students to effectively manage the total construction process. Courses taught by the Department include construction materials and methods, fundamental design courses in soils and foundations, mechanical and electrical systems and structures, project control systems and management, construction law, labor and contracts, and industry emphasis courses. In addition, related courses from other colleges are included to ensure a broad base of knowledge.

Enrollment in Construction Science Upper Level Program

1. Students must have satisfactorily completed at least 54 hours of coursework with a minimum GPA of 2.5 for those courses completed at Texas A&M University.
2. Students must satisfactorily complete the following courses as part of the 54 hours of coursework with a minimum of a 2.5 GPA to be considered to upper level:

Code	Title	Semester Credit Hours
Construction Science		
COSC 153	Introduction to the Construction Industry	3
COSC 175	Construction Graphics Communication	3
COSC 253	Construction Materials and Methods I	3
COSC 275	Estimating I	3
COSC 284	Introduction to Applied Workplace Ethics, Etiquette and Communications	1
ENGL 104	Composition and Rhetoric	3
ENGL 210	Technical and Professional Writing	3
MATH 140	Mathematics for Business and Social Sciences	3
MATH 142	Business Calculus	3
PHYS 201	College Physics	4
Select one of the following:		4
CHEM 119 Fundamentals of Chemistry I		
GEOL 101 Principles of Geology & GEOL 101:and Principles of Geology Laboratory		
Total Semester Credit Hours		33

3. Students must apply for upper level through the department. The application is to be submitted the semester or summer session in which all of the above criteria are met.

- March 1 for Summer admission
- June 1 for Fall admission
- October 1 for Spring admission

Faculty

Abdelmutaal, Sadam, Visiting Senior Lecturer
Construction Science
MS, University of Texas at San Antonio, 2019

Albeaino, Gilles, Assistant Professor
Construction Science
PHD, University of Florida - M.E. Rinker, Sr. School of Construction Management, 2023

Anand, Binay, Visiting Lecturer
Construction Science
DEN, University of Houston, 2004

Aryal, Ashrant, Assistant Professor
Construction Science
PHD, University of Southern California, 2020

Bailey, Jackson, Visiting Associate Professor of the Practice
Construction Science
BS, Texas A&M University, 2018

Bakchan, Amal, Assistant Professor
Construction Science
PHD, University of Texas - Austin, 2021

Baker, Clark, Senior Lecturer
Construction Science
MS, University of Kansas, 1996

Befort, Jeffrey Leo, Visiting Senior Lecturer
Construction Science
JD, Texas Tech University, 2000

Boldt, Gary L, Senior Lecturer
Construction Science
BS, Texas A&M University, 1983

Bonilla, Minerva, Assistant Professor
Construction Science
PHD, North Carolina State University, 2023

Bulut, Rifat, Professor
Construction Science
PHD, Texas A&M University, 2001

Burrescia, John Joseph, Lecturer
Construction Science
MS, Georgia Institute of Technology, 2009

Carlson, Kimberly A, Senior Lecturer
Construction Science
MAR, Texas A&M University, 2002

Choi, Kunhee, Professor
Construction Science
PHD, University of California at Berkeley, 2008

Clarke, Roger, Associate Professor of the Practice
Construction Science
MS, Northwest Missouri State University, 2022

Cokinos, Gregory, Visiting Lecturer
Construction Science
JD, South Texas College of Law, 1982

Cooke, Guy Clarence, Visiting Lecturer
Construction Science
BS, Texas A&M University, 1980

Coussons, Donna, Instructional Assistant Professor
Construction Science
MED, Sam Houston State University, 2016

Daigneault, Melissa S, Visiting Lecturer
Construction Science
JD, Wake Forest University School of Law, 2003

DeWitt, Avery Ellis, Visiting Lecturer
Construction Science
MS, Texas A&M University, 2019

Delgado, Steven, Visiting Lecturer
Construction Science
BS, Texas A&M University, 2009

Dietz, Carlen, Visiting Lecturer
Construction Science
MS, Texas A&M University, 2021

Dixit, Manish K, Associate Professor
Construction Science
PHD, Texas A&M University, 2013

Dudley, Drew, Visiting Lecturer
Construction Science
MEN, Texas A&M University, 2012

Durden, Jesse, Visiting Senior Lecturer
Construction Science
MBA, Texas A&M University, 2007

Ellis, Debra R, Senior Lecturer
Construction Science
JD, Baylor University, 1993

Escamilla, Edelmiro E, Instructional Associate Professor
Construction Science
PHD, Texas A&M University, 2011

Feigenbaum, Leslie H, Senior Lecturer
Construction Science
MS, Texas A&M University, 1985

Feng, Peter, Visiting Senior Lecturer
Construction Science
PHD, University of California at Berkeley, 2009

Fickel, Larry W, Senior Lecturer
Construction Science
BS, Texas A&M University, 1981

Garza, Jose, Visiting Senior Lecturer
Construction Science
JD, Thurgood Marshall School of Law, Houston, 1991

Guerra Santos, Hernan, Senior Lecturer
Construction Science
MS, Texas A&M University, 2003

Gurganus, Charles F, Associate Professor
Construction Science
PHD, Texas A&M University, 2018

Hanks, Michael, Visiting Lecturer
Construction Science
BS, Texas A&M University, 1979

Hartell, Julie Ann, Assistant Professor
Construction Science
PHD, McGill University, Montreal, Canada, 2014

Hillestad, Derek, Visiting Senior Lecturer
Construction Science
PHD, Arizona State University, 2022

Holliday, Ashton, Visiting Lecturer
Construction Science
MAR, Texas A&M University, 2016

Holstead, John Claude, Visiting Senior Lecturer
Construction Science
MS, Texas A&M University, 1986

Houston, Jonathan, Senior Lecturer
Construction Science
BEN, Texas A&M University, 2007

Hu, Mo, Assistant Professor
Construction Science
PHD, Virginia Tech, 2021

Jeong, David, Professor
Construction Science
PHD, Purdue University, 2005

Kagerer, Patricia, Visiting Senior Lecturer
Construction Science
MA, Southern Methodist University, 2008

Kim, Namgyun, Assistant Professor
Construction Science
PHD, Texas A&M University, 2022

Lavy, Sarel, Professor
Construction Science
PHD, Technion - Israel Institute of Technology, Israel, 2006

Lewis, Phil, Professor
Construction Science
PHD, North Carolina State University, 2009

Litzinger, John, Visiting Senior Lecturer
Construction Science
MBA, Santa Clara University, 1994

Lofton, Waymon, Visiting Senior Lecturer
Construction Science
MAG, Texas A&M University, 1985

Lucio, Erick, Visiting Senior Lecturer
Construction Science
JD, Texas Tech University School of Law, 2005

Marraro, Anthony R, Principal Lecturer
Construction Science
MS, Texas A&M University, 1997

McCall, Christopher, Associate Professor of the Practice
Construction Science
BS, Texas A&M University, 1982

McCloskey, Aarika, Visiting Lecturer
Construction Science
JD, Southern Methodist University, 2014

McGowan, Anne B, Instructional Professor
Construction Science
MS, Texas A&M University, 1976

Morgan, Trey, Lecturer
Construction Science
MBA, American Military University, 2017

Mulva, Stephen Patrick, Research Professor
Construction Science
PHD, Georgia Institute of Technology, 2004

Nassar, Yara, Lecturer
Construction Science
MS, University of Florida, 2023

Nnaji, Chuma, Associate Professor
Construction Science
PHD, Oregon State University, 2018

Nosbisch, Michael, Visiting Senior Lecturer
Construction Science
MS, The George Washington University, 2001

Palmer, Richard C, Senior Lecturer
Construction Science
BS, Texas A&M University, 1988

Pedraza, Ricardo, Visiting Senior Lecturer
Construction Science
MS, Texas A&M University - Kingsville, 2013

Peery, Lori, Visiting Senior Lecturer
Construction Science
BA, University of Arizona Global Campus formerly Ashford University, 2012

Perez, Nicholas T, Visiting Associate Professor of the Practice
Construction Science
BS, University of Texas - San Antonio, 2006

Pouland, Kendall, Visiting Lecturer
Construction Science
BS, Texas A&M University, 2003

Reinhardt, Susan, Visiting Senior Lecturer
Construction Science
MBA, Thunderbird School of Global Management, 2006

Rocchio, Leland, Instructional Associate Professor
Construction Science
PHD, Our Lady of the Lake University, 2015

Russell, Richard Wayne, Visiting Lecturer
Construction Science
MBA, Texas A&M University, 1997

Rybkowski, Zofia K, Professor
Construction Science
PHD, University of California at Berkeley, 2009

Shults, Ryan, Visiting Senior Lecturer
Construction Science
MAR, University of Kansas, 2013

Simms, Lance Eric, Senior Lecturer
Construction Science
MS, Texas A&M University, 2000

Suermann, Patrick C, Professor
Construction Science
PHD, University of Florida, 2009

Tinker, Audrey, Instructional Assistant Professor
Construction Science
PHD, Texas A&M University, 2003

Vlasek, Scott, Senior Lecturer
Construction Science
MS, University of Houston, 2015

Wallace, Brandon, Visiting Associate Professor of the Practice
Construction Science
BS, Texas A&M University, 2004

Wang, Xi, Assistant Professor
Construction Science
PHD, University of Michigan - Ann Arbor, 2022

Wirfs, Michael, Visiting Senior Lecturer
Construction Science
LLM, Texas A&M University - School of Law, 2022

Wright, Lane, Associate Professor of the Practice
Construction Science
BS, Texas A&M University, 1987

Zhang, Zhenyu, Assistant Professor
Construction Science
PHD, University of Washington, 2021

Majors

- Bachelor of Science in Construction Science (p. 248)

Minors

- Facility Management Minor (p. 249)
- Leadership in the Design and Construction Professions Minor (p. 249)

Construction Science - BS

The Construction Science undergraduate program provides specialized course work in building systems, materials and methods of construction, scheduling, cost estimating, structures, construction project management, law, surveying and business/labor relations with the goal of preparing students to effectively manage the total construction process.

Upon graduation from the Bachelor of Science in Construction Science, students have a wide range of opportunities within the construction industry to pursue careers such as estimators, project managers, safety managers, superintendents, quality assurance/control managers and Mechanical/Electrical/Plumbing coordinators.

In addition to their in class academic coursework, each student is required to successfully complete an approved internship of full-time practical work experience with a construction company during a spring or fall semester. This internship provides students with opportunities to hone skills in resume building, networking, evaluation of offers, and application of classroom knowledge in the field. The Department of Construction Science facilitates this process through one of the largest department level career fairs at Texas A&M University.

Following graduation, Construction Science graduates quickly become valued members of a construction team and participate in construction project planning, cost estimating, scheduling, supervision, and commissioning of complete facilities in a timely, safe and quality manner. They also possess the professional knowledge to confidently interact with trade contractors, professional engineers, registered architects, and owners to solve problems and execute at a high level.

The Bachelor of Science in Construction Science degree program is accredited by the American Council for Construction Education (ACCE). The Department maintains strong ties with the construction industry via the Construction Industry Advisory Council (CIAC), an organization of construction and construction-related companies and individuals committed to supporting the Department of Construction Science at Texas A&M University. Are you ready to begin your career in the construction industry? Explore our Department of Construction Science website (<https://www.arch.tamu.edu/cosc/>) to learn more!

Because of the important role of computing in the disciplines housed within the College of Architecture, all entering students are required to possess a portable, network-ready personal computer capable of running software appropriate to their academic program. Financial aid is available to assist students in their computer purchases. No student will be denied admission to Texas A&M University based on an inability to purchase a computer. Additional information is available on the College of Architecture website (<https://www.arch.tamu.edu/resources/technology-requirements/>). In addition to the requirements (<https://www.arch.tamu.edu/resources/technology-requirements/>) for all College of Architecture students, Construction Science majors also have additional requirements of:

- **Not a macOS laptop** (most of the software used in construction science industry is not compatible with macOS.)
- **Not a chromebook** (most of the software used in construction science industry is not compatible with chromebook.)
- Discrete graphics (the additional graphics chip provides the processing power required by industry standard software. The more RAM this chip has, the better it will be able to handle large, complex models. Nvidia chipset is recommended.)

This program is also offered at the Texas A&M Higher Education Center in McAllen, Texas.

Program Requirements

First Year

Fall		Semester Credit Hours
COSC 153	Introduction to the Construction Industry ¹	3
COSC 222	Social Issues in the History of the Construction Environment ¹	3
ECON 202 or ECON 203	Principles of Economics or Principles of Economics	3
HIST 105	History of the United States	3
MATH 140	Mathematics for Business and Social Sciences	3
Semester Credit Hours		15

Spring

ACCT 209	Survey of Accounting Principles	3
COSC 175	Construction Graphics Communication ¹	3
COSC 284	Introduction to Applied Workplace Ethics, Etiquette and Communications ¹	1
ENGL 104	Composition and Rhetoric	3
HIST 106 or HIST 226	History of the United States or History of Texas	3
MATH 142	Business Calculus	3
Semester Credit Hours		16

Second Year

Fall

COSC 253	Construction Materials and Methods I ¹	3
ENGL 210	Technical and Professional Writing	3
PHYS 201	College Physics	4
POLS 206	American National Government	3
Life and physical sciences (p. 27)		1
General Elective		3
Semester Credit Hours		17

Spring

COSC 275	Estimating I ¹	3
MGMT 209	Principles of Business Regulations and Law	3
POLS 207	State and Local Government	3
Select one of the following:		4
CHEM 119	Fundamentals of Chemistry I	
GEOL 101 & GEOL 102	Principles of Geology and Principles of Geology Laboratory	
Select one of the following: ¹		3
ARCH 249	Survey of World Architecture History I	
ARCH 250	Survey of World Architecture History II	
ARCH 350	History and Theory of Modern and Contemporary Architecture	
ARTS 150	Art History Survey II	
ENDS 101	Design Process	
Semester Credit Hours		16

Third Year**Fall**

COSC 301	Construction Surveying ¹	2
COSC 325	Mechanical, Electrical and Plumbing Systems in Construction I ¹	3
COSC 353	Construction Project Management ¹	3
COSC 375	Estimating II ¹	3
Directed elective ^{1,2}		3
Semester Credit Hours		14

Spring

COSC 321	Structural Systems I ¹	3
COSC 354	Construction Materials and Methods II ¹	3
COSC 463	Introduction to Construction Law ¹	3
COSC 475	Construction Project Planning ¹	3
Directed elective ^{1,2}		3
Semester Credit Hours		15

Fourth Year**Fall**

COSC 494	Internship ^{1,3}	6
MGMT 309	Survey of Management	3
FINC 409	Survey of Finance Principles	3
Semester Credit Hours		12

Spring

COSC 464	Construction Safety ¹	3
COSC 465	Advanced Topics in Construction Law ¹	3
COSC 477	Construction Project Controls ¹	3
Select one of the following: ^{1,4}		3
COSC 440	Interdisciplinary Capstone	
COSC 441	Residential Capstone	
COSC 442	Commercial Capstone	
COSC 443	Industrial Capstone	
COSC 446	Specialty Capstone	
Directed elective ^{1,2}		3
Semester Credit Hours		15
Total Semester Credit Hours		120

¹ Must make a grade of C or better.² Select from COSC 214, COSC 303, COSC 322, COSC 326, COSC 359, COSC 421, COSC 461, COSC 468, COSC 489. A maximum of 3 hours of 489 may be used.³ Internship must be Fall or Spring semester. Only online courses at Texas A&M can be taken during an official internship.⁴ Capstone must be taken in graduating semester.

Facility Management - Minor

The Department of Construction Science offers a minor in Facility Management.

Facility Management is an integral part of the built environment. Courses offered in this minor will provide the students both classroom instruction and site exposures of building equipment and systems, maintenance and operations, needs assessment and space planning, the owner/architect/contractor relationship and general industry practices.

Program Requirements

Code	Title	Semester Credit Hours
COSC 214	Introduction to Facilities Management	3
COSC 314	Immersion in Facilities Management	3
COSC 414	Contracted Services Management	3
COSC 474	Facility Management Internship	3
Select one of the following:		3
AGEC 105	Introduction to Agricultural Economics	
ACCT 209	Survey of Accounting Principles	
ACCT 229	Introductory Accounting	
ECON 202	Principles of Economics	
ECON 203	Principles of Economics	
Total Semester Credit Hours		15

College of Architecture students can apply no more than nine hours of coursework towards both the Facility Management Minor and their degree requirements.

Students must make a grade of C or better in all courses.

Leadership in the Design and Construction Professions - Minor

The Department of Construction Science offers a minor in Leadership in the Design and Construction Professions. The minor is designed to enhance leadership skills and increase each students understanding of themselves by encouraging and facilitating introspective looks into each individuals personality type, strengths and challenges. The goal of the minor is to focus on personal growth to become the most effective leaders in the design and construction industries.

Program Requirements

Code	Title	Semester Credit Hours
COSC 310	Design and Construction Leadership Education I	1
COSC 410	Design and Construction Leadership Education II	1
COSC 411	Seminar in Design and Construction Executive Leadership	1
Select from:		12
COSC 333	Project Management for Facility Managers	
COSC 353	Construction Project Management	
COSC 463	Introduction to Construction Law	
COSC 465	Advanced Topics in Construction Law	
COSC 475	Construction Project Planning	
COSC 440	Interdisciplinary Capstone	
COSC 441	Residential Capstone	
COSC 442	Commercial Capstone	

COSC 443	Industrial Capstone
COSC 446	Specialty Capstone
ARCH 305	Architecture Design III
ARCH 405	Architecture Design IV
ARCH 406	Architecture Design V
ARCH 451	Strategies in Architectural Management
ARCH 457	Ethics and Professional Practice
ENDS 101	Design Process
LAND 312	Landscape Design IV
LAND 412	Landscape Design VI
LAND 431	Professional Practice
URPN 202	Building Better Cities
URPN 401	Policy Implementation
URPN 483	Studio in Urban and Regional Science
URPN 493	Urban and Regional Studies Capstone Course
VIST 305	Visual Studies Studio II
VIST 405	Visual Studies Studio III

Must have at least a 2.5 TAMU GPA to apply for minor.

A grade of 'C' or better is required in all classes used towards the minor.

Department of Landscape Architecture and Urban Planning

Landscape Architecture

Landscape architecture is the profession providing landscape planning, design, and management services to enhance and protect natural and built environments. Landscape architecture as a discipline is devoted to understanding and managing the human and environmental forces that change the landscape. Landscape architects plan and design places for the health, safety, and welfare of citizens through systematic decision-making that integrates science, art, and technology. Individual and community quality of life are enhanced by a design process to improve, protect, and create ecologically sustainable, socially equitable, and economically feasible landscapes. Landscape architects work in urban, suburban and wilderness environments. Our graduates have gained distinction for projects as varied in scale as private gardens, residential communities, urban plazas, college campuses, park facilities and regional conservation plans.

The Bachelor in Landscape Architecture (BLA) program is nationally accredited as a professional degree program. The mission of the program is to prepare students to become professional landscape architects in private and public sector practice. Our educational goal is to produce graduates motivated to be leaders in the field and professionals who are intellectually active, broadly-educated citizens and life-long learners.

Urban and Regional Planning

The Bachelor of Science in Urban and Regional Planning degree program emphasizes the social, economic, cultural and natural factors that govern how communities and society are shaped. Coursework provides students with the knowledge and skills needed to develop solutions to community and regional growth and development issues that face our state and nation. Students have an opportunity to specialize in specific aspects

of community and regional planning and development issues along with internship and service-learning experiences locally, nationally, and/or internationally.

Faculty

Abuabara, Alexander, Instructional Assistant Professor
Land Arch & Urban Planning
PHD, Texas A&M University, 2022

Brown, Robert D, Professor
Land Arch & Urban Planning
PHD, University of Guelph, 1985

Clark, Jonathan, Associate Professor of the Practice
Land Arch & Urban Planning
JD, Southern Methodist University School of Law, 1995

Cooper, John T, Professor of the Practice
Land Arch & Urban Planning
PHD, University of North Carolina at Chapel Hill, 2004

Davis, Deidra D, Instructional Assistant Professor
Land Arch & Urban Planning
PHD, Southern Illinois University Carbondale, 2017

Dixit, Madhavi Manish M, Lecturer
Land Arch & Urban Planning
PHD, Texas A&M University, 2021

Dvorak, Bruce D, Professor
Land Arch & Urban Planning
MLA, University of Illinois at Urbana-Champaign, 1994

Early, Tim, Associate Professor of the Practice
Land Arch & Urban Planning
MS, Texas A&M University, 1991

Fulton, Bill, Professor of the Practice
Land Arch & Urban Planning
MA, University of California, Los Angeles, 1985

Garcia, Ivis, Associate Professor
Land Arch & Urban Planning
PHD, University of Illinois at Chicago, 2015

Giusti, Cecilia Hundskopf, Associate Professor
Land Arch & Urban Planning
PHD, The University of Texas at Austin, 2001

Golbabai, Justin, Associate Professor of the Practice
Land Arch & Urban Planning
BA, University of Notre Dame, 2004

Huang, Chang S, Associate Professor
Land Arch & Urban Planning
PHD, University of Pennsylvania, 1995

Hurst, Kenneth R, Assistant Professor of the Practice
Land Arch & Urban Planning
PHD, Texas A&M University, 2016

Lee, Chanam, Professor
Land Arch & Urban Planning
PHD, University of Washington, 2004

Lee, Sungmin, Associate Professor
Land Arch & Urban Planning
PHD, Texas A&M University, 2018

Leverett, Dan, Professor of the Practice
Land Arch & Urban Planning
MBA, Texas A&M University, 1988

Li, Dongying, Associate Professor
Land Arch & Urban Planning
PHD, University of Illinois - Champaign, 2016

Li, Wei, Professor
Land Arch & Urban Planning
PHD, University of California at Irvine, 2011

Malecha, Matthew L, Instructional Assistant Professor
Land Arch & Urban Planning
PHD, Texas A&M University, 2019

Martin, June C, Instructional Associate Professor
Land Arch & Urban Planning
MS, University of Georgia, 2002
MPA, University of Georgia, 1991

McNair, Michael, Assistant Professor
Land Arch & Urban Planning
PHD, Kansas State University, 2023

Meyer, Michelle Annette, Associate Professor
Land Arch & Urban Planning
PHD, Colorado State University, 2013

Nam, Ji Won, Instructional Assistant Professor
Land Arch & Urban Planning
PHD, Texas A&M University, 2023

Newman, Galen D, Professor
Land Arch & Urban Planning
PHD, Clemson University, 2010

Newton, Karah F, Lecturer
Land Arch & Urban Planning
BA, University of Buffalo - The State University of New York, 2000
MPA, New York University Wagner, 2014

Noh, Youngre, Assistant Professor
Land Arch & Urban Planning
PHD, Texas A&M University, 2015

Peacock, Walter Gillis, Professor
Land Arch & Urban Planning
PHD, University of Georgia, 1986

Peng, Jingxi, Lecturer
Land Arch & Urban Planning
MLA, Texas A&M University, 2022

Reid, Russell W, Instructional Associate Professor
Land Arch & Urban Planning
MAR, Texas A&M University, 2001

Ren, Dingding, Lecturer
Land Arch & Urban Planning
MLA, Texas A&M University, 2018

Rogers, George O, Professor
Land Arch & Urban Planning
PHD, University of Pittsburgh, 1983

Rosenheim, Nathanael Proctor, Research Associate Professor
Land Arch & Urban Planning
PHD, Texas A&M University, 2015

Sanchez, Thomas, Professor
Land Arch & Urban Planning
PHD, Georgia Institute of Technology, 1996

Scott, Bentley Nelson, Assistant Professor of the Practice
Land Arch & Urban Planning
MS, Texas A&M University, 2015

Song, Yang, Associate Professor
Land Arch & Urban Planning
PHD, Clemson University, 2017

Van Zandt, Shannon S, Professor
Land Arch & Urban Planning
PHD, University of North Carolina at Chapel Hill, 2004

Varni, James Walter, Research Professor
Land Arch & Urban Planning
PHD, University of California, Los Angeles, 1976

Woodfin, Thomas M, Executive Professor
Land Arch & Urban Planning
PHD, Texas A&M University, 2007

Wu, Chia-Ching, Lecturer
Land Arch & Urban Planning
MS, National Taiwan University, 2017

Wunneburger, Douglas F, Instructional Professor
Land Arch & Urban Planning
PHD, Texas A&M University, 1992

Xu, Boqian, Assistant Professor
Land Arch & Urban Planning
PHD, University of Pennsylvania, 2023

Ye, Xinyue, Professor
Land Arch & Urban Planning
PHD, University of California at Santa Barbara, 2010

Yu, Siyu, Associate Professor
Land Arch & Urban Planning
PHD, Texas A&M University, 2019

Zhong, Sinan, Assistant Professor
Land Arch & Urban Planning
PHD, Texas A&M University, 2020

Majors

- Bachelor of Landscape Architecture in Landscape Architecture (p. 252)
- Bachelor of Science in Urban and Regional Planning, Urban Design Track (p. 253)
- Bachelor of Science in Urban and Regional Planning, Urban Policy Track (p. 254)

- Bachelor of Science in Urban and Regional Planning and Master of Land and Property Development, 5-Year Degree Program (p. 256)
- Bachelor of Science in Urban and Regional Planning and Master of Landscape Architecture, 6-Year Degree Program (p. 255)
- Bachelor of Science in Urban and Regional Planning and Master of Urban Planning, 5-Year Degree Program (p. 258)

Minors

- Urban and Regional Planning Minor (p. 259)

Landscape Architecture - BLA

The mission of the Bachelor of Landscape Architecture (BLA) program is to prepare students to become professional landscape architects in the private and public sectors of practice.

We foster a learning environment of creativity and critical analysis that uses evidence-based design principles as its core. This approach builds upon the knowledge of natural and built environments and how humans interact within various cultural settings. Our BLA graduates use this knowledge to produce spatial solutions at multiple scales from site design to land use planning. This creative process aims to advance human health, and social, economic and environmental sustainability. The program strives to produce graduates motivated to be life-long learners capable of working independently and leading interdisciplinary teams in the field of landscape architecture.

Graduates from the BLA program are prepared for employment with private practice firms in landscape architecture, engineering, architecture, or planning; and with federal, state, or local government agencies. Upon graduation and with additional two-year practical experience students are qualified to pursue licensure in the profession or post graduate education in landscape architecture or a related field.

Because of the important role of computing in the disciplines housed within the College of Architecture, all entering students are required to possess a portable, network-ready personal computer capable of running software appropriate to their academic program. Financial aid is available to assist students in their computer purchases. No student will be denied admission to Texas A&M University based on an inability to purchase a computer. Additional information is available on the Department of Landscape Architecture and Urban Planning website.

Program Requirements

First Year

Fall		Semester Credit Hours
ECCB 205	Fundamentals of Ecology	3
LAND 101	Introduction to Landscape Architectural Practice ¹	1
LAND 111	Landscape Architecture Communications I ¹	3
MATH 140	Mathematics for Business and Social Sciences ¹	3
URPN 202	Building Better Cities	3
URPN 220	Digital Communication I ¹	3
Semester Credit Hours		16

Spring

LAND 112	Landscape Architectural Communications II ¹	3
LAND 240	History of Landscape Architecture	3
MATH 142	Business Calculus	3
URPN 320	Digital Communication II ¹	3
Life and physical sciences (p. 27)		4
Semester Credit Hours		16

Second Year

Fall

ENGL 104	Composition and Rhetoric	3
HORT 306	Trees and Shrubs for Sustainable Built Environments ¹	3
KINE 120	The Science of Basic Health and Fitness	1
LAND 211	Landscape Design I ¹	4
LAND 231	Landscape Construction I ¹	4
Semester Credit Hours		15

Spring

ARCH 250	Survey of World Architecture History II	3
HORT 308	Plants for Sustainable Landscapes ¹	3
LAND 212	Landscape Design II ¹	4
LAND 232	Landscape Construction II ¹	3
General elective ^{2,3}		3
Semester Credit Hours		16

Third Year

Fall

LAND 301	Landscape Architecture Theory ¹	3
LAND 311	Landscape Design III ¹	5
POLS 206	American National Government	3
American history (p. 30)		3
Urban planning elective ^{1,2,4}		3
Semester Credit Hours		17

Spring

ECCB 215	Fundamentals of Ecology–Laboratory	1
LAND 312	Landscape Design IV ¹	5
LAND 331	Landscape Construction III ¹	4
LAND 431	Professional Practice ¹	3
POLS 207	State and Local Government	3
Semester Credit Hours		16

Summer

ENGL 210	Technical and Professional Writing	3
LAND 484	Summer Internship	0
Semester Credit Hours		3

Fourth Year

Fall

Semester Away ⁵		6
Select one of the following:		
CARC 301	Field Studies in Design Innovation ^{1,6}	
LAND 494	Internship ¹	
General elective ^{2,3,7}		6
Semester Credit Hours		12

Spring

LAND 241	History and Development of Landscape Architecture in North America ¹	3
LAND 412	Landscape Design VI ¹	5
American history (p. 30)		3
Cultural discourse ^{1,2,8}		3
Urban planning elective ^{1,2,4}		3
Semester Credit Hours		17
Total Semester Credit Hours		128

¹ Must make a grade of C or better.

² This course will be selected in consultation with the student's advisor.

³ Select from any 300-499 courses not used elsewhere.

⁴ Select from URPN 201, URPN 203, URPN 302, URPN 325, URPN 340, URPN 360, URPN 361, URPN 369, URPN 370, URPN 371, URPN 450, URPN 460, URPN 471, URPN 489.

⁵ Semester Away: May be satisfied by study abroad, at another university, internship, or special arrangement by advisor or instructor. Electives may be taken during summer, online, distance education, at another university or college, or at a study abroad university.

⁶ Study abroad course.

⁷ If electing to study abroad, must take CARC 311 and CARC 331 as an elective.

⁸ Select from any 100-499 course that meets the cultural discourse (p. 48) graduation requirement.

Urban and Regional Planning - BS, Urban Design Track

The Urban and Regional Planning program equips students for entry-level positions in planning allied fields and prepares them for graduate studies in fields such as Urban Planning and Land Development.

The Bachelor of Science in Urban and Regional Planning degree program is based in the Department of Landscape Architecture and Urban Planning (LAUP) within the College of Architecture at Texas A&M University. The core curriculum, designed to equip students with knowledge and skills to deal effectively with the opportunities and challenges inherent in the development, growth and culture of neighborhoods, cities, and regions, is based on theoretical training in the natural, physical, and social sciences. Students acquire skills that enable them to apply these theories to develop communities, cities, and regions which are safe, healthy, and sustainable.

Critical thinking and analytical skills are emphasized for problem-solving at the community and regional scale. Classroom service-learning experiences enable graduates to more reliably and realistically assess complex community problems, design solutions for overcoming those problems, and evaluate the outcomes of programs and policies in meeting community and regional needs.

The Urban Design Track emphasizes physical solutions and the urban form of communities and cities, related to land uses, site planning, the provision of infrastructure such as roads, sidewalks, and storm water management, and the provision of public spaces. Skill-building emphasizes graphic representation and the use of Geographic Information Systems (GIS) for both analysis and design.

Program Requirements

First Year

Fall		Semester Credit Hours
LAND 101	Introduction to Landscape Architectural Practice ¹	1
POLS 206	American National Government	3
URPN 201	The Evolving City ¹	3
Communication (p.)		3
Life and physical sciences (p. 27)		3
Mathematics (p. 27)		3
Semester Credit Hours		16

Spring

POLS 207	State and Local Government	3
URPN 202	Building Better Cities ¹	3
Communication (p.)		3
Life and physical sciences (p. 27)		3
Mathematics (p. 27)		3
Semester Credit Hours		15

Second Year

Fall		
ARCH 212	Social and Behavioral Factors in Design	3
LAND 240	History of Landscape Architecture	3
URPN 220	Digital Communication I ¹	3
American history (p. 30)		3
Life and physical sciences (p. 27)		3
Semester Credit Hours		15

Spring

URPN 320	Digital Communication II ¹	3
URPN 325	Introduction to GIS in Urban and Regional Planning ¹	3
Select one of the following: ¹		3
SOCI 214	Social Problems	
SOCI 230	Classical Sociological Theory	
SOCI 311	Social Change	
SOCI 312	Population and Society	
SOCI 317/AFST 317	Racial and Ethnic Relations	
American history (p. 30)		3
Creative arts (p. 30)		3
Semester Credit Hours		15

Third Year

Fall		
RWFM 375	Conservation of Natural Resources ¹	3
URPN 210	Urban Analytical Methods I ¹	3
URPN 326	Advanced GIS in Urban and Regional Planning ¹	3
URPN 420	Principles of Urban Design ¹	3
URPN 483	Studio in Urban and Regional Science ¹	4
Semester Credit Hours		16

Spring

CARC 481	Seminar ¹	1
URPN 310	Urban Analytical Methods II ¹	3
URPN 330	Land Development I ¹	3
URPN 331	Public and Private Infrastructure Funding ¹	3
URPN 401	Policy Implementation ¹	3
General elective ²		3
Semester Credit Hours		16

Fourth Year**Fall**

Semester Away ^{1,3}		
CARC 301 or URPN 494	Field Studies in Design Innovation or Internship	6
Directed elective ⁴		6
Semester Credit Hours		12

Spring

URPN 493	Urban and Regional Studies Capstone Course ¹	5
Directed elective ^{1,4}		3
General elective ²		4
General elective ²		3
Semester Credit Hours		15
Total Semester Credit Hours		120

¹ Must make a grade of C or better.

² Select from any 100-499 course not used elsewhere.

³ Semester Away: May be satisfied by study abroad, at another university, internship, or special arrangement by advisor or instructor. Directed electives may be taken during summer, online, distance education, at another university or college, or at a study abroad university. CARC 301 is a study abroad course. If electing to study abroad, must take CARC 311 and CARC 331 as directed electives. If a student takes URPN 494 in fall of fourth year, 6 hours of directed electives must be added to different semesters other than this fall.

⁴ Must be selected in consultation with the student's advisor from: AGEC 422, ARCH 250, CSCE 110, ENDS 101, GEOG 352/GEOL 352, LAND 241, PBSI 315, POLS 340/PSAA 340, SOCI 312, SOCI 328, SOCI 404/RPTS 404, SOCI 419, URPN 302, URPN 340, URPN 360, URPN 361, URPN 369, URPN 370, URPN 371, URPN 409, URPN 440, URPN 450, URPN 451, URPN 460, URPN 469, URPN 470, URPN 471, URPN 489. If not participating in study abroad or taken elsewhere in the curriculum, 3 hours must come from list of approved International and Cultural Diversity (p. 49) courses.

Urban and Regional Planning - BS, Urban Policy Track

The Urban and Regional Planning program equips students for entry-level positions in planning allied fields and prepares them for graduate studies in fields such as Urban Planning and Land Development.

The Bachelor of Science in Urban and Regional Planning degree program is based in the Department of Landscape Architecture and Urban Planning (LAUP) within the College of Architecture at Texas A&M University. The core curriculum, designed to equip students with knowledge and skills to deal effectively with the opportunities and challenges inherent in the development, growth and culture of

neighborhoods, cities, and regions, is based on theoretical training in the natural, physical, and social sciences. Students acquire skills that enable them to apply these theories to develop communities, cities, and regions which are safe, healthy, and sustainable.

Critical thinking and analytical skills are emphasized for problem-solving at the community and regional scale. Classroom service-learning experiences enable graduates to more reliably and realistically assess complex community problems, design solutions for overcoming those problems, and evaluate the outcomes of programs and policies in meeting community and regional needs.

The Urban Policy Track emphasizes policy solutions for building resilient, efficient, healthy, and sustainable communities. Policy evaluation and formulation address urban issues related to the equitable provision of public services, housing, environmental services, employment, and transportation. Skill-building emphasizes critical thinking, analytical skills, and written and verbal communication.

Program Requirements

First Year**Fall**
**Semester
Credit
Hours**

LAND 101	Introduction to Landscape Architectural Practice ¹	1
POLS 206	American National Government	3
URPN 201	The Evolving City ¹	3
Communication (p.)		3
Life and physical sciences (p. 27)		3
Mathematics (p. 27)		3
Semester Credit Hours		16

Spring

POLS 207	State and Local Government	3
URPN 202	Building Better Cities ¹	3
Communication (p.)		3
Life and physical sciences (p. 27)		3
Mathematics (p. 27)		3
Semester Credit Hours		15

Second Year**Fall**

ARCH 212	Social and Behavioral Factors in Design	3
LAND 240	History of Landscape Architecture	3
URPN 220	Digital Communication I ¹	3
American history (p. 30)		3
Life and physical sciences (p. 27)		3
Semester Credit Hours		15

Spring

RWFM 375	Conservation of Natural Resources ¹	3
URPN 325	Introduction to GIS in Urban and Regional Planning ¹	3
Select one of the following: ¹		3
SOCI 214	Social Problems	
SOCI 230	Classical Sociological Theory	
SOCI 311	Social Change	
SOCI 312	Population and Society	

SOCI 317/ AFST 317	Racial and Ethnic Relations	
American history (p. 30)		3
Creative arts (p. 30)		3
Semester Credit Hours		15
Third Year		
Fall		
URPN 210	Urban Analytical Methods I ¹	3
URPN 302	Planning Law ¹	3
URPN 440	Urban and Regional Economic Development ¹	3
URPN 483	Studio in Urban and Regional Science ¹	4
General elective ²		3
Semester Credit Hours		16
Spring		
CARC 481	Seminar ¹	1
URPN 310	Urban Analytical Methods II ¹	3
URPN 330	Land Development I ¹	3
URPN 331	Public and Private Infrastructure Funding ¹	3
URPN 401	Policy Implementation ¹	3
General elective ²		3
Semester Credit Hours		16
Fourth Year		
Fall		
Semester Away ^{1,3}		
CARC 301	Field Studies in Design Innovation or URPN 494 or Internship	6
Directed elective ⁴		6
Semester Credit Hours		12
Spring		
URPN 493	Urban and Regional Studies Capstone Course ¹	5
Directed elective ^{1,4}		3
Directed elective ^{1,4}		3
General elective ²		4
Semester Credit Hours		15
Total Semester Credit Hours		120

¹ Must make a grade of C or better.

² Select from any 100-499 course not used elsewhere.

³ Semester Away: May be satisfied by study abroad, at another university, internship, or special arrangement by advisor or instructor. Directed electives may be taken during summer, online, distance education, at another university or college, or at a study abroad university. CARC 301 is a study abroad course. If electing to study abroad, must take CARC 311 and CARC 331 as directed electives. If a student takes URPN 494 in fall of fourth year, 6 hours of directed electives must be added to different semesters other than this fall.

⁴ Must be selected in consultation with the student's advisor from: AGECE 422, ARCH 250, CSCE 110, ENDS 101, GEOG 352/GEOL 352, LAND 241, PBSI 315, POLS 340/PSAA 340, SOCI 312, SOCI 328, SOCI 404/RPTS 404, SOCI 419, URPN 340, URPN 360, URPN 361, URPN 369, URPN 370, URPN 371, URPN 409, URPN 420, URPN 450, URPN 451, URPN 460, URPN 469, URPN 470, URPN 471, URPN 489. If not participating in study abroad or taken elsewhere in the curriculum,

3 hours must come from list of approved International and Cultural Diversity (p. 49) courses.

Urban and Regional Planning - 6-Year Bachelor of Science and Master of Landscape Architecture

The 6-year combination program, Bachelor of Science in Urban and Regional Planning and the Master of Landscape Architecture, allows high-performing undergraduate students in the Urban Design track to streamline their undergraduate and professional education.

The undergraduate core is designed to equip students with knowledge and skills to deal effectively with the opportunities and challenges inherent in the urban design, development, and policy, of cities and landscapes. Students acquire skills that enable them to apply planning theory and policy to design and plan communities, cities, and sites which are safe, healthy, and sustainable. While still completing undergraduate credits, students begin graduate coursework in the Master of landscape architecture program to refine and extend their skills in critical thinking, problem-solving, and communication, leading to an accredited professional degree.

Program Requirements

First Year

Fall		Semester Credit Hours
LAND 101	Introduction to Landscape Architectural Practice ¹	1
POLS 206	American National Government	3
URPN 201	The Evolving City ¹	3
Communication (p.)		3
Mathematics (p. 27)		3
Life and physical sciences (p. 27)		3
Semester Credit Hours		16

Spring

POLS 207	State and Local Government	3
URPN 202	Building Better Cities ¹	3
Communication (p.)		3
Mathematics (p. 27)		3
Life and physical sciences (p.)		3
Semester Credit Hours		15

Second Year

Fall		
ARCH 212	Social and Behavioral Factors in Design	3
LAND 240	History of Landscape Architecture	3
URPN 220	Digital Communication I ¹	3
American history (p. 30)		3
Life and physical sciences (p. 27)		3
Semester Credit Hours		15

Spring

URPN 320	Digital Communication II ¹	3

URPN 325	Introduction to GIS in Urban and Regional Planning ¹	3
Select one of the following: ¹		3
SOCI 214	Social Problems	
SOCI 230	Classical Sociological Theory	
SOCI 311	Social Change	
SOCI 312	Population and Society	
SOCI 317/ AFST 317	Racial and Ethnic Relations	
American history (p.)		3
Creative arts (p. 30)		3

Semester Credit Hours 15

Third Year

Fall

RWFM 375	Conservation of Natural Resources ¹	3
URPN 210	Urban Analytical Methods I ¹	3
URPN 326	Advanced GIS in Urban and Regional Planning ¹	3
URPN 420	Principles of Urban Design ¹	3
URPN 483	Studio in Urban and Regional Science ¹	4

Semester Credit Hours 16

Spring

CARC 481	Seminar ^{1,2}	1
URPN 310	Urban Analytical Methods II ¹	3
URPN 330	Land Development I ¹	3
URPN 331	Public and Private Infrastructure Funding ¹	3
URPN 401	Policy Implementation ¹	3
General elective ³		3

Semester Credit Hours 16

Fourth Year

Fall

Semester away ^{1,4}		
URPN 494	Internship or CARC 301 or Field Studies in Design Innovation	6
Directed elective ⁵		6

Semester Credit Hours 12

Spring

URPN 493	Urban and Regional Studies Capstone Course ^{1,2}	5
LAND 640	Research Methods in Landscape Architecture ^{1,2}	3
LAND 645	Practice Diversity in Landscape Architecture ^{1,2}	3
General elective ^{2,6}		3
General elective ³		1

Semester Credit Hours 15

Fifth Year

Fall

HORT 608	Plants for Landscape Design ¹	4
LAND 612	Landscape Architectural Site Engineering and Development ¹	4
LAND 620	Open Space and Land Use Planning I ¹	5

Semester Credit Hours 13

Spring

LAND 614	Landscape Architectural Construction ¹	4
LAND 621	Open Space and Land Use Planning II ¹	5
LAND 646	Professional Practice ¹	3

Semester Credit Hours 12

Summer

LAND 684	Professional Internship ¹	1

Semester Credit Hours 1

Sixth Year

Fall

LAND 693	Professional Study ¹	9

Semester Credit Hours 9

Spring

LAND 693	Professional Study ¹	9

Semester Credit Hours 9

Total Semester Credit Hours 164

¹ Must make a grade of C or better.

² Course counted towards both the undergraduate and graduate requirements.

³ Select from any 100-499 course not used elsewhere

⁴ Semester Away: May be satisfied by study abroad, at another university, internship, or special arrangement by advisor or instructor. Directed electives may be taken during summer, online, distance education, at another university or college, or at a study abroad university. CARC 301 is a study abroad course. If electing to study abroad, must take CARC 311 and CARC 331 as directed electives. If a student takes URPN 494 in fall of fourth year, 6 hours of directed electives must be added to different semesters other than this fall.

⁵ Must be selected in consultation with the student's advisor from: AGECE 422; ARCH 250; CARC 311, CARC 331; CSCE 110; ENDS 101; GEOG 352/GEOG 352; LAND 241; PBSI 315; POLS 340/PSAA 340; SOCI 312, SOCI 328, SOCI 404/RPTS 404, SOCI 419; URPN 302, URPN 340, URPN 360, URPN 361, URPN 369, URPN 370, URPN 371, URPN 409, URPN 440, URPN 450, URPN 451, URPN 460, URPN 469, URPN 470, URPN 471, URPN 489. If not participating in study abroad or taken elsewhere in the curriculum, 3 hours must come from list of approved International and Cultural Diversity (p. 49) courses.

⁶ Select from any 300-499 course not used elsewhere.

The program includes a total of 179 hours, which up to 15 hours may be applied toward both the Bachelor of Science in Urban & Regional Planning and the Master of Landscape Architecture.

Urban and Regional Planning - 5-Year Bachelor of Science and Master of Land and Property Development

The 5-year combination program, Bachelor of Science in Urban and Regional Planning and the Master of Land and Property Development, allows high-performing undergraduate students to streamline their undergraduate and professional education.

The undergraduate core is designed to equip students with knowledge and skills to deal effectively with the opportunities and challenges inherent in the development, growth and culture of neighborhoods,

cities, and regions, is based on theoretical training in the natural, physical, and social sciences. Students acquire skills that enable them to apply these theories to develop communities, cities, and regions which are safe, healthy, and sustainable. While still completing undergraduate credits, students begin graduate coursework in land and property development, where their core knowledge of urban growth and development can be enhanced with real estate, financial and management skills, leading to a fruitful career in real estate and land development.

Program Requirements

First Year

		Semester Credit Hours
Fall		
LAND 101	Introduction to Landscape Architectural Practice ¹	1
POLS 206	American National Government	3
URPN 201	The Evolving City ¹	3
Communication (p. 27)		3
Life and physical sciences (p. 27)		3
Mathematics (p. 27)		3
Semester Credit Hours		16

Spring

POLS 207	State and Local Government	3
URPN 202	Building Better Cities ¹	3
Communication (p.)		3
Life and physical sciences (p. 27)		3
Mathematics (p. 27)		3
Semester Credit Hours		15

Second Year

Fall		
ARCH 212	Social and Behavioral Factors in Design	3
LAND 240	History of Landscape Architecture	3
URPN 220	Digital Communication I ¹	3
American history (p. 30)		3
Life and physical sciences (p. 27)		3
Semester Credit Hours		15

Spring

URPN 325	Introduction to GIS in Urban and Regional Planning ¹	3
Select one of the following: ^{1,2}		3
URPN 320	Digital Communication II	
Directed elective ³		
Select one of the following: ¹		3
SOCI 214	Social Problems	
SOCI 230	Classical Sociological Theory	
SOCI 311	Social Change	
SOCI 312	Population and Society	
SOCI 317/AFST 317	Racial and Ethnic Relations	
American history (p. 30)		3
Creative Arts (p. 30)		3
Semester Credit Hours		15

Third Year

Fall

RWFM 375	Conservation of Natural Resources ¹	3
URPN 210	Urban Analytical Methods I ¹	3
URPN 302	Planning Law ^{1,2}	3
or URPN 326	or Advanced GIS in Urban and Regional Planning	
URPN 420	Principles of Urban Design ^{1,2}	3
or URPN 440	or Urban and Regional Economic Development	
URPN 483	Studio in Urban and Regional Science ¹	4
Semester Credit Hours		16

Spring

CARC 481	Seminar ¹	1
URPN 310	Urban Analytical Methods II ¹	3
URPN 330	Land Development I ^{1,4}	3
URPN 331	Public and Private Infrastructure Funding ¹	3
URPN 401	Policy Implementation ¹	3
General elective ⁵		3
Semester Credit Hours		16

Fourth Year

Fall

Semester Away ^{1,6}		
CARC 301	Field Studies in Design Innovation	6
or URPN 494	or Internship	
Directed elective ³		6
Semester Credit Hours		12

Spring

LDEV 661	Development and the Environment ^{1,4}	3
URPN 493	Urban and Regional Studies Capstone Course ¹	5
General elective ⁵		3
General elective ⁵		4
Semester Credit Hours		15

Fifth Year

Fall

LDEV 663	Introduction to Project Management ¹	3
LDEV 664	Market Analysis for Development ¹	3
LDEV 668	Land Development Practice ¹	3
LDEV 669	Income Property Land Development ¹	3
LDEV 687	Development Feasibility and Design ¹	3
Semester Credit Hours		15

Spring

LDEV 650	Land and Property Development Analysis ¹	3
LDEV 651	Property Development Agreements and Regulation ¹	3
LDEV 660	Fundamentals of Entrepreneurial Real Estate ¹	3
LDEV 685	Directed Studies ¹	3
LDEV 688	Development Feasibility and Design II ¹	3
Semester Credit Hours		15
Total Semester Credit Hours		150

¹ Must make a grade of C or better.

² Students in the Urban Design Track must take URPN 320, URPN 326, and URPN 420 for these requirements. Students in the Urban Policy Track must take a directed elective, URPN 302, and URPN 440 for these requirements.

³ Must be selected in consultation with the student's advisor from: AGE 422; ARCH 250; CSCE 110; ENDS 101; GEOG 352/GEOL 352; LAND 241; PBSI 315; POLS 340/PSAA 340; SOCI 312, SOCI 328, SOCI 404/RPTS 404, SOCI 419; URPN 302, URPN 340, URPN 360, URPN 361, URPN 369, URPN 370, URPN 371, URPN 409, URPN 420, URPN 440, URPN 450, URPN 451, URPN 460, URPN 469, URPN 470, URPN 471, URPN 489. If not participating in study abroad or taken elsewhere in the curriculum, 3 hours must come from list of approved International and Cultural Diversity (p. 49) courses.

⁴ Course counted towards both the undergraduate and graduate requirements.

⁵ Select from any 100-499 course not used elsewhere.

⁶ Semester Away: May be satisfied by study abroad, at another university, internship, or special arrangement by advisor or instructor. Directed electives may be taken during summer, online, distance education, at another university or college, or at a study abroad university. CARC 301 is a study abroad course. If electing to study abroad, must take CARC 311 and CARC 331 as directed electives. If a student takes URPN 494 in fall of fourth year, 6 hours of directed electives must be added to different semesters other than this fall.

The program includes a total of 156 hours, which up to 6 hours may be applied toward both the Bachelor of Science in Urban & Regional Planning and the Master of Land and Property Development.

Urban and Regional Planning - 5-Year Bachelor of Science and Master of Urban Planning

The 5-year combination program, Bachelor of Science in Urban and Regional Planning and Master of Urban Planning, allows high-performing undergraduate students to streamline their undergraduate and professional education.

The undergraduate core is designed to equip students with knowledge and skills to deal effectively with the opportunities and challenges inherent in the development, growth and culture of neighborhoods, cities, and regions, is based on theoretical training in the natural, physical, and social sciences. Students acquire skills that enable them to apply these theories to develop communities, cities, and regions which are safe, healthy, and sustainable. While still completing undergraduate credits, students begin graduate coursework in urban planning to refine and extend their skills in critical thinking, problem-solving, and communication, leading to an accredited professional degree appropriate for planning positions in the public sector, private consulting, or the non-profit world.

Program Requirements

First Year

Fall		Semester Credit Hours
LAND 101	Introduction to Landscape Architectural Practice ¹	1
POLS 206	American National Government	3
URPN 201	The Evolving City ¹	3
Communication (p. 27)		3
Life and physical sciences (p. 27)		3
Mathematics (p. 27)		3

Semester Credit Hours 16

Spring

POLS 207	State and Local Government	3
URPN 202	Building Better Cities ¹	3
Communication (p.)		3
Life and physical sciences (p. 27)		3
Mathematics (p. 27)		3

Semester Credit Hours 15

Second Year

Fall

ARCH 212	Social and Behavioral Factors in Design	3
LAND 240	History of Landscape Architecture	3
URPN 220	Digital Communication I ¹	3
American history (p. 30)		3
Life and physical sciences (p. 27)		3

Semester Credit Hours 15

Spring

URPN 325	Introduction to GIS in Urban and Regional Planning ^{1,2}	3
Select one of the following: ^{1,3}		3

URPN 320	Digital Communication II ²	
Directed elective ⁴		

Select one of the following: ¹ 3

SOCI 214	Social Problems	
SOCI 230	Classical Sociological Theory	
SOCI 311	Social Change	
SOCI 312	Population and Society	
SOCI 317/ AFST 317	Racial and Ethnic Relations	

American history (p. 30) 3

Creative arts (p. 30) 3

Semester Credit Hours 15

Third Year

Fall

RWFM 375	Conservation of Natural Resources ¹	3
URPN 210	Urban Analytical Methods I ¹	3
URPN 302	Planning Law ^{1,2,3}	3
or URPN 326	or Advanced GIS in Urban and Regional Planning	

URPN 420 or URPN 440	Principles of Urban Design ^{1,2,3} or Urban and Regional Economic Development	3
URPN 483	Studio in Urban and Regional Science ¹	4
Semester Credit Hours		16
Spring		
CARC 481	Seminar ¹	1
URPN 330	Land Development I ¹	3
URPN 331	Public and Private Infrastructure Funding ¹	3
PLAN 613	Planning Methods II ^{1,2}	3
PLAN 658	Plan Implementation ^{1,2}	3
General elective ⁵		3
Semester Credit Hours		16
Fourth Year		
Fall		
Semester Away ^{1,6}		
CARC 301 or URPN 494	Field Studies in Design Innovation or Internship	6
Directed elective ⁴		6
Semester Credit Hours		12
Spring		
PLAN 662	Applied Planning I ^{1,2}	3
URPN 493	Urban and Regional Studies Capstone Course ¹	5
General elective ⁵		7
Semester Credit Hours		15
Fifth Year		
Fall		
PLAN 604	Planning Methods I ¹	3
PLAN 610	City Form and Function ¹	3
PLAN 661	Community Engagement ¹	3
PLAN 664	Planning Theory and History ¹	3
PLAN 665	Plan Making ¹	3
Semester Credit Hours		15
Spring		
PLAN 640 or PLAN 667	Law and Legislation Related to Planning ¹ or Site Planning	3
PLAN 693	Professional Study ¹	3
Elective ⁷		3
Elective ⁷		3
Elective ⁷		3
Semester Credit Hours		15
Total Semester Credit Hours		150

¹ Must make a grade of C or better.

² Course counted towards both the undergraduate and graduate requirements. Students in the Urban Design Track will double count URPN 320 and URPN 420. Students in the Urban Policy Track will double count URPN 302 and URPN 440.

³ Students in the Urban Design Track must take URPN 320, URPN 326, and URPN 420 for these requirements. Students in the Urban Policy Track must take a directed elective, URPN 302, and URPN 440 for these requirements.

⁴ Must be selected in consultation with the student's advisor from: AGECE 422, ARCH 250, CSCE 110, ENDS 101, GEOG 352/GEO 352, LAND 241, PBSI 315, POLS 340/PSAA 340, SOCI 312, SOCI 328, SOCI 404/RPTS 404, SOCI 419, URPN 302, URPN 340, URPN 360, URPN 361, URPN 369, URPN 370, URPN 371, URPN 409, URPN 420, URPN 440, URPN 450, URPN 451, URPN 460, URPN 469, URPN 470, URPN 471, URPN 489. If not participating in study abroad or taken elsewhere in the curriculum, 3 hours must come from list of approved International and Cultural Diversity (p. 49) courses.

⁵ Select from any 100-499 course not used elsewhere.

⁶ Semester Away: May be satisfied by study abroad, at another university, internship, or special arrangement by advisor or instructor. Directed electives may be taken during summer, online, distance education, at another university or college, or at a study abroad university. CARC 301 is a study abroad course. If electing to study abroad, must take CARC 311 and CARC 331 as directed electives. If a student takes URPN 494 in fall of fourth year, 6 hours of directed electives must be added to different semesters other than this fall.

⁷ To be selected in consultation with graduate program advisor.

The program includes a total of 168 hours, which up to 18 hours may be applied toward both the Bachelor of Science in Urban & Regional Planning and the Master of Urban Planning.

Urban and Regional Planning - Minor

By pursuing a minor in urban planning at Texas A&M, students will earn an education within a multi-disciplinary atmosphere where analytical skills and critical thinking are harvested. Students will then apply this acquired knowledge to address real-world issues which communities and regions face on a daily basis. Those earning a minor in urban planning can effectively solve problems related to a number of complex issues involving the built and natural environment, transportation, health, economic development, among others.

The minor in urban planning program will provide a solid educational basis for those students wishing to pursue a post-graduate education within the planning field. Also, because of its broad scope, the minor program may serve as an effective introduction to graduate studies in other social science disciplines such as economics, geography, political science, and public policy.

The minor program will prepare students for entry-level positions in a variety of fields including state and local government; advocacy, grant-making and civic organizations; real estate management; environmental science; social assistance services; and health care services.

Program Requirements

Code	Title	Semester Credit Hours
URPN 201	The Evolving City ¹	3
URPN 202	Building Better Cities ²	3
Select 9 hours from the following:		9
URPN 340	Housing and Community	
URPN 361	Urban Issues	
URPN 370	Health Systems Planning	
URPN 460	Sustainable Communities	
URPN 471	Planning Healthier Communities	
Total Semester Credit Hours		15

¹ The student's home college or major department may approve/disapprove GEOG 306.
² USAR students will have to take URPN 330.

University Studies

The College of Architecture offers a degree in University Studies. A University Studies degree differs from a traditional “major” in that it consists of a concentration and two minors of 15-18 hours each. The University Studies degree format was created to provide students the flexibility and interdisciplinary interest to combine areas of study that are of special interest in the built environment.

Majors

- Bachelor of Science in University Studies, Global Arts, Planning, Design and Construction Concentration (p. 260)

University Studies - BS, Global Arts, Planning, Design and Construction Concentration

The Global Arts, Planning, Design and Construction concentration is an interdisciplinary course of study that integrates multiple aspects of the built environment.

The course offerings for the Bachelor of Science in University Studies with a concentration in Global Arts, Planning, Design and Construction are from all of the professional undergraduate programs within the College of Architecture and are intended to give students an understanding of the interplay of professions that are required to work as a team in order to successfully complete built environment projects. These foundation courses are coupled with a required study abroad experience. All students in the College of Architecture are required to participate in a semester away experience that serves to expand the context of their education. The benefit of this experience is integrated into the concentration.

Program Requirements

Code	Title	Semester Credit Hours
Concentration Requirements		
Design		
Select one of the following:		3
ARCH 249	Survey of World Architecture History I	
ARCH 250	Survey of World Architecture History II	
ARTS 111	Drawing I	
ARTS 149	Art History Survey I	
ARTS 150	Art History Survey II	
COSC 175	Construction Graphics Communication	
ENDS 101	Design Process	
Global and Cultural Discourse		

CARC 101	Cultural and Social Issues in the Natural, Built and Virtual Environment	3
Construction		
COSC 253	Construction Materials and Methods I	3
or COSC 15: or Introduction to the Construction Industry		
Leadership		
ALED 340	Survey of Leadership Theory	3
Urban Planning		
URPN 202	Building Better Cities	3
or URPN 20 or The Evolving City		
Study Abroad		
CARC 481	Seminar	1
CARC 311	Field Studies in Design Communication ¹	3
CARC 331	Field Studies in Design Philosophy ¹	3
Directed electives		
School of Architecture course 300-499		3
College and Univerity Requirements		
POLS 206	American National Government	3
POLS 207	State and Local Government	3
American history (p. 30)		6
Communication (p. 27)		6
Creative arts (p. 30)		3
Mathematics (p. 27) ²		6
Language, philosophy and culture (p. 28)		3
Life and physical sciences (p. 27)		9
Social sciences (p. 31)		3
Minor 1		15-18
Minor 2		15-18
General Electives		17-23
Total Semester Credit Hours		120

¹ Or approved study abroad course.
² Select from the following Core Mathematic Approved Courses: MATH 140, MATH 142, MATH 147, MATH 148, MATH 150, MATH 151, MATH 152, MATH 167, MATH 168, MATH 171, MATH 172, PHIL 240, STAT 201.

A 2.0 GPA is required in all major field of study courses.

Two writing-intensive courses are required.

One course must meet the International and Cultural Diversity (p. 49) requirement.

One course must meet the Cultural Discourse (p. 48) requirement.

COLLEGE OF ARTS AND SCIENCES

Dean - Mark Zoran, PhD

Senior Executive Associate Dean for Faculty Affairs - Cynthia Werner, PhD

Executive Associate Dean - Simon North, PhD

Associate Dean for Faculty Affairs - Stephanie Harris, PhD

Associate Dean for Faculty Success - Joanna Goodey Pellois, PhD

Associate Dean for Faculty Initiatives - Omar Rivera, PhD

Associate Dean for Research - Emily Pentzer, PhD

Associate Dean for Graduate Studies - Adam R. Seipp, PhD

Associate Dean for Infrastructure - Darren DePoy, PhD

Senior Associate Dean for Undergraduate Education - Christian Brannstrom, PhD

Associate Dean for Academic Initiatives - Wayne Versaw, PhD

Associate Dean for Assessment and Curricular Matters - Terri Pantuso, PhD

Assistant Dean for Finance - Kristine Brisco

Assistant Dean for Alumni and Donor Relations - Dedra Nevill

Chief Administrative Officer - Cheryl Hanks

General Statement

The College of Arts and Sciences develops transdisciplinary thinkers - graduates who will take a unique approach to solving society's greatest problems. We produce the next discoverers, the next industry leaders, tomorrow's creative thinkers and citizens who embody the Aggie core values and make a difference in their communities.

Our departments and academic programs offer students who want an impactful and rewarding future the opportunity to study subjects across the natural sciences, humanities, mathematics, social sciences, languages, and life sciences. With over 10,500 undergraduate students, 854 faculty members and 2.3 million square feet of space on campus, the College of Arts and Sciences is the academic heart of Texas A&M, the foundation from which any career path can begin. Employers often cite communication, critical thinking, problem-solving and intercultural competency as their most-desired traits in an employee. These are skills that students will perfect while earning a degree in the College of Arts and Sciences.

Our faculty conduct world-changing teaching and research. We teach tomorrow's leaders, advance research and innovation, and participate in impactful outreach that changes the lives of our students, communities and the nation. We do this through the discovery and dissemination of new knowledge to address the world's most critical challenges. Collaborating with colleagues across campus and throughout the world, our interdisciplinary approach to research and outreach achieves results and creates high-impact learning opportunities for our undergraduate

students such as study abroad, engaging in research projects, internships and field experiences.

Arts General Degree Requirements (<https://catalog.tamu.edu/undergraduate/arts-and-sciences/arts-requirements/>)

Anthropology, Classics, Economics, English, History, Modern Languages, Philosophy, Psychology, Sociology, Spanish, Women's and Gender Studies

Sciences General Degree Requirements (<https://catalog.tamu.edu/undergraduate/arts-and-sciences/science-requirements/>)

Applied Mathematics, Biology, Chemistry, Mathematics, Microbiology, Molecular and Cell Biology, Physics, Statistics, Zoology

Majors

College of Arts and Sciences

- Bachelor of Arts in Women's and Gender Studies (p. 271)
- Bachelor of Science in Environmental Studies (p. 266)
- Bachelor of Science in Environmental Systems Science (p. 269)
- Bachelor of Science in Women's and Gender Studies (p. 272)

Department of Anthropology

- Bachelor of Arts in Anthropology (p. 276)
- Bachelor of Arts in Anthropology, Archaeology Track (p. 278)
- Bachelor of Science in Anthropology (p. 279)

Department of Atmospheric Sciences

- Bachelor of Science in Meteorology (p. 284)
- Bachelor of Science in Meteorology and Master of Ocean Science and Technology, 5-Year Degree Program (p. 285)

Department of Biology

- Bachelor of Arts in Biology (p. 298)
- Bachelor of Science in Biology (p. 299)
- Bachelor of Science in Microbiology (p. 301)
- Bachelor of Science in Molecular and Cell Biology (p. 302)
- Bachelor of Science in Neuroscience, Molecular and Cellular Neuroscience (p. 304)
- Bachelor of Science in Zoology (p. 305)

Department of Chemistry

- Bachelor of Arts in Chemistry (p. 311)
- Bachelor of Arts in Chemistry, Biological Chemistry or Medical, Dental, Pharmacy School Track (p. 312)
- Bachelor of Arts in Chemistry, Chemical Education Track (p. 314)
- Bachelor of Arts in Chemistry, Environmental Chemistry Track (p. 315)
- Bachelor of Science in Chemistry (p. 316)
- Bachelor of Science in Chemistry, Biological Chemistry Track (p. 318)
- Bachelor of Science in Chemistry, Environmental Chemistry Track (p. 319)

- Bachelor of Science in Chemistry, Materials Chemistry Track (p. 320)
- Bachelor of Science in Chemistry and Master of Science in Chemistry, 5-Year Degree Program (p. 321)

Department of Communication and Journalism

- Bachelor of Arts in Communication (p. 326)
- Bachelor of Arts in Communication and Master of Arts in Communication, 5-Year Degree Program (p. 327)
- Bachelor of Arts in Journalism (p. 332)
- Bachelor of Arts in Journalism and Master of Arts in Communication, 5-Year Degree Program (p. 333)
- Bachelor of Arts in Telecommunication Media Studies (p. 338)
- Bachelor of Arts in Telecommunication Media Studies and Master of Arts in Communication, 5-Year Degree Program (p. 339)
- Bachelor of Science in Communication (p. 329)
- Bachelor of Science in Communication and Master of Arts in Communication, 5-Year Degree Program (p. 330)
- Bachelor of Science in Journalism (p. 335)
- Bachelor of Science in Journalism and Master of Arts in Communication, 5-Year Degree Program (p. 336)
- Bachelor of Science in Telecommunication Media Studies (p. 341)
- Bachelor of Science in Telecommunication Media Studies and Master of Arts in Communication, 5-Year Degree Program (p. 342)

Department of Economics

- Bachelor of Arts in Economics (p. 348)
- Bachelor of Arts in Economics and Master of International Affairs, 5-Year Degree Program (p. 349)
- Bachelor of Arts in Economics and Master of Public Service and Administration, 5-Year Degree Program (p. 350)
- Bachelor of Arts in Economics and Master of Science in Economics, 5-Year Degree Program (p. 352)
- Bachelor of Science in Economics (p. 353)
- Bachelor of Science in Economics and Master of International Affairs, 5-Year Degree Program (p. 354)
- Bachelor of Science in Economics and Master of Public Service and Administration, 5-Year Degree Program (p. 355)
- Bachelor of Science in Economics and Master of Science in Economics, 5-Year Degree Program (p. 356)

Department of English

- Bachelor of Arts in English (p. 360)
- Bachelor of Arts in English, Middle School Teacher Certification (p. 362)
- Bachelor of Arts in English and Master of Arts in English, 5-Year Degree Program (p. 364)

Department of Geography

- Bachelor of Science in Geographic Information Science and Technology (p. 369)
- Bachelor of Science in Geographic Information Science and Technology and Master of Science in Geography, 5-Year Degree Program (p. 371)

- Bachelor of Science in Geography (p. 372)
- Bachelor of Science in Geography and Master of Geoscience in Geoscience, 5-Year Degree Program (p. 373)
- Bachelor of Science in Geography and Master of Science in Geography, 5-Year Degree Program (p. 375)

Department of Geology and Geophysics

- Bachelor of Arts in Geology (p. 379)
- Bachelor of Science in Geology (p. 382)
- Bachelor of Science in Geology and Master of Ocean Science and Technology, 5-Year Degree Program (p. 383)
- Bachelor of Science in Geology and Master of Science in Geology, 5-Year Degree Program (p. 385)
- Bachelor of Science in Geophysics (p. 386)
- Bachelor of Science in Geophysics and Master of Science in Geophysics, 5-Year Degree Program (p. 387)

Department of Global Languages and Cultures

- Bachelor of Arts in Classics, Classical Civilization Track (p. 390)
- Bachelor of Arts in Classics, Language and Literature Track (p. 392)
- Bachelor of Arts in Global Studies (<https://catalog.tamu.edu/undergraduate/arts-and-sciences/global-languages-cultures/global-studies-ba/>)
- Bachelor of Arts in Modern Languages, French Option (p. 393)
- Bachelor of Arts in Modern Languages, German Option (p. 394)
- Bachelor of Arts in Modern Language, Russian Option (p. 396)
- Bachelor of Arts in Spanish (p. 397)
- Bachelor of Arts in University Studies - Race, Gender, Ethnicity Concentration (p. 399)
- Bachelor of Science in University Studies - Race, Gender, Ethnicity Concentration (p. 400)

Department of History

- Bachelor of Arts in History (p. 412)
- Bachelor of Arts in History and Master of Arts in History, 5-Year Degree Program (p. 414)
- Bachelor of Science in History (p. 415)

Department of Mathematics

- Bachelor of Science in Applied Mathematics, Actuarial Science Emphasis (p. 422)
- Bachelor of Science in Applied Mathematics, Biological Science Emphasis (p. 424)
- Bachelor of Science in Applied Mathematics, Computational Science Emphasis (p. 425)
- Bachelor of Science in Applied Mathematics, Cryptography Emphasis (p. 426)
- Bachelor of Science in Applied Mathematics, Economics Emphasis (p. 428)
- Bachelor of Science in Applied Mathematics, Math Emphasis (p. 429)
- Bachelor of Science in Applied Mathematics, Statistics Emphasis (p. 431)

- Bachelor of Science in Applied Mathematics and Master of Science in Economics, 5-Year Degree Program (p. 432)
- Bachelor of Science in Applied Mathematics and Master of Science in Mathematics, 5-Year Degree Program (p. 434)
- Bachelor of Arts in Mathematics (p. 436)
- Bachelor of Arts in Mathematics, Teaching Emphasis (p. 437)
- Bachelor of Arts in Mathematics and Master of Science in Mathematics, 5-Year Degree Program (p. 439)
- Bachelor of Science in Mathematics (p. 440)
- Bachelor of Science in Mathematics and Master of Science in Mathematics, 5-Year Degree Program (p. 442)
- Bachelor of Science in University Studies, Mathematics for Teaching Concentration (p. 444)

Department of Oceanography

- Bachelor of Arts in Ocean Studies (p. 451)
- Bachelor of Science in Oceanography (p. 446)
- Bachelor of Science in Oceanography and Master of Ocean Science and Technology, 5-Year Degree Program (p. 448)

Department of Philosophy

- Bachelor of Arts in Philosophy (p. 453)
- Bachelor of Arts in Philosophy and Master of Arts in Philosophy, 5-Year Degree Program (p. 455)
- Bachelor of Arts in Society, Ethics, and Law (p. 456)

Department of Physics and Astronomy

- Bachelor of Arts in Physics (p. 461)
- Bachelor of Science in Physics (p. 462)
- Bachelor of Science in Physics, Astrophysics Track (p. 463)
- Bachelor of Science in Physics, Business Track (p. 464)
- Bachelor of Science in Physics, Computational Science Track (p. 465)
- Bachelor of Science in Physics, Physical Science Teaching Track (p. 466)
- Bachelor of Science in Physics, Physics and Mathematics Teaching Track (p. 468)
- Bachelor of Science in Physics, Semiconductors and Modern Materials Track (p. 469)

Department of Psychological and Brain Sciences

- Bachelor of Science in Behavioral and Cognitive Neuroscience (p. 473)
- Bachelor of Science in Neuroscience, Behavioral and Cognitive Neuroscience (p. 474)
- Bachelor of Arts in Psychology (p. 475)
- Bachelor of Science in Psychology (p. 477)

Department of Sociology

- Bachelor of Arts in Sociology (p. 482)
- Bachelor of Arts in Sociology and Master of Public Service and Administration, 5-Year Degree Program (p. 483)
- Bachelor of Science in Sociology (p. 485)

- Bachelor of Science in Sociology and Master of Public Service and Administration, 5-Year Degree Program (p. 486)

Department of Statistics

- Bachelor of Science in Bioinformatics (p. 491)
- Bachelor of Science in Statistics (p. 493)
- Bachelor of Science in Statistics and Master of Science in Statistical Data Science, 5-Year Degree Program (p. 494)

Minors

College of Arts and Sciences

- Environmental Systems Science Minor (p. 274)
- Gender and Health Minor (p. 274)
- Women's and Gender Studies Minor (p. 275)

Department of Anthropology

- Anthropology Minor (p. 281)
- Archaeology Minor (p. 281)
- Medical Anthropology Minor (p. 282)
- Museum Studies Minor (p. 282)
- Nautical Archaeology Minor (p. 283)

Department of Atmospheric Sciences

- Climate Change Minor (p. 287)
- Meteorology Minor (p. 287)

Department of Biology

- Bioinformatics Minor (p. 306)
- Biology Minor (p. 307)
- Neuroscience Minor (p. 307)
- Pre-Medicine Minor (p. 308)

Department of Chemistry

- Chemistry Minor (p. 323)

Department of Communication and Journalism

- Communication Minor (p. 344)
- Journalism Minor (p. 344)

Department of Economics

- Economics Minor (p. 358)

Department of English

- English Minor (p. 366)
- Health Humanities Minor (p. 366)
- Professional Writing Minor (p. 367)
- Science Fiction and Fantasy Studies Minor (p. 368)

Department of Geography

- Geographic Information Science and Technology Minor (p. 376)
- Geography Minor (p. 377)

Department of Geology and Geophysics

- Geology Minor (p. 388)

Department of Global Languages and Culture

- Africana Studies Minor (p. 402)
- Arabic Studies Minor (p. 402)
- Chinese Minor (p. 403)
- Classical Studies Minor (p. 403)
- Comparative Cultural Studies-International Minor (p. 404)
- French Minor (p. 405)
- German Minor (p. 406)
- Hispanic Studies for Community Engagement Minor (p. 406)
- Italian Minor (p. 407)
- Japanese Minor (p. 407)
- Jewish Studies Minor (p. 408)
- Religious Studies Minor (p. 408)
- Russian Minor (p. 409)
- Spanish Minor (p. 409)
- Spanish for the Health Professions Minor (p. 410)

Department of History

- History Minor (p. 416)

Department of Mathematics

- Mathematics Minor (p. 444)

Department of Oceanography

- Oceanography Minor (p. 452)

Department of Philosophy

- Philosophy Minor (p. 457)

Department of Physics and Astronomy

- Astrophysics Minor (p. 470)
- Physics Minor (p. 471)

Department of Psychological Brain Sciences

- Psychology Minor (p. 479)

Department of Sociology

- Criminology Minor (p. 488)
- Latino/a and Mexican-American Studies Minor (p. 488)
- Sociology Minor (p. 489)

Department of Statistics

- Statistics Minor (p. 496)

Certificates

Department of Communication and Journalism

- Communication Leadership and Conflict Management Certificate (p. 344)
- Health Communication Certificate (p. 345)
- Social Media Certificate (p. 345)
- Strategic Communication Certificate (p. 346)

Department of Global Languages and Cultures

- Proficiency in Modern Languages Certificate (p. 410)

Department of History

- Legal History Certificate (p. 417)

Department of Philosophy

- Philosophy Pre-Law Certificate (p. 458)

Department of Psychological and Brain Sciences

- Behavioral Health Certificate (p. 479)
- Healthy Development Certificate (p. 479)
- Psychology of Diversity Certificate (p. 480)
- Work and Organizations Certificate (p. 480)

Masters

Department of Anthropology

- Master of Arts in Anthropology (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/anthropology/ma/>)
- Master of Science in Maritime Archaeology and Conservation (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/anthropology/maritime-archaeology-conservation-ms/>)

Department of Atmospheric Sciences

- Master of Science in Atmospheric Sciences (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/atmospheric-sciences/ms/>)

Department of Biology

- Master of Science in Biology (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/biology/ms/>)
- Master of Science in Microbiology (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/biology/microbiology-ms/>)

Department of Chemistry

- Master of Science in Chemistry (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/chemistry/ms/>)

Department of Communication and Journalism

- Master of Arts in Communication (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/communication-journalism/communication-ma/>)

Department of Economics

- Master of Science in Economics (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/economics/ms/>)
- Master of Science in Economics and Master of International Affairs Combined Degree Program (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/economics/ms-mia/>)

Department of English

- Master of Arts in English (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/english/ma/>)

Department of Geography

- Master of Geoscience in Geoscience (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/geography/mgsc/>)
- Master of Science in Geography (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/geography/ms/>)

Department of Geology and Geophysics

- Master of Science in Geology (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/geology-geophysics/geology-ms/>)
- Master of Science in Geophysics (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/geology-geophysics/geophysics-ms/>)

Department of Global Languages and Culture

- Master of Arts in Hispanic Studies (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/global-languages-cultures/hispanic-studies-ma/>)

Department of History

- Master of Arts in History (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/history/ma/>)

Department of Mathematics

- Master of Science in Mathematics (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/mathematics/ms/>)

Department of Oceanography

- Master of Ocean Science and Technology in Ocean Science and Technology (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/oceanography/most/>)
- Master of Science in Oceanography (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/oceanography/ms/>)

Department of Philosophy

- Master of Arts in Philosophy (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/philosophy/ma/>)

Department of Physics and Astronomy

- Master of Science in Astronomy (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/physics-astronomy/astronomy-ms/>)
- Master of Science in Physics (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/physics-astronomy/physics-ms/>)

Department of Psychological and Brain Sciences

- Master of Science in Psychological Sciences (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/psychological-and-brain-sciences/psychological-sciences-ms/>)

Department of Sociology

- Master of Science in Sociology (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/sociology/ms/>)

Department of Statistics

- Master of Science in Data Science (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/interdisciplinary/data-science-ms/>)
- Master of Science in Statistical Data Science (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/statistics/statistical-data-science-ms/>)

Doctoral

Department of Anthropology

- Doctor of Philosophy in Anthropology (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/anthropology/phd/>)

Department of Atmospheric Sciences

- Doctor of Philosophy in Atmospheric Sciences (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/atmospheric-sciences/phd/>)

Department of Biology

- Doctor of Philosophy in Biology (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/biology/phd/>)
- Doctor of Philosophy in Microbiology (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/biology/microbiology-phd/>)

Department of Chemistry

- Doctor of Philosophy in Chemistry (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/chemistry/phd/>)

Department of Communication and Journalism

- Doctor of Philosophy in Communication (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/communication-journalism/communication-phd/>)

Department of Economics

- Doctor of Philosophy in Economics (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/economics/phd/>)

Department of English

- Doctor of Philosophy in English (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/english/phd/>)

Department of Geography

- Doctor of Philosophy in Geography (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/geography/phd/>)

Department of Geology and Geophysics

- Doctor of Philosophy in Geology (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/geology-geophysics/geology-phd/>)
- Doctor of Philosophy in Geophysics (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/geology-geophysics/geophysics-phd/>)

Department of Global Languages and Cultures

- Doctor of Philosophy in Hispanic Studies (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/global-languages-cultures/hispanic-studies-phd/>)

Department of History

- Doctor of Philosophy in History (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/history/phd/>)

Department of Mathematics

- Doctor of Philosophy in Mathematics (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/mathematics/phd/>)

Department of Oceanography

- Doctor of Philosophy in Oceanography (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/oceanography/phd/>)

Department of Philosophy

- Doctor of Philosophy in Philosophy (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/philosophy/phd/>)

Department of Physics and Astronomy

- Doctor of Philosophy in Applied Physics (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/physics-astronomy/applied-physics-phd/>)
- Doctor of Philosophy in Astronomy (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/physics-astronomy/astronomy-phd/>)
- Doctor of Philosophy in Physics (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/physics-astronomy/physics-phd/>)

Department of Psychological and Brain Sciences

- Doctor of Philosophy in Clinical Psychology (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/psychological-and-brain-sciences/clinical-psychology-phd/>)
- Doctor of Philosophy in Industrial/Organizational Psychology (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/psychological-and-brain-sciences/industrial-organizational-psychology-phd/>)
- Doctor of Philosophy in Psychology (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/psychological-and-brain-sciences/psychology-phd/>)

Department of Sociology

- Doctor of Philosophy in Sociology (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/sociology/phd/>)

Department of Statistics

- Doctor of Philosophy in Statistics (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/statistics/phd/>)

Environmental Studies - BS

The Bachelor of Science degree in Environmental Studies blends an interdisciplinary understanding of Earth's surface processes and environmental problems, along with the policy and decision-making components of human interactions with the environment.

The increasing demands that population growth and affluence put on Earth's natural resources and environment require greater numbers of trained professionals and informed citizens. The degree is designed to educate students about the scientific, human-dimension and policy aspects of environmental issues facing our state and nation as they work in regulatory agencies, industry, and non-governmental organizations to resolve problems. Students focus upper division coursework in one of five environmental themes: 1) urban environment, 2) occupational health and safety, 3) environmental regulation and compliance, 4) Geographic Information Science and Technology (GIST), and 5) global environment.

Program Requirements

First Year

Fall		Semester Credit Hours
ECON 202	Principles of Economics	3
ENSS 105	Introduction to Environmental Systems Science	3
MATH 140 or MATH 168	Mathematics for Business and Social Sciences or Finite Mathematics	3
POLS 206	American National Government	3
Select one of the following: ¹		4
ATMO 201 & ATMO 202	Weather and Climate and Weather and Climate Laboratory	16
GEOG 203 & GEOG 213	Planet Earth and Planet Earth Lab	
GEOL 101 & GEOL 102	Principles of Geology and Principles of Geology Laboratory	
OCNG 251 & OCNG 252	The Blue Planet - Our Oceans and The Blue Planet - Our Oceans Laboratory	
Semester Credit Hours		
Spring		
ENGL 104	Composition and Rhetoric	3
GEOG 201	Introduction to Human Geography	3
MATH 142	Business Calculus	3
Select one of the following: ¹		4
ATMO 201 & ATMO 202	Weather and Climate and Weather and Climate Laboratory	16
GEOG 203 & GEOG 213	Planet Earth and Planet Earth Lab	
GEOL 101 & GEOL 102	Principles of Geology and Principles of Geology Laboratory	
OCNG 251 & OCNG 252	The Blue Planet - Our Oceans and The Blue Planet - Our Oceans Laboratory	
Semester Credit Hours		
Creative arts elective (p. 30) ²		3
Semester Credit Hours		16
Second Year		
Fall		
ATMO 210	Climate Change	3
ENSS 205	Environmental Programs Cornerstone	1
POLS 207	State and Local Government	3
Life and physical sciences elective ³		4
Select one of the following:		
BIOL 101	Botany	14
BIOL 107	Zoology	
BIOL 111	Introductory Biology I	
BIOL 112	Introductory Biology II	
CHEM 119	Fundamentals of Chemistry I	
CHEM 120	Fundamentals of Chemistry II	3
Communication elective (p. 27)		
Semester Credit Hours		14

Spring

GEOG 330	Resources and the Environment	3
GEOG 304	Economic Geography	3
Life and physical sciences elective ³		4
Select one of the following:		
BIOL 101	Botany	
BIOL 107	Zoology	
BIOL 111	Introductory Biology I	
BIOL 112	Introductory Biology II	
CHEM 119	Fundamentals of Chemistry I	
CHEM 120	Fundamentals of Chemistry II	
Language, philosophy and culture elective (p. 28) ²		3
Theme elective ⁴		3
Semester Credit Hours		16
Third Year		
Fall		
GEOG 335	Pattern and Process in Biogeography	3
GEOG 380	Workshop in Environmental Studies	3
PHIL 314	Environmental Ethics	3
STAT 303	Statistical Methods	3
Theme elective ⁴		3
Semester Credit Hours		15
Spring		
AGEC 350	Environmental and Natural Resource Economics	3
ATMO 444	The Science and Politics of Global Climate Change	3
GEOG 390	Principles of Geographic Information Systems	4
Environmental policy elective		3
Select one of the following:		
BESC 367	U.S. Environmental Regulations	
ECON 203	Principles of Economics	
ECON 323	Microeconomic Theory	
ENSS 431	Environmental Regulatory Compliance in Geoscience	
GEOG 306	Introduction to Urban Geography	
GEOG 309	Geography of Energy	
GEOG 401	Political Geography	
GEOG 406	Geographic Perspectives on Contemporary Urban Issues	
GEOG 430	Environmental Justice	
POLS 347	Politics of Energy and the Environment	
SOCI 328	Environmental Sociology	
URPN 202	Building Better Cities	
URPN 360	Issues in Environmental Quality	
URPN 361	Urban Issues	
URPN 371	Environmental Health Planning and Policy	
URPN 460	Sustainable Communities	
RWFM 470	Environmental Impact Assessment	
Theme Elective ⁴		3
Semester Credit Hours		16

Fourth Year**Fall**

ENSS 430	Global Science and Policy Making	3
American history elective (p. 30)		3
Technical elective ⁵		3
Select one of the following:		
ATMO 321	Computer Applications in the Atmospheric Sciences	
ATMO 464	Laboratory Methods in Atmospheric Sciences	
GEOG 312	Data Analysis in Geography	
GEOG 361	Remote Sensing in Geosciences	
GEOG 450	Field Geography	
GEOG 467	Dynamic Modeling of Earth and Environmental Systems	
GEOG 475	Advanced Topics in GIS (Geographic Information Systems)	
GEOG 352/ GEOL 352 or GEOG 352/ GEOG 352	GNSS in the Geosciences or GNSS in the Geosciences	
OCNG 470	Data Analysis Methods in Geosciences	
General elective ⁶		3
Theme elective ⁴		3

Semester Credit Hours	15

Spring

ENSS 405	Environmental Programs Capstone	3
American history elective (p. 30)		3
General elective ⁶		3
Theme elective ⁴		3

Semester Credit Hours	12

Total Semester Credit Hours	120

¹ Choose one introductory course in the first semester and an additional one in the second semester of the freshman year.

² It is recommended to select a course that also fulfills an international and cultural diversity (p. 49) and/or cultural discourse (p. 48) requirement. The graduation requirements include three hours of international and cultural diversity courses and three hours of cultural discourse courses.

³ Choose one Life and Physical Science Elective in the first semester and an additional one in the second semester of the sophomore year.

⁴ Choose 15 hours of courses in your chosen environmental theme from the list below.

⁵ Other courses which match the Environmental Programs' technical electives definition will be allowed by adjustment. Seek guidance regarding potential adjustments from the ENVP academic advisor.

⁶ KINE 199, MATH 102, MATH 150, and lower level AERS (p. 900), MLSC (p. 1151), NVSC (p. 1178), and SOMS (p. 1237) courses cannot be used as general electives.

Two courses in the degree plan must be writing intensive courses designated by the Environmental Programs in the schedule of classes. Also, international and cultural diversity electives (3 hours) and cultural discourse (3 hours) must be incorporated into the degree.

Environmental Theme Electives

Code	Title	Semester Credit Hours
Urban Environment		
GEOG 306	Introduction to Urban Geography	3
GEOG 406	Geographic Perspectives on Contemporary Urban Issues	3
	or ATMO 326 or Environmental Atmospheric Science	
URPN 202	Building Better Cities	3
URPN 361	Urban Issues	3
URPN 460	Sustainable Communities	3
Occupational Health and Safety		
PHLT 330	The Environment and Public Health	3
Select the remaining courses from the following:		
PHLT 331	Occupational Safety and Health I	3
PHLT 333	Accident Investigation	3
PHLT 334	Fire Safety and Workplace Hazards	3
PHLT 335	Hazardous Materials	3
PHLT 432	Human Factors and Ergonomic Health and Safety	3
PHLT 434	Project Cost Benefit and Economics	3
Environmental Regulation and Compliance		
BESC 367	U.S. Environmental Regulations	3
ENSS 431	Environmental Regulatory Compliance in Geoscience	3
GEOG 430	Environmental Justice	3
OCNG 350	Marine Pollution	3
Select the remaining courses from the following:		
BESC 403	Sampling and Environmental Monitoring	3
BESC 411	Environmental Health and Safety Compliance	3
Geographic Information Science and Technology (GIST)		
GEOG 352/ GEOL 352	GNSS in the Geosciences	3
GEOG 361	Remote Sensing in Geosciences	4
Select the remaining courses from the following:		
GEOG 392	GIS Programming	4
GEOG 461	Digital Image Processing in the Geosciences	4
GEOG 475	Advanced Topics in GIS (Geographic Information Systems)	4
GEOG 477	Terrain Analysis and Mapping	4
GEOG 478	WebGIS	4
GEOG 479	Principles of Geocomputation	4
Global Environment		
GEOG 324	Global Climatic Regions	3
GEOG 410/ OCNG 412	Global Change	3
OCNG 350	Marine Pollution	3
Select the remaining courses from the following:		

ATMO 326	Environmental Atmospheric Science	3
GEOG 309	Geography of Energy	3
GEOG 370/ MARS 370	Coastal Processes	3
GEOG 400	Arid Lands Geomorphology	3
GEOG 331	Geomorphology	3
GEOG 360	Natural Hazards	3
GEOG 435	Principles of Plant Geography	3
OCNG 413	Polar Regions of the Earth: Science, Society and Discovery	3

Environmental Systems Science - BS

This program embraces the disciplines of environmental systems science to give students a rigorous interdisciplinary education including issues associated with environmental policy.

The increasing demands that population growth and affluence put on the natural resources and the Earth's environment require greater numbers of trained professionals and informed citizens. The degree trains students for employment by industry, environmental and engineering consulting firms, non-governmental organizations, and governmental regulatory agencies, among other entities. Students focus on coursework in a particular environmental theme: coastal and marine environments, water, human impact on the environment, climate change, or biosphere.

Program Requirements

First Year

Fall		Semester Credit Hours
CHEM 119	Fundamentals of Chemistry I	4
ENSS 105	Introduction to Environmental Systems Science	3
MATH 151 or MATH 147	Engineering Mathematics I or Calculus I for Biological Sciences	4
Select one of the following: ^{1,2,3}		4
ATMO 201 & ATMO 202	Weather and Climate and Weather and Climate Laboratory	
GEOG 203 & GEOG 213	Planet Earth and Planet Earth Lab	
GEOL 101 & GEOL 102 or GEOL 150	Principles of Geology or Introduction to the Solid Earth	
OCNG 251 & OCNG 252	The Blue Planet - Our Oceans and The Blue Planet - Our Oceans Laboratory	
Semester Credit Hours		15
Spring		
CHEM 120	Fundamentals of Chemistry II	4
ENSS 205	Environmental Programs Cornerstone	1
MATH 152 or MATH 148	Engineering Mathematics II or Calculus II for Biological Sciences	4
Select one of the following: ^{1,2,3}		4
ATMO 201 & ATMO 202	Weather and Climate and Weather and Climate Laboratory	

GEOG 203 & GEOG 213	Planet Earth and Planet Earth Lab	
GEOL 101 & GEOL 102 or GEOL 150	Principles of Geology or Introduction to the Solid Earth	
OCNG 251 & OCNG 252	The Blue Planet - Our Oceans and The Blue Planet - Our Oceans Laboratory	
Social and behavioral sciences (p. 31) ⁴		3
Semester Credit Hours		16

Second Year

Fall

ATMO 210	Climate Change	3
ECCB 205 & ECCB 215	Fundamentals of Ecology and Fundamentals of Ecology-Laboratory	4
ENGL 104	Composition and Rhetoric	3
GEOL 208	Life on a Dynamic Planet	3
American history (p. 30)		3
Semester Credit Hours		16

Spring

GEOG 335	Pattern and Process in Biogeography	3
GEOG 390	Principles of Geographic Information Systems	4
Select one of the following:		4
PHYS 201	College Physics	
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences	
Language, philosophy and culture (p. 28)		3
Semester Credit Hours		14

Third Year

Fall

POLS 206	American National Government	3
STAT 303 or STAT 211	Statistical Methods ⁵ or Principles of Statistics I	3
Select one of the following: ⁶		3
ENSS 430	Global Science and Policy Making	
ENSS 431	Environmental Regulatory Compliance in Geoscience	
GEOG 330	Resources and the Environment	
PHIL 314	Environmental Ethics	
Communication (p. 27) ⁷		3
General elective ⁸		3
Semester Credit Hours		15

Spring

GEOG 410/ OCNG 412 or GEOL 443/ GEOG 443	Global Change or Global Biogeochemical Cycles	3
Select one of the following: ⁶		3
ATMO 321	Computer Applications in the Atmospheric Sciences	
GEOL 360	Analyzing Data in Geology	

OCNG 456	MATLAB Programming for Ocean Sciences	
OCNG 469	Python for Geosciences	
Environmental theme electives ⁹		6
General elective ⁸		3

Semester Credit Hours 15

Fourth Year

Fall

OCNG 470	Data Analysis Methods in Geosciences	4
American history (p. 30)		3
Environmental theme electives ⁹		9

Semester Credit Hours 16

Spring

ENSS 405	Environmental Programs Capstone	3
POLS 207	State and Local Government	3
Creative arts (p. 30)		3
Environmental theme elective ⁹		4

Semester Credit Hours 13

Total Semester Credit Hours 120

¹ Must take ATMO 201 & ATMO 202 if pursuing the Climate Change theme.

² Must take GEOL 101 & GEOL 102 or GEOL 150 and GEOG 203 & GEOG 213 if pursuing the Hazards and Resilience theme and Water Systems Science theme.

³ Must take OCNG 251 & OCNG 252 and GEOG 203 & GEOG 213 if pursuing the Biosphere theme.

⁴ ESST 201 is recommended.

⁵ STAT 211 is required for the Environmental Modeling and Data Science theme.

⁶ Select electives in consultation with your academic advisor or faculty mentor.

⁷ ENGL 210 is recommended.

⁸ Select from any 100-499 course not used elsewhere.

⁹ Select 19 hours of theme courses in your junior and senior years in consultation with your academic advisor or faculty mentor from the list below.

Two courses in the degree plan must be writing intensive courses designated by the Environmental Programs in the schedule of classes. The graduation requirements include three hours of international and cultural diversity courses and three hours of cultural discourse courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. See academic advisor.

Environmental Theme Electives

Code	Title	Semester Credit Hours

Biosphere

Select from the following: 6-8

GEOG 435	Principles of Plant Geography	
OCNG 320	Biological Oceanography	
OCNG 355	The Blue Frontier - Harnessing Ocean Resources for Future Sustainability	
SCSC 301	Soil Science	

Select from the following: 3-8

BESC 403	Sampling and Environmental Monitoring	
GEOG 361	Remote Sensing in Geosciences	
GEOG 398	Interpretation of Aerial Photographs	
GEOG 450	Field Geography	
GEOG 461	Digital Image Processing in the Geosciences	
GEOG 475	Advanced Topics in GIS (Geographic Information Systems)	
OCNG 404	Ocean Observing Systems	

Select from the following: 3-8

PHIL 470	Animal Welfare, Ethics and Law	
ECCB 304	Conservation Biology	
ECCB 320	Ecosystem Restoration and Management	
ECCB 416	Fire Ecology and Natural Resource Management	
ECCB 417	Prescribed Fire	
ECCB 420	Ecological Restoration of Wetland and Riparian Systems	
GEOG 324	Global Climatic Regions	
OCNG 350	Marine Pollution	
OCNG 425	Microbial Oceanography	
RWFM 306	Wildlife and the Changing Environment	
RWFM 350	Wildlife and Fisheries Population Dynamics	
RWFM 404	Aquatic Ecosystems	

Total Semester Credit Hours 19

Code	Title	Semester Credit Hours

Climate Change

ATMO 444	The Science and Politics of Global Climate Change	3
GEOG 467	Dynamic Modeling of Earth and Environmental Systems	4
GEOG 442/ GEOL 442	Past Climates	3
PHIL 317	Climate Ethics	3

Select from the following: 6

GEOG 309	Geography of Energy	
GEOG 324	Global Climatic Regions	
GEOG 409	Geographies of Decarbonization	
ATMO 363	Introduction to Atmospheric Chemistry and Air Pollution	

Total Semester Credit Hours 19

Code	Title	Semester Credit Hours

Environmental Modeling and Data Science

GEOG 467	Dynamic Modeling of Earth and Environmental Systems	4
STAT 212	Principles of Statistics II	3

DAEN 210	Uncertainty Modeling	3
Select from the following		9
ATMO 321	Computer Applications in the Atmospheric Sciences	
DAEN 321	Quantitative Models for Statistical and Machine Learning	
DAEN 427/ ISEN 427	Decision and Risk Analysis	
GEOG 361	Remote Sensing in Geosciences	
GEOG 391	Geodatabases	
GEOG 461	Digital Image Processing in the Geosciences	
OCNG 404	Ocean Observing Systems	
OCNG 469	Python for Geosciences	
Total Semester Credit Hours		19

Code	Title	Semester Credit Hours
Hazards and Resilience		
GEOG 360	Natural Hazards	3
GEOG 331	Geomorphology	3
BESC 403	Sampling and Environmental Monitoring	3
Select from the following:		10
GEOG 303	Health Geography	
GEOG 361	Remote Sensing in Geosciences	
GEOG 430	Environmental Justice	
GEOG 434	Hydrology and Environment	
GEOL 301	Mineral Resources	
GEOL 351	Geochemistry	
GEOL 410	Hydrogeology	
GEOL 420	Environmental Geology	
OCNG 350	Marine Pollution	
Total Semester Credit Hours		19

Code	Title	Semester Credit Hours
Water Systems Science		
BESC 403	Sampling and Environmental Monitoring	3
GEOG 434	Hydrology and Environment	4
GEOL 351	Geochemistry	3
GEOL 410	Hydrogeology	3
GEOL 412	Environmental Hydrogeology	3
Select from the following:		3
AGSM 335	Water and Soil Management	
BESC 320	Water and the Bioenvironmental Sciences	
ECCB 420	Ecological Restoration of Wetland and Riparian Systems	
GEOG 324	Global Climatic Regions	
GEOG 331	Geomorphology	
RWFM 325	Watershed Analysis and Planning	
RWFM 404	Aquatic Ecosystems	

RWFM 440	Wetland Delineation	
SCSC 405	Soil and Water Microbiology	
SCSC 458	Watershed, Water and Soil Quality Management	
Total Semester Credit Hours		19

Women's and Gender Studies - BA

Women's and Gender Studies is a flexible interdisciplinary program devoted to the critical analysis of gender and the pursuit of knowledge about women throughout history and around the world.

Combining the methods and insights of traditional liberal arts disciplines with the special insights of scholarship on women's and gender studies, our courses yield fresh perspectives on the nature of gender as it intersects with race, ethnicity, class, religion, and nation, and encourage students to look beyond their own culture and era in examining gender's role in shaping society. Through interdisciplinary breadth and an emphasis on critical thinking, women's and gender studies prepares students to employ critical learning in their private lives as well as in public roles as citizens and members of a diverse and complex workforce.

Majors in Women's and Gender Studies receive training in both humanities and social sciences approaches and are required to complete coursework that focuses on material beyond dominant U.S. culture. Core courses in Women's and Gender Studies have both theoretical and applied focuses; upper-division core courses in Women's and Gender Studies emphasize writing and research skills. Students enrolled in the BA are directed to complete several humanities-focused courses in Women's and Gender Studies, while also selecting their coursework in social sciences or humanities for their electives within their major.

Because gender has far-reaching influence on daily life, world culture, and public policy, this major equips students to enter a wide range of fields. As a liberal arts degree, women's and gender studies is attractive to employers looking for recruits trained in critical thinking, organizational skills, reading, writing, and presenting in a wide range of subject areas. Expertise in women's and gender issues is increasingly important to businesses, governmental agencies, and other organizations dealing with matters such as sexual harassment, flex-time, parental leave, and pay equity, just as specialists in women's and gender studies find opportunities in education, law, health care, social work, counseling, media, public policy, and a wide range of other fields.

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 104	Composition and Rhetoric ¹	3
WGST 200	Introduction to Women's and Gender Studies	3
American history (p. 30)		3
Foreign language ²		4
Mathematics (p. 27)		3
Semester Credit Hours		16

Spring

Select one of the following:	3

COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
American history (p. 30)		3
Foreign language ²		4
Mathematics (p. 27)		3
WGST humanities elective ³		3
Semester Credit Hours		16

Second Year**Fall**

WGST 320	Feminist Inquiry and Research Methods	3
Foreign language ²		3
Government/Political science (p. 31)		3
Social and behavioral sciences (p. 31) ⁶		3
WGST elective ⁴		3
Semester Credit Hours		15

Spring

Government/Political science (p. 31)		3
Foreign language ²		3
WGST humanities elective ³		3
WGST elective ⁴		3
General elective ⁵		3
Semester Credit Hours		15

Third Year**Fall**

Creative arts (p. 30) ⁶		3
Life and physical sciences (p. 27)		3
Literature directed elective (p. 261)		3
WGST elective ⁴		3
General elective ⁵		3
Semester Credit Hours		15

Spring

WGST 401	Feminist Theory	3
Social and behavioral sciences (p. 31) ⁶		3
Literature directed elective (p. 261)		3
WGST elective ⁴		3
General elective ⁵		3
Semester Credit Hours		15

Fourth Year**Fall**

WGST 481	Senior Seminar	3
Language, philosophy and culture (p. 28) ⁶		3
Life and physical sciences (p. 27)		3
General elective ⁵		3
General elective ⁵		3
Semester Credit Hours		15

Spring

Select one of the following:		3
WGST 484	Internship in Women's and Gender Studies	
WGST 485	Directed Studies	

WGST 491	Research	
Language, philosophy and culture or creative arts (p. 28) ⁶		3
Life and physical sciences (p. 27)		3
General elective ⁵		3
General elective ⁵		1
Semester Credit Hours		13
Total Semester Credit Hours		120

¹ A minimum grade of C is required.

² Complete 14 hours of a foreign language (p. 261) through the intermediate level. If you choose to enroll in a language you have studied previously without receiving college credit, you must first take a placement test. See academic advisor.

³ Select from WGST 333/ENGL 333, WGST 343/FILM 343, WGST 374/ENGL 374, WGST 394, WGST 428/COMM 428, WGST 445/SOCI 455, WGST 474/ENGL 474, WGST 476/HIST 476, WGST 477/HIST 477.

⁴ Select from WGST 100-499 (p. 1268).

⁵ Any 100-499 not used elsewhere. Only 14 hours of KINE 199; AERS 100-499 (p. 900); MLSC 100-499 (p. 1151); NVSC 100-499 (p. 1178); SOMS 100-499 (p. 1237) may be used for General Electives.

⁶ WGST course may not be used to fulfill this requirement.

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

33 hours of WGST coursework required for the BA degree.

A minimum 2.0 GPR and a minimum grade of C for a course to count in the major. Completion of distribution requirements in the major as outlined.

At least 12 semester hours in the major must be completed in advanced courses (300- and 400-level), and at least 12 semester hours in the major field must be completed in residence at Texas A&M.

College and University Requirements

Students must complete a minimum of 36 hours of 300- or 400-level course work at Texas A&M University.

Women's and Gender Studies - BS

Women's and Gender Studies is a flexible interdisciplinary program devoted to the critical analysis of gender and the pursuit of knowledge about women throughout history and around the world.

Combining the methods and insights of traditional liberal arts disciplines with the special insights of scholarship on women's and gender studies, our courses yield fresh perspectives on the nature of gender as it intersects with race, ethnicity, class, religion, and nation, and encourage students to look beyond their own culture and era in examining gender's role in shaping society. Through interdisciplinary breadth and an emphasis on critical thinking, women's and gender studies prepares students to employ critical learning in their private lives as well as in public roles as citizens and members of a diverse and complex workforce.

Majors in Women's and Gender Studies receive training in both humanities and social sciences approaches and are required to complete coursework that focuses on material beyond dominant U.S. culture. Core courses in Women's and Gender Studies have both theoretical and applied focuses; upper-division core courses in Women's and Gender Studies emphasize writing and research skills. Students enrolled in the BS are directed to complete several science and social science-focused courses in Women's and Gender Studies, while also selecting their coursework in social sciences or humanities for their electives within their major. Students in the WGST BS also complete numerous science courses in their degree, allowing them to compare traditional perspectives with feminist critiques of science.

Because gender has far-reaching influence on daily life, world culture, and public policy, this major equips students to enter a wide range of fields. As a liberal arts degree, women's and gender studies is attractive to employers looking for recruits trained in critical thinking, organizational skills, reading, writing, and presenting in a wide range of subject areas. Expertise in women's and gender issues is increasingly important to businesses, governmental agencies, and other organizations dealing with matters such as sexual harassment, flextime, parental leave, and pay equity. The BS in Women's and Gender Studies is particularly useful for students interested in science-oriented fields such as health and medicine, environmental studies, urban planning, food security, or data science, and also excellent preparation for engaging in public policy, law, and education in science fields.

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 104	Composition and Rhetoric ¹	3
WGST 200	Introduction to Women's and Gender Studies	3
American history (p. 30)		3
Life and physical sciences (p. 27)		3
Mathematics (p. 27)		3
Semester Credit Hours		15
Spring		
American history (p. 30)		3
Communication (p. 27)		3
Mathematics (p. 27)		3
Life and physical sciences (p. 27)		3
WGST elective ²		3
Semester Credit Hours		15

Second Year

Fall		
WGST 320	Feminist Inquiry and Research Methods	3
WGST 100-499 (p. 1268)		3
Government/Political science (p. 31)		3
Life and physical sciences (p. 27)		3
Social and behavioral sciences (p. 31) ⁴		3
Semester Credit Hours		15
Spring		
WGST 100-499 (p. 1268)		3
Government/Political science (p. 31)		3

Science elective ³	3
WGST elective ²	3
General elective ⁵	3
Semester Credit Hours	15

Third Year

Fall		
WGST 100-499 (p. 1268)		3
Creative Arts (p. 30) ⁴		3
Language, philosophy and culture (p. 28) ⁴		3
Science elective ³		3
General elective ⁵		3
Semester Credit Hours		15

Spring

WGST 401	Feminist Theory	3
WGST 100-499 (p. 1268)		3
Social and behavioral sciences (p. 31) ⁴		3
Literature directed elective (p. 261) ⁴		3
General elective ⁵		3
Semester Credit Hours		15

Fourth Year

Fall		
WGST 481	Senior Seminar	3
Literature directed elective (p. 261) ⁴		3
Science elective ³		3
General elective ⁵		3
General elective ⁵		3
Semester Credit Hours		15

Spring

Select one of the following:		3
WGST 484	Internship in Women's and Gender Studies	
WGST 485	Directed Studies	
WGST 491	Research	
Language, philosophy and culture or creative arts (p. 28) ⁴		3
Science elective ³		3
General elective ⁵		3
General elective ⁵		3
Semester Credit Hours		15
Total Semester Credit Hours		120

¹ A minimum grade of C is required.

² Select from POLS 317; WGST 300/PBSI 300, WGST 303, WGST 316/ SOCI 316, WGST 367/POLS 367, WGST 404/ANTH 404, WGST 407/ COMM 407, WGST 410/SOCI 410, WGST 420/COMM 420.

³ See WGST program advisor for list of additional science courses.

⁴ WGST course may not be used to fulfill this requirement.

⁵ Only 14 hours of KINE 199; AERS 100-499 (p. 900); MLSC 100-499 (p. 1151); NVSC 100-499 (p. 1178); SOMS 100-499 (p. 1237) may be used for General Electives

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement.

The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

33 hours of WGST coursework required for the BS degree.

A minimum 2.0 GPA and a minimum grade of C for a course to count in the major.

At least 12 semester hours in the major must be completed in advanced courses (300- and 400-level), and at least 12 semester hours in the major field must be completed in residence at Texas A&M.

College and University Requirements

Students must complete a minimum of 36 hours of 300- or 400-level course work at Texas A&M University.

Environmental Systems Science - Minor

The minor in Environmental Systems Science embraces all earth systems sciences to give the student a rigorous interdisciplinary education including issues associated with environmental policy.

Coursework of 15 credits centers on atmospheric sciences and air quality, resources and the environment, oceanography and marine pollution, environmental geology, and climate change. The minor prepares students for careers in industry, environmental and engineering consulting firms, non-governmental organizations, and governmental regulatory agencies, among other entities.

Program Requirements

Some of the courses have prerequisites so make sure to check the catalog before enrolling in the course.

Code	Title	Semester Credit Hours
ENSS 105	Introduction to Environmental Systems Science	3
Select remaining courses from at least three of the following five groups. ¹		12
Group 1		
ATMO 363	Introduction to Atmospheric Chemistry and Air Pollution	
ATMO 463	Air Quality	
ATMO 464	Laboratory Methods in Atmospheric Sciences	
Group 2		
GEOG 309	Geography of Energy	
GEOG 330	Resources and the Environment	
GEOG 380	Workshop in Environmental Studies	
GEOG 430	Environmental Justice	
GEOG 467	Dynamic Modeling of Earth and Environmental Systems	
Group 3		
GEOL 410	Hydrogeology	
GEOL 420	Environmental Geology	
GEOL 451	Introduction to Geochemistry	
Group 4		

ATMO 210	Climate Change
ATMO 444	The Science and Politics of Global Climate Change
ENSS 430	Global Science and Policy Making
GEOG 410/	Global Change
OCNG 412	
Group 5	
OCNG 320	Biological Oceanography
OCNG 340	Chemical Oceanography
OCNG 350	Marine Pollution
Total Semester Credit Hours	
15	

¹ At least 6 hours must be upper level, 3 of which must be 400 level.

Students with majors in the College of Arts and Sciences must select only courses outside of their home department.

ENSS and ENST majors may not select this minor.

Gender and Health - Minor

The Gender and Health minor provides students with knowledge, skills, and experience utilized in various careers related to the intersection of gender, health, healthcare, and health policy in both domestic and transnational realms.

Students with this minor develop critical thinking, writing, teamwork, and analytical skills as they explore a wide range of topics that allow for an intricate and nuanced understanding of the social determinants of health. Many of our courses include case-study and experiential learning components, allowing students to engage in learning through direct contact with organizations, professionals, and clients in the healthcare community.

The healthcare industry is an area of continued growth, and health care professionals and related occupations are in high demand. The Gender and Health minor helps students recognize and understand the complex intersections of gender, race, sexuality, and class in relation to health, healthcare, and health policy in preparation for related graduate education and careers.

Program Requirements

Code	Title	Semester Credit Hours
WGST 207/	Introduction to Gender and Society	3
SOCI 207		
or WGST 200 or Introduction to Women's and Gender Studies		
WGST 213/	Gender and Health	3
SOCI 213		
WGST 401	Feminist Theory	3
Select two of the following:		6
ANTH 435	Medical Anthropology	
COMM 470	Communication in Health Care Contexts	
ENGL 292	Introduction To Literature And Medicine	

ENGL 395	Topics in Literature and Medicine	
PBSI 210/ WGST 210	Psychological Aspects of Human Sexuality	
PBSI 300/ WGST 300	Psychology of Women	
PBSI 360	Health Psychology and Behavioral Medicine	
PBSI 365	Psychology of Aging	
PHLT 303	Social Context of Population Health	
SOCI 408	Death and Dying	
SOCI 410/ WGST 410	Reproduction, Birth and Power	
SOCI 425	Medical Sociology	
Total Semester Credit Hours		15

Must make a grade of C or better in all courses.

Women's and Gender Studies - Minor

Students with this minor receive training in both humanities and social sciences approaches and are required to complete coursework that focuses on material beyond dominant U.S. culture; core courses have both theoretical and applied focuses.

Women's and Gender Studies is a flexible interdisciplinary program devoted to the critical analysis of gender and the pursuit of knowledge about women throughout history and around the world. Combining the methods and insights of traditional liberal arts disciplines with the special insights of scholarship on women's and gender studies, our courses yield fresh perspectives on the nature of gender as it intersects with race, ethnicity, class, religion, and nation, and encourage students to look beyond their own culture and era in examining gender's role in shaping society. Through interdisciplinary breadth and an emphasis on critical thinking, women's and gender studies prepares students to employ critical learning in their private lives as well as in public roles as citizens and members of a diverse and complex workforce.

Because gender has far-reaching influence on daily life, world culture, and public policy, this minor supports students in a wide range of fields. As a liberal arts degree, women's and gender studies is attractive to employers looking for recruits trained in critical thinking, organizational skills, reading, writing, and presenting in a wide range of subject areas. Expertise in women's and gender issues is increasingly important to businesses, governmental agencies, and other organizations dealing with matters such as sexual harassment, flex-time, parental leave, and pay equity, just as specialists in women's and gender studies find opportunities in education, law, health care, social work, counseling, media, public policy, and a wide range of other fields.

Program Requirements

Code	Title	Semester Credit Hours
WGST 200	Introduction to Women's and Gender Studies	3
WGST 401 or WGST 48	Feminist Theory or Senior Seminar	3

WGST 201-499 (<http://catalog.tamu.edu/undergraduate/course-descriptions/wgst/>)¹

Total Semester Credit Hours **15**

¹ At least 3 credits must be at the 300-400 level.

Students must make a grade of C or better in all courses.

Department of Anthropology

Anthropology is the study of what it means to be human in the broadest sense, through an examination of culture and society (sociocultural and linguistic anthropology), the biology and evolution of humans and our closest relatives (biological anthropology) and the study of past human communities and material culture (archaeology). Students develop an appreciation of the value of physical and cultural differences at the local, national and global levels, and learn critical thinking skills that support them in careers that involve working with individuals of diverse national or ethnic backgrounds.

The aim of the anthropology major is to provide a background in behavioral studies for students who desire a broad education in the biological and the social sciences. Anthropology majors can obtain research experience in science and the humanities through ethnographic or biological research, or archaeology field schools. Most undergraduates in Anthropology at TAMU select this major because of the opportunity it affords them to acquire a sound holistic education.

The curriculum is ideal for students who want to pursue professional careers or graduate study in anthropology and archaeology. However, students will also find the curriculum fully suitable to prepare them for employment opportunities or careers in: secondary or higher education; medicine; law; museum and foundation settings; the local, state and federal government (such as the National Park Service, Bureau of Indian Affairs, National Institute of Health and others); non-governmental organizations and non-profit organizations; foreign service with government agencies (such as the Agency for International Development, United Nations organizations and others); private archaeological research institutions; and nontraditional opportunities emerging in business and management.

Faculty

Alvard, Michael S, Associate Professor
Anthropology
PHD, University of New Mexico, 1993

Anderson, Monya, Instructional Assistant Professor
Anthropology
PHD, University of Oregon, 2019

Athreya, Sheela, Professor
Anthropology
PHD, Washington University in St. Louis, 2003

Bojakowski, Peter, Assistant Professor
Anthropology
PHD, Texas A&M University, 2012

Carlson, Deborah N, Professor
Anthropology
PHD, University of Texas, 2004

Crisman, Kevin J, Professor
Anthropology
PHD, University of Pennsylvania, 1989

Custer Bojakowski, Katie, Instructional Assistant Professor
Anthropology
PHD, Texas A&M University, 2011

De Ruiter, Darryl J, Professor
Anthropology
PHD, University of the Witwatersrand, South Africa, 2001

Dostal, Christopher M, Assistant Professor
Anthropology
PHD, Texas A&M University, 2017

Gursky, Sharon, Professor
Anthropology
PHD, State University of New York at Stony Brook, 1997

Halligan, Jessi Jean, Associate Professor
Anthropology
PHD, Texas A&M University, 2012

Hopkins, Allison, Associate Professor
Anthropology
PHD, University of Florida, 2009

Kennedy, Carolyn, Instructional Assistant Professor
Anthropology
PHD, Texas A&M University, 2019

Korzow, Kristine Sofia, Assistant Professor
Anthropology
PHD, Pennsylvania State University, 2014

Laporte, Catharina M, Instructional Professor
Anthropology
PHD, Texas A&M University, 2013

Lemus, Sergio, Assistant Professor
Anthropology
PHD, University of Illinois at Urbana-Champaign, 2016

Lynch, Darrell W, Lecturer
Anthropology
PHD, University of Tennessee, 2014

Monocello, Lawrence, Assistant Professor
Anthropology
PHD, The University of Alabama, 2022

Nutor, Benjamin Kofi, Assistant Professor
Anthropology
PHD, University of Texas at Austin, 2021

Osborn, Jo, Assistant Professor
Anthropology
PHD, University of Michigan, 2022

Pulak, Cemalettin M, Professor
Anthropology
PHD, Texas A&M University, 1996

Rademaker, Kurt, Associate Professor
Anthropology
PHD, University of Maine, 2012

Sarathi, Akshay, Lecturer
Anthropology
PHD, University of Wisconsin-Madison, 2020

Selig, Keegan, Assistant Professor
Anthropology
PHD, University of Toronto, 2021

Thakar, Heather B, Assistant Professor
Anthropology
PHD, University of California at Santa Barbara, 2014

Wachsmann, Shelley, Professor
Anthropology
PHD, Institute of Archaeology, Hebrew University, 1991

Waters, Michael R, Professor
Anthropology
PHD, The University of Arizona, 1980

Werner, Cynthia A, Professor
Anthropology
PHD, Indiana University, 1997

Winking, Jeffrey W, Professor
Anthropology
PHD, The University of New Mexico, 2005

Majors

- Bachelor of Arts in Anthropology (p. 276)
- Bachelor of Arts in Anthropology, Archaeology Track (p. 278)
- Bachelor of Science in Anthropology (p. 279)

Minors

- Anthropology Minor (p. 281)
- Archaeology Minor (p. 281)
- Medical Anthropology Minor (p. 282)
- Museum Studies Minor (p. 282)
- Nautical Archaeology Minor (p. 283)

Anthropology - BA

Anthropology majors pursuing the general anthropology track receive foundations in the archaeology, biological anthropology and cultural anthropology subfields of anthropology as well as options to pursue upper-level courses in each of the subfields.

Anthropology is the study of what it means to be human in the broadest sense, through an examination of culture and society (sociocultural and linguistic anthropology), the biology and evolution of humans and our closest relatives (biological anthropology) and the study of past human communities and material culture (archaeology). Students develop an appreciation of the value of physical and cultural differences at the local, national and global levels, and learn critical thinking skills that support them in careers that involve working with individuals of diverse national or ethnic backgrounds.

The aim of the anthropology major is to provide a background in behavioral studies for students who desire a broad education in the biological and the social sciences. Anthropology majors can obtain research experience in science and the humanities through ethnographic or biological research, or archaeology field schools. Most undergraduates in Anthropology at Texas A&M select this major because of the opportunity it affords them to acquire a sound holistic education.

The curriculum is ideal for students who want to pursue professional careers or graduate study in anthropology and archaeology. However, students will also find the curriculum fully suitable to prepare them for employment opportunities or careers in: secondary or higher education; medicine; law; museum and foundation settings; the local, state and federal government (such as the National Park Service, Bureau of Indian Affairs, National Institute of Health and others); non-governmental organizations and non-profit organizations; foreign service with government agencies (such as the Agency for International Development, United Nations organizations and others); private archaeological research institutions; and nontraditional opportunities emerging in business and management.

Program Requirements

First Year

Fall		Semester Credit Hours
ANTH 202	Introduction to Archaeology ¹	3
ENGL 104	Composition and Rhetoric	3
American history (p. 30)		3
Foreign language ²		4
Language, philosophy and culture (p. 28) ³		3
Semester Credit Hours		16

Spring

ANTH 225 & ANTH 226	Introduction to Biological Anthropology and Introduction to Biological Anthropology Laboratory ¹	4
American history (p. 30)		3
Communication (p. 27)		3
Foreign language ²		4
General elective		3
Semester Credit Hours		17

Second Year

Fall		Semester Credit Hours
ANTH 210	Social and Cultural Anthropology ¹	3
Foreign language		3
Mathematics (p. 27)		3
Literature directed elective (p. 261)		3
General elective		3
Semester Credit Hours		15

Spring

Archaeological anthropology ^{1,4}		3
Creative arts (p. 30) ³		3
Foreign language ²		3
Government/Political science (p. 31)		3
General elective		3
Semester Credit Hours		15

Third Year

Fall

ANTH 410 or ANTH 412	Anthropological Theory ¹ or Archaeological Theory	3
Select one of the following: ⁵		3
MATH 140	Mathematics for Business and Social Sciences	
MATH 142	Business Calculus	
MATH 147	Calculus I for Biological Sciences	
MATH 150	Functions, Trigonometry and Linear Systems	
MATH 151	Engineering Mathematics I	
MATH 168	Finite Mathematics	
MATH 171	Calculus I	
Government/Political science (p. 31)		3
Literature directed elective (https://catalog.tamu.edu/undergraduate/liberal-arts/)		3
General elective		3

Semester Credit Hours

15

Spring

STAT 302 or STAT 303	Statistical Methods or Statistical Methods	3
Biological anthropology ^{1,6}		3
Life and physical sciences (p. 27)		3
Social and behavioral sciences (p. 31)		3
General elective		3

Semester Credit Hours

15

Fourth Year

Fall

Cultural anthropology ^{1,7}		3
Life and physical sciences (p. 27)		3
Social and behavioral sciences (p. 31) ³		3
Anthropology elective ^{1,8}		3
General elective		3

Semester Credit Hours

15

Spring

Life and physical sciences (p. 27)		3
Anthropology elective ^{1,8}		3
Anthropology elective ^{1,8}		3
General elective		3

Semester Credit Hours

12

Total Semester Credit Hours

120

¹ Must make a grade of C or better.

² Complete 14 hours of a foreign language (p. 261) through the intermediate level. If you choose to enroll in a language you have studied previously without receiving college credit, you must first take a placement test. See academic advisor.

³ No anthropology course will satisfy this requirement.

⁴ Select from ANTH 302, ANTH 308, ANTH 313, ANTH 316, ANTH 317/RELS 317, ANTH 318, ANTH 323, ANTH 330, ANTH 350, ANTH 351, ANTH 353/CLAS 353, ANTH 354/CLAS 354, ANTH 360, ANTH 401, ANTH 402, ANTH 417/CLAS 417, ANTH 418, ANTH 419, ANTH 420, ANTH 436/RELS 436, ANTH 444/CLAS 444, ANTH 447, ANTH 461, ANTH 464, ANTH 485, ANTH 489.

- ⁵ Required prerequisite for STAT 302 or STAT 303
- ⁶ Select from ANTH 312, ANTH 405, ANTH 423, ANTH 424, ANTH 425, ANTH 426, ANTH 427, ANTH 434, ANTH 485, ANTH 489
- ⁷ Select from ANTH 300, ANTH 301, ANTH 324/MUSC 324, ANTH 335, ANTH 340/RELS 340, ANTH 370, ANTH 403/RELS 403, ANTH 404/WGST 404, ANTH 419, ANTH 424, ANTH 430, ANTH 434, ANTH 435, ANTH 437, ANTH 440, ANTH 445, ANTH 485, ANTH 489.
- ⁸ Select from ANTH 200-499 (p. 922). Up to 6 hours may be selected for ANTH 200-299 (p. 922), 3 to 9 hours required from ANTH 300-499 (p. 922).

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a core category, a college/department requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

Writing Courses

All students in each track are required to take two courses with the writing attribute, also known as “W-courses”, from the department. Substitutions with W-courses from other departments are not allowed. Please see the academic advisor for the most current list of Anthropology W-courses.

Minor Requirements

Anthropology majors may select a minor field of study from departments or divisions within or outside the College of Arts and Sciences or in a particular area of interest (as with interdisciplinary minors or career opportunity minors). The minor will consist of 15-18 hours or coursework, at least 6 of which must be at the upper-division level. A grade of C or higher is required if a course is to count in the minor. A minor should be declared before the student has completed 90 credit hours.

College and University Requirements

Other courses may qualify for this category. Students should consult the approved lists of courses available through the academic advisor in the Department of Anthropology or in the Undergraduate Student Services Office in the College of Arts and Sciences. The following list incorporates University Core Curriculum requirements. No course can be counted in more than one category. To promote the opportunity for anthropology majors to acquire a broad educational experience, anthropology students must satisfy their University requirements for language, philosophy and culture, social and behavioral sciences, and the sciences with courses other than those offered by anthropology.

Students must complete a minimum of 36 hours of 300- or 400-level coursework at Texas A&M University.

Anthropology - BA, Archaeology Track

Students who elect to pursue the Archaeology track in the Bachelor of Arts in Anthropology take the foundation courses but also have the opportunity to take multiple upper-level courses which focus on specific topics in archaeology. In addition, majors receive a broad yet rigorous liberal arts education.

Anthropology is the study of what it means to be human in the broadest sense, through an examination of culture and society (sociocultural and

linguistic anthropology), the biology and evolution of humans and our closest relatives (biological anthropology) and the study of past human communities and material culture (archaeology). Students develop an appreciation of the value of physical and cultural differences at the local, national and global levels, and learn critical thinking skills that support them in careers that involve working with individuals of diverse national or ethnic backgrounds.

The aim of the anthropology major is to provide a background in behavioral studies for students who desire a broad education in the biological and the social sciences. Anthropology majors can obtain research experience in science and the humanities through ethnographic or biological research, or archaeology field schools. Most undergraduates in Anthropology at Texas A&M select this major because of the opportunity it affords them to acquire a sound holistic education.

The curriculum is ideal for students who want to pursue professional careers or graduate study in anthropology and archaeology. However, students will also find the curriculum fully suitable to prepare them for employment opportunities or careers in: secondary or higher education; medicine; law; museum and foundation settings; the local, state and federal government (such as the National Park Service, Bureau of Indian Affairs, National Institute of Health and others); non-governmental organizations and non-profit organizations; foreign service with government agencies (such as the Agency for International Development, United Nations organizations and others); private archaeological research institutions; and nontraditional opportunities emerging in business and management.

Program Requirements

First Year			Semester
Fall			Credit Hours
ANTH 202	Introduction to Archaeology ¹		3
ENGL 104	Composition and Rhetoric		3
American history (p. 30)			3
Foreign language ²			4
Language, philosophy and culture (p. 28) ³			3
Semester Credit Hours			16
Spring			
ANTH 225 & ANTH 226	Introduction to Biological Anthropology and Introduction to Biological Anthropology Laboratory ¹		4
American history (p. 30)			3
Communication (p. 27)			3
Foreign language ²			4
Semester Credit Hours			14
Second Year			
Fall			
ANTH 210	Social and Cultural Anthropology ¹		3
Foreign language			3
Mathematics (p. 27)			3
General elective			3
General elective			3
Semester Credit Hours			15

Spring

ANTH 316	Nautical Archaeology ¹	3
Creative arts (p. 30) ³		3
Foreign language ²		3
Government/Political science (p. 31)		3
General elective		3

Semester Credit Hours **15**

Third Year**Fall**

ANTH 412	Archaeological Theory ¹	3
Select one of the following: ⁴		3
MATH 140	Mathematics for Business and Social Sciences	
MATH 142	Business Calculus	
MATH 147	Calculus I for Biological Sciences	
MATH 150	Functions, Trigonometry and Linear Systems	
MATH 151	Engineering Mathematics I	
MATH 168	Finite Mathematics	
MATH 171	Calculus I	
Government/Political science (p. 31)		3
Literature directed elective (p. 261)		3
General elective		3

Semester Credit Hours **15**

Spring

STAT 302	Statistical Methods	3
or STAT 303	or Statistical Methods	
Life and physical sciences (p. 27)		3
Archaeology elective ^{1,5}		3
Literature directed elective (p. 261)		3
General elective		3

Semester Credit Hours **15**

Fourth Year**Fall**

Life and physical sciences (p. 27)		3
Social and behavioral sciences (p. 31) ³		3
Anthropology elective ^{1,6}		3
Archaeology elective ^{1,5}		3
General elective		3

Semester Credit Hours **15**

Spring

Select one of the following:		3
ANTH 304	Archaeology Roadshow	
ANTH 330	Field Research in Anthropology	
ANTH 485	Directed Studies	
ANTH 491	Research	
Life and physical sciences (p. 27)		3
Social and behavioral sciences (p. 31) ³		3
Archaeology elective ^{1,5}		3
General elective		3

Semester Credit Hours **15**

Total Semester Credit Hours **120**

¹ Must make a grade of C or better.

² Complete 14 hours of a foreign language (p. 261) through the intermediate level. If you choose to enroll in a language you have studied previously without receiving college credit, you must first take a placement test. See academic advisor.

³ No anthropology course will satisfy this requirement.

⁴ Math prerequisites for STAT 302 or STAT 303

⁵ Select from ANTH 302, ANTH 308, ANTH 313, ANTH 317/RELS 317, ANTH 318, ANTH 323, ANTH 330, ANTH 350, ANTH 351, ANTH 353/CLAS 353, ANTH 354/CLAS 354, ANTH 360, ANTH 401, ANTH 402, ANTH 417/CLAS 417, ANTH 418, ANTH 419, ANTH 420, ANTH 436/RELS 436, ANTH 444/CLAS 444, ANTH 447, ANTH 461, ANTH 464, ANTH 485, ANTH 489.

⁶ Select from ANTH 300-499 (p. 922).

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a core category, a college/department requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

Writing Courses

All students in each track are required to take two courses with the writing attribute, also known as "W-courses", from the department. Substitutions with W-courses from other departments are not allowed. Please see the academic advisor for the most current list of Anthropology W-courses.

Minor Requirements

Anthropology majors may select a minor field of study from departments or divisions within or outside the College of Arts and Sciences or in a particular area of interest (as with interdisciplinary minors or career opportunity minors). The minor will consist of 15-18 hours or coursework, at least 6 of which must be at the upper-division level. A grade of C or higher is required if a course is to count in the minor. A minor should be declared before the student has completed 90 credit hours.

College and University Requirements

Other courses may qualify for this category. Students should consult the approved lists of courses available through the academic advisor in the Department of Anthropology or in the Undergraduate Student Services Office in the College of Arts and Sciences. The following list incorporates University Core Curriculum requirements. No course can be counted in more than one category. To promote the opportunity for anthropology majors to acquire a broad educational experience, anthropology students must satisfy their University requirements for language, philosophy and culture, social and behavioral sciences, and the sciences with courses other than those offered by anthropology.

Students must complete a minimum of 36 hours of 300- or 400-level coursework at Texas A&M University.

Anthropology - BS

Majoring in anthropology will provide a background in behavioral studies ideal if you're interested in biological or social sciences. The Bachelor of Science option focuses slightly more on scientific and mathematical coursework.

Anthropology is the study of what it means to be human in the broadest sense, through an examination of culture and society (sociocultural and linguistic anthropology), the biology and evolution of humans and our closest relatives (biological anthropology) and the study of past human communities and material culture (archaeology). Students develop an appreciation of the value of physical and cultural differences at the local, national and global levels, and learn critical thinking skills that support them in careers that involve working with individuals of diverse national or ethnic backgrounds.

The aim of the anthropology major is to provide a background in behavioral studies for students who desire a broad education in the biological and the social sciences. Anthropology majors can obtain research experience in science and the humanities through ethnographic or biological research, or archaeology field schools. Most undergraduates in Anthropology at TAMU select this major because of the opportunity it affords them to acquire a sound holistic education.

The curriculum is ideal for students who want to pursue professional careers or graduate study in anthropology and archaeology. However, students will also find the curriculum fully suitable to prepare them for employment opportunities or careers in: secondary or higher education; medicine; law; museum and foundation settings; the local, state and federal government (such as the National Park Service, Bureau of Indian Affairs, National Institute of Health and others); non-governmental organizations and non-profit organizations; foreign service with government agencies (such as the Agency for International Development, United Nations organizations and others); private archaeological research institutions; and nontraditional opportunities emerging in business and management.

Program Requirements

First Year

Fall		Semester Credit Hours
ANTH 202	Introduction to Archaeology ¹	3
ENGL 104	Composition and Rhetoric	3
American history (p. 30)		3
Language, philosophy and culture (p. 28) ²		3
Life and physical sciences (p. 27) ²		3
Semester Credit Hours		15
Spring		
ANTH 225 & ANTH 226	Introduction to Biological Anthropology and Introduction to Biological Anthropology Laboratory ¹	4
American history (p. 30)		3
Communication (p. 27)		3
Creative arts (p. 30) ²		3
Mathematics (p. 27)		3
Semester Credit Hours		16

Second Year

Fall		
ANTH 210	Social and Cultural Anthropology ¹	3
Select one of the following: ³		3
MATH 140	Mathematics for Business and Social Sciences	
MATH 142	Business Calculus	

MATH 147	Calculus I for Biological Sciences	
MATH 150	Functions, Trigonometry and Linear Systems	
MATH 151	Engineering Mathematics I	
MATH 168	Finite Mathematics	
MATH 171	Calculus I	
Government/Political science (p. 31)		3
Life and physical sciences (p. 27) ²		3
Literature directed elective (p. 261)		3
Semester Credit Hours		15

Spring

Government/Political science (p. 31)		3
Life and physical sciences (p. 27) ²		3
Anthropology elective ^{1,4}		3
Literature directed elective (p. 261)		3
General elective		3
Semester Credit Hours		15

Third Year

Fall		
STAT 302 or STAT 303	Statistical Methods or Statistical Methods	3
Additional Science elective ⁵		3
Anthropology elective ^{1,4}		3
General elective		3
General elective		3
Semester Credit Hours		15

Spring

ANTH 448 or ANTH 458	Quantitative Methods in Anthropology ¹ or Quantitative Ethnographic Methods	3
Additional Science elective ⁵		3
Anthropology elective ^{1,4}		3
General elective		3
General elective		3
Semester Credit Hours		15

Fourth Year

Fall		
ANTH 410 or ANTH 412	Anthropological Theory ¹ or Archaeological Theory	3
Social and behavioral sciences (p. 31) ²		3
Additional Science elective ⁵		3
Anthropology elective ^{1,4}		3
General elective		3
Semester Credit Hours		15

Spring

Select one of the following: ^{1,6}		3
ANTH 304	Archaeology Roadshow	
ANTH 330	Field Research in Anthropology	
ANTH 402	Archaeological Artifact Conservation	
ANTH 421/ MUST 421	Advanced Museum Studies	
ANTH 425	Human Osteology	
ANTH 437	Ethnobotany	
ANTH 447	Lithic Artifact Analysis	

ANTH 461	Environmental Archaeology	
Social and behavioral sciences (p. 31) ²		3
Additional Science elective ⁵		3
General elective		3
General elective		2
Semester Credit Hours		14
Total Semester Credit Hours		120

¹ Must make a grade of C or better.

² No anthropology course will satisfy this requirement.

³ These courses fulfill the prerequisites for STAT 302 or STAT 303

⁴ Select from ANTH 200-499 (p. 922). Up to 6 hours from ANTH 200-299 (p. 922), 6 to 12 hours may be selected from ANTH 300-499 (p. 922).

⁵ See departmental advisor for list of additional science courses.

⁶ These courses have a Field or Lab experiential component

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a core category, a college/department requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

Writing Courses

All students are required to take two courses with the writing attribute, also known as "W-courses", from the department. Substitutions with W-courses from other departments are not allowed. Please see the academic advisor for the most current list of Anthropology W-courses.

Minor Requirements

Anthropology majors have the option of selecting a minor field of study from departments or divisions within or outside the College of Arts and Sciences or in a particular area of interest (as with interdisciplinary minors or career opportunity minors). Minors typically consist of 15-18 hours or coursework, at least 6 of which must be at the upper-division level. A minor should be declared before the student has completed 90 credit hours.

College and University Requirements

Other courses may qualify for this category. Students should consult the approved lists of courses available through the academic advisor in the Department of Anthropology or in the Undergraduate Student Services Office in the College of Arts and Sciences. The following list incorporates University Core Curriculum requirements. No course can be counted in more than one category, with the exception of courses used for the international and cultural diversity (p. 49) or the cultural discourse (p. 48) requirement. To promote the opportunity for anthropology majors to acquire a broad educational experience, anthropology students must satisfy their University requirements for language, philosophy and culture, social and behavioral sciences, and the sciences with courses other than those offered by anthropology.

Students must complete a minimum of 36 hours of 300- or 400-level coursework at Texas A&M University.

Anthropology - Minor

The minor in Anthropology introduces students to the subfields of sociocultural, biological, and archaeological anthropology.

The minor complements majors within all of the social sciences, humanities, and many of the natural sciences. Anthropology minors learn about issues relating to the human condition within a holistic, comparative and evolutionary context. They will develop the skills of scientific inquiry and will also learn critical thinking skills that support them in careers that involve working with individuals of diverse national or ethnic backgrounds, in fields such as education, law, medicine, government and non-government organizations, and nontraditional opportunities emerging in business and management.

Program Requirements

Code	Title	Semester Credit Hours
Anthropology Requirement I		6
Select from ANTH 300-499. (p. 922)		
Anthropology Requirement II		9
Select from any ANTH 200-499 course not used above. (p. 922)		
Total Semester Credit Hours		15

Students must make a grade of C or better in all courses.

At least six hours must be taken at the upper level and must be in residence.

Archaeology - Minor

The minor in Archaeology introduces students to the subfield of archaeology.

The minor complements majors within all of the social sciences, humanities, and many of the natural and life sciences. Archaeology minors understand and appreciate humanity's shared past through the investigation of the archaeological traces left behind by past peoples. They develop critical thinking skills that support them in careers that involve working with individuals of diverse national or ethnic backgrounds in education, museum and foundation settings, government and non-profit agencies, archaeological research firms, and non-traditional opportunities emerging in the private sector.

Program Requirements

Code	Title	Semester Credit Hours
Select five from the following:		15
ANTH 202	Introduction to Archaeology	
ANTH 204	The Prehistoric World	
ANTH 302	Archaeology of North America	
ANTH 304	Archaeology Roadshow	
ANTH 308	Archaeology of Mesoamerica	
ANTH 313	Historical Archaeology	
ANTH 317/	Introduction to Biblical Archaeology	
RELS 317		
ANTH 330	Field Research in Anthropology	

ANTH 350	European Archaeology
ANTH 351	Classical Archaeology
ANTH 353/	Archaeology of Ancient Greece
CLAS 353	
ANTH 354/	Archaeology of Ancient Italy
CLAS 354	
ANTH 360	Ancient Civilizations of the World
ANTH 401	Ice Age Humans in North America
ANTH 412	Archaeological Theory
ANTH 423	Bioarchaeology
ANTH 436/	Ancient Egypt I
RELS 436	
ANTH 444/	Classical Archaeology
CLAS 444	
ANTH 447	Lithic Artifact Analysis
ANTH 461	Environmental Archaeology
ANTH 489	Special Topics in...
Total Semester Credit Hours	
15	

Must make a grade of C or better in all courses.

At least six hours must be taken at the upper level and must be in residence.

Medical Anthropology - Minor

The minor in Medical Anthropology provides students with an introduction to this subfield of anthropology, which examines how biology, along with society and culture, shape health and disease.

Students interested in learning about differences and similarities in human biology through time and cross-culturally can select courses from the perspective of biological anthropology, such as ANTH 225, ANTH 226, ANTH 423, ANTH 425, ANTH 427, and ANTH 434. Those who are interested in learning about how society, culture, and the environment influence health care, wellness and health-related behaviors can select courses from the perspective of cultural anthropology, like ANTH 210, ANTH 222, ANTH 426, and ANTH 437. Another option is to select both biological anthropology and cultural anthropology courses to receive training in the biocultural perspective. Through this minor students interested in any health science field will develop critical thinking skills necessary for working in healthcare and with patients from diverse national and ethnic backgrounds.

Program Requirements

Code	Title	Semester Credit Hours
ANTH 210	Social and Cultural Anthropology	3
or ANTH 225	or Introduction to Biological Anthropology	
ANTH 435	Medical Anthropology	3
ANTH 484	Anthropology Internship	3
or ANTH 491	or Research	
Select six hours from:		6
ANTH 222	Cross Cultural Competency	
ANTH 226	Introduction to Biological Anthropology Laboratory	
ANTH 423	Bioarchaeology	

ANTH 425	Human Osteology
ANTH 426	Anthropology of Food and Nutrition
ANTH 427	Human Biological Variation
ANTH 434	Human Evolutionary Ecology: Reproduction and Parenting
ANTH 437	Ethnobotany
ANTH 489	Special Topics in... ¹
Total Semester Credit Hours	
15	

¹ Must be in a topic related to Medical Anthropology

Must make a grade of C or better in all courses.

At least six hours must be taken at the upper level and must be in residence.

Museum Studies - Minor

The minor in Museum Studies will provide students with a foundational understanding of museum studies while giving them professional experience working in a museum.

The minor is offered in cooperation with the College of Arts and Sciences, the College of Architecture, and the College of Agriculture and Life Sciences. The increase of collections, curatorial facilities and museums ensures this minor is a wise choice for any student with an interest in Anthropology or related fields.

Program Requirements

Code	Title	Semester Credit Hours
ANTH 421/	Advanced Museum Studies	3
MUST 421		
ANTH 484	Anthropology Internship	3
or MAST 48	or Undergraduate Internship	
MUST 221/	Foundations of Museum Studies	3
ARCH 221		
or MAST 220	or Introduction to Museums and Conservation	
Select from the following:		9
ANTH 313	Historical Archaeology	
ANTH 402	Archaeological Artifact Conservation	
ANTH 464	Cultural Heritage and Resource Management	
ARTS 330	The Arts of America	
ARTS 349	The History of Modern Art	
HIST 303	History and Memory	
HMGD 207	Interpretation of Natural and Cultural Resources	
HMGD 302	Application of Tourism Principles	
HMGD 340	Global Communities & Diverse Populations in Hospitality, Hotel Management and Tourism	
MAST 252	Crafts of the Maritime World	
MAST 365	Material Culture	
MAST 369	Collections Care and Management	

PERF 308	Performing Arts Administration	
PERF 338	Performing Communities	
PHIL 330	Philosophy of Art	
PSAA 344	Public Communication and Stakeholder Engagement	
PSAA 364	Fundraising and Philanthropy	
PSAA 442	Cross#Sector Collaboration	
PSAA 443	Managing Workplace Diversity in Public and Nonprofit Organizations	
VIST 465	Video and Time Based Media	
Total Semester Credit Hours		18

Students must make a grade of C or better in all courses.

Nautical Archaeology - Minor

The minor in Nautical Archaeology provides students with foundational training in shipwreck archaeology, one of the unique strengths of Texas A&M University.

Students learn how watercraft have shaped the human experience and changed history, as they gain fluency in ship construction technologies, underwater survey and excavation techniques, and the conservation of archaeological artifacts from submerged contexts. The legal protection of underwater cultural heritage and the ethics of treasure hunting engage critical thinking. Professional training may be acquired through archaeological fieldwork (ANTH 330), internships in conservation and/or archival research (ANTH 484), or supervised scholarly research (ANTH 485). The minor in Nautical Archaeology integrates with all majors in Arts and Sciences and exposes students to careers in maritime museums, cultural resource management firms, as well as state and federal government, educational, and non-profit agencies.

Program Requirements

Code	Title	Semester Credit Hours
Select five from the following:		15
ANTH 316	Nautical Archaeology	
ANTH 318	Nautical Archaeology of the Americas	
ANTH 323	Nautical Archaeology of the Mediterranean	
ANTH 330	Field Research in Anthropology	
ANTH 402	Archaeological Artifact Conservation	
ANTH 417/ CLAS 417	Naval Warfare and Warships in Ancient Greece and Rome	
ANTH 418	Romans, Arabs, and Vikings--Seafaring in the Mediterranean during the early Christian Era	
ANTH 484	Anthropology Internship ¹	
ANTH 485	Directed Studies ²	
ANTH 489	Special Topics in... ³	
Total Semester Credit Hours		15

¹ At Conservation Research Lab (CRL), Institute of Nautical Archaeology (INA), or the Center for Maritime Archaeology and Conservation (CMAC) labs

² With a Nautical Archaeology Program faculty member

³ As offered in a particular semester by a Nautical Archaeology Program faculty member

Students must make a grade of C or better in all courses.

Department of Atmospheric Sciences

Atmospheric sciences is an interdisciplinary field encompassing the physics and chemistry of the atmosphere, along with its interaction with the Earth's surface and oceans. Scientists in this field use their knowledge to improve weather forecasts, model cloud and precipitation processes, understand the climate system, observe the atmosphere with radar and satellites, and probe atmospheric chemistry and air quality. The study of this field is based on principles from physics, chemistry and mathematics, and well prepared students will have a solid grounding in all three disciplines.

Students in the Department of Atmospheric Sciences benefit from relatively small classes and low student-to-teacher ratios. Many opportunities are available for participating in faculty-led research programs, including national and international field campaigns, often culminating in presentations at national conferences.

Faculty

Baule, William James, Research Assistant Professor
Atmospheric Sciences
PHD, Michigan State University, 2022

Bowman, Kenneth P, Research Professor
Atmospheric Sciences
PHD, Princeton University, 1984

Brooks, Sarah D, Professor
Atmospheric Sciences
PHD, University of Colorado, 2002

Crawford, Max, Visiting Lecturer
Atmospheric Sciences
BS, Texas A&M University, 2013

Dessler, Andrew E, Professor
Atmospheric Sciences
PHD, Harvard University, 1994

Dickey, Judy, Instructional Assistant Professor
Atmospheric Sciences
PHD, Texas A&M University, 2024

Epifanio, Craig C, Associate Professor
Atmospheric Sciences
PHD, University of Washington, 1999

Fu, Dan, Assistant Professor
Atmospheric Sciences
PHD, Texas A&M University, 2018

Korty, Robert L, Professor
Atmospheric Sciences
PHD, Massachusetts Institute of Technology, 2005

Liu, Xiaohong, Professor
Atmospheric Sciences
PHD, Nanjing University, China, 1992

Logan, Timothy S, Associate Professor
Atmospheric Sciences
PHD, University of North Dakota, 2014

Nielsen, Erik Russell, Instructional Associate Professor
Atmospheric Sciences
PHD, Colorado State University, 2019

Nielsen-Gammon, John W, Professor
Atmospheric Sciences
PHD, Massachusetts Institute of Technology, 1990

Nowotarski, Christopher J, Associate Professor
Atmospheric Sciences
PHD, Pennsylvania State University, 2013

Nunez Ocasio, Kelly, Assistant Professor
Atmospheric Sciences
PHD, Pennsylvania State University, 2021

Rapp, Anita D, Professor
Atmospheric Sciences
PHD, Colorado State University, 2008

Saravanan, Ramalingam, Professor
Atmospheric Sciences
PHD, Princeton University, 1990

Schade, Gunnar W, Associate Professor
Atmospheric Sciences
PHD, Johannes Gutenberg Universitat at Germany, 1997

Schumacher, Courtney, Professor
Atmospheric Sciences
PHD, University of Washington, 2003

Szunyogh, Istvan, Professor
Atmospheric Sciences
PHD, Hungarian Academy of Sciences, 1994

Winkley, Shel, Lecturer
Atmospheric Sciences
BS, Texas A&M University, 2007

Xu, Yangyang, Associate Professor
Atmospheric Sciences
PHD, University of California at San Diego, 2014

Yang, Ping, Professor
Atmospheric Sciences
PHD, University of Utah, 1995

Zhang, Renyi, Professor
Atmospheric Sciences
PHD, Massachusetts Institute of Technology, 1994

Zhang, Yue, Assistant Professor
Atmospheric Sciences
PHD, Harvard University, 2010

Majors

- Bachelor of Science in Meteorology (p. 284)
- Bachelor of Science in Meteorology and Master of Ocean Science and Technology, 5-Year Degree Program (p. 285)

Minors

- Climate Change Minor (p. 287)
- Meteorology Minor (p. 287)

Facilities

The Department of Atmospheric Sciences occupies the upper floors of the 15-story Oceanography and Meteorology Building. The Doppler weather radar on the roof of the building is a campus landmark and is used for both research and teaching. The department also operates a mobile Doppler radar for use in research projects. The department has four state-of-the-art chemistry labs, in which phenomena from ozone to aerosols are studied, as well as facilities for modeling the chemical environment. A continuous, comprehensive stream of meteorological data is received from ground stations, balloons, aircraft, radars, and satellites around the world. Two well-equipped computer labs are regularly upgraded to provide state-of-the-art educational equipment.

Meteorology - BS

The Bachelor of Science (BS) in Meteorology emphasizes weather and weather forecasting.

The Department of Atmospheric Sciences offers the BS in Meteorology. The undergraduate curriculum in meteorology emphasizes weather and weather forecasting, but also includes courses in climatology, atmospheric chemistry, cloud physics and remote sensing of the atmosphere with radar and satellites. As the curriculum makes clear, the study of these subjects relies on a foundation of physics, chemistry and mathematics. Meteorology also has connections to oceanography and other geosciences disciplines, which may be taken as elective courses.

Students who receive BS degrees in Meteorology often obtain employment with the National Weather Service, private meteorological consulting and weather forecasting companies, air quality consulting firms, airlines, TV stations, energy trading companies, universities, state governments, agricultural firms and computer-related industries. Some students choose to enter the military services as weather officers. Positions in teaching and research normally require a graduate degree.

Students interested in cooperative educational arrangements and internships should contact the department's academic advisor for information.

In the curriculum presented, students are advised to note the prerequisites for the courses in ATMO, which often depend on courses in mathematics, physics or chemistry.

Program Requirements

First Year

Fall		Semester
		Credit Hours
ATMO 201	Weather and Climate ¹	3
CHEM 119	Fundamentals of Chemistry I	4

ENGL 104	Composition and Rhetoric	3
MATH 171 or MATH 151	Calculus I ¹ or Engineering Mathematics I	4
Semester Credit Hours		14
Spring		
ATMO 203	Weather Forecasting Laboratory ¹	1
CHEM 120	Fundamentals of Chemistry II	4
MATH 172 or MATH 152	Calculus II ¹ or Engineering Mathematics II	4
PHYS 206	Newtonian Mechanics for Engineering and Science	3
PHYS 226	Physics of Motion Laboratory for the Sciences	1
American history (p. 30)		3
Semester Credit Hours		16
Second Year		
Fall		
ATMO 251	Weather Observation and Analysis ¹	3
ATMO 363	Introduction to Atmospheric Chemistry and Air Pollution	3
MATH 251	Engineering Mathematics III ¹	3
Select one of the following:		3
ATMO 321	Computer Applications in the Atmospheric Sciences	
CSCE 110	Programming I	
CSCE 206	Structured Programming in C	
Government/political science (p. 31)		3
Semester Credit Hours		15
Spring		
ATMO 324	Physical and Regional Climatology	3
MATH 308	Differential Equations ¹	3
PHYS 207	Electricity and Magnetism for Engineering and Science	3
PHYS 227	Electricity and Magnetism Laboratory for the Sciences	1
Government/political science (p. 31)		3
General Elective ^{2,3}		3
Semester Credit Hours		16
Third Year		
Fall		
ATMO 335	Atmospheric Thermodynamics ⁴	3
ATMO 336	Atmospheric Dynamics ⁴	4
STAT 211	Principles of Statistics I	3
American history (p. 30)		3
Atmospheric sciences or technical elective ⁵		1
Semester Credit Hours		14
Spring		
ATMO 435	Synoptic-Dynamic Meteorology	3
COMM 203 or COMM 205	Public Speaking or Communication for Technical Professions	3
Language, philosophy and culture (p. 28)		3

Atmospheric sciences or technical elective ⁵		6
Semester Credit Hours		15
Fourth Year		
Fall		
ATMO 441 or ATMO 443	Satellite Meteorology and Remote Sensing or Radar Meteorology	3
ATMO 446	Physical Meteorology	3
Social and behavioral science (p. 31)		3
Atmospheric sciences or technical elective ⁵		3
General elective ^{2,3}		3
Semester Credit Hours		15
Spring		
ATMO 456	Practical Weather Forecasting	3
Creative arts (p. 30)		3
Atmospheric sciences or technical electives ⁵		6
General elective ^{2,3}		3
Semester Credit Hours		15
Total Semester Credit Hours		120

¹ A grade of C or better is required.

² General electives may not include ENGL 103; KINE 198-199 (p. 1109); MATH 102, MATH 141-142 (p. 1135), MATH 150-152 (p. 1135), MATH 171-172 (p. 1135), MATH 221, MATH 251, MATH 253; PHYS 101, PHYS 201-202 (p. 1205), PHYS 218-219 (p. 1205); AERS 100-499 (p. 900); MLSC 100-499 (p. 1151); NVSC 100-499 (p. 1178); SOMS 100-499 (p. 1237).

³ MLSC, NVSC and AERS courses can be used as general electives if a minor is completed in Military Science. See an academic advisor for more information.

⁴ All students enter as Lower Level Meteorology (METL) until completion of ATMO 335 and ATMO 336 and the associated prerequisite courses. Once students have completed these courses, their major will be changed to Upper Level Meteorology (METR), and they will be eligible to take upper-level electives. This change should occur following the fall semester of the junior year.

⁵ Select in consultation with faculty academic advisor. Select from ATMO 300-499 (p. 940) (except ATMO 321); BESC 403; BIOL 111; CHEM 227, CHEM 237; ECCB 308, ECCB 309; ENSS 400-499 (<https://catalog.tamu.edu/undergraduate/course-descriptions/enss/>); GEOG 400-499 (p. 1055); MATH 311, MATH 400-499 (p. 1135); OCNG 400-499 (p. 1182); SCSC 301. Up to 3 hours may be ATMO 484 (Broadcast Internship) and up to 6 hours may be ATMO 484 (NWS Internship). Only 6 hours of 484, 485, and 491 courses may apply towards this requirement.

Meteorology - 5-Year Bachelor of Science and Master of Ocean Science and Technology

This combination program offers motivated and exceptional students the opportunity to complete both the Bachelor of Science degree in the Department of Atmospheric Sciences Meteorology Program and the Master of Ocean Science and Technology degree in 5 years.

The concurrent degree program will enable these motivated students to coordinate the required BS coursework and Master of Ocean Science and

Technology coursework to complete the required credit hours for each degree without diminishing scope or quality of work and within 5 years.

Application and Eligibility

- Applications to the combined program will be submitted by June 15 after the completion of the student's junior year. Applications submitted after that time will be evaluated on a case by case basis. GRE scores are not required for admission to the program
- Applicants must have a minimum undergraduate GPA of 3.25. Applicants should also earn a C or better in all Chemistry, Calculus and Physics courses. Once admitted to the program, students must maintain a minimum 3.0 GPA on all graduate coursework.
- A faculty advisor will be assigned to each student. Students may seek additional mentors, but a formal committee is not required.
- Students admitted into the combined program must finish the entire 150 credit hours to obtain both the Bachelor's and Master's degrees. Students will graduate at the completion of the 5th year in the combined program coursework (150 credit hours) with both Bachelor's and Master's degrees.
- Students admitted to the program will change from U4 to G7 status when they are admitted having completed at least 90 hours (end of spring semester, year 3).
- Students not accepted or not allowed to continue with the combined program will complete the 120-hour Bachelor's degree under the standard 4 year curriculum. These students may still apply to the traditional graduate program.

Program Requirements

First Year

Fall		Semester Credit Hours
ATMO 201	Weather and Climate ¹	3
CHEM 119	Fundamentals of Chemistry I	4
ENGL 104	Composition and Rhetoric	3
MATH 171	Calculus I ¹	4
or MATH 151	or Engineering Mathematics I	
Atmospheric sciences or technical elective ^{2,3,4}		1
Semester Credit Hours		15

Spring		
ATMO 203	Weather Forecasting Laboratory ¹	1
CHEM 120	Fundamentals of Chemistry II	4
MATH 172	Calculus II ¹	4
or MATH 152	or Engineering Mathematics II	
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences	4
American history (p. 30)		3
Semester Credit Hours		16

Second Year

Fall		
ATMO 251	Weather Observation and Analysis ¹	3
ATMO 363	Introduction to Atmospheric Chemistry and Air Pollution	3
MATH 251	Engineering Mathematics III ¹	3

Select one of the following:		3
ATMO 321	Computer Applications in the Atmospheric Sciences	
CSCE 110	Programming I	
CSCE 206	Structured Programming in C	
Government/Political science (p. 31)		3
General elective ^{5,6}		3
Semester Credit Hours		18

Spring		
ATMO 324	Physical and Regional Climatology	3
MATH 308	Differential Equations ¹	3
PHYS 207 & PHYS 227	Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences	4
Government/Political science (p. 31)		3
Social and behavioral sciences (p. 31)		3
Semester Credit Hours		16

Third Year

Fall		
ATMO 335	Atmospheric Thermodynamics ⁷	3
ATMO 336	Atmospheric Dynamics ⁷	4
STAT 211	Principles of Statistics I ¹	3
American history (p. 30)		3
General elective ^{5,6}		3
Semester Credit Hours		16

Spring		
ATMO 435	Synoptic-Dynamic Meteorology	3
COMM 203 or COMM 205	Public Speaking or Communication for Technical Professions	3
Atmospheric sciences or technical elective ^{2,3,4}		6
Creative arts (p. 30)		3
Language, philosophy and culture (p. 28)		3
Semester Credit Hours		18

Fourth Year

Fall		
ATMO 441 or ATMO 443	Satellite Meteorology and Remote Sensing or Radar Meteorology	3
ATMO 446	Physical Meteorology	3
OCNG 604	Ocean Observing Systems ^{3,4,8}	3
OCNG 608	Physical Oceanography ^{3,4,8}	3
Select one of the following: ^{4,8}		3
OCNG 620	Biological Oceanography	
OCNG 630	Geological Oceanography	
OCNG 640	Chemical Oceanography	
Atmospheric sciences or technical elective ^{2,3,4}		3
Semester Credit Hours		18

Spring		
ATMO 456	Practical Weather Forecasting	3
OCNG 603	Communicating Ocean Science	3
OCNG 657	Data Methods and Graphical Representation in Oceanography	3

Select one of the following: ^{2,3,4}	3
OCNG 620 Biological Oceanography	
OCNG 640 Chemical Oceanography	
OCNG 630 Geological Oceanography	
General elective ^{5,6}	3
Semester Credit Hours	15
Fifth Year	
Fall	
Advanced specialized OCNG graduate courses ⁸	9
Semester Credit Hours	9
Spring	
OCNG 661 Advanced Oceanographic Data Analysis and Communication	3
Advanced specialized OCNG graduate courses ⁸	6
Semester Credit Hours	9
Total Semester Credit Hours	150

¹ A grade of C or better is required.

² Select in consultation with faculty academic advisor. Select from ATMO 300-499 (p. 940) (except ATMO 321); ENSS 400-499 (<https://catalog.tamu.edu/undergraduate/course-descriptions/enss/>); GEOG 400-499 (p. 1055); MATH 311, MATH 400-499 (p. 1135); OCNG 400-499 (p. 1182). Up to 3 hours may be ATMO 484-Broadcast Internship and up to 6 hours may be ATMO 484-NWS Internship. SCSC 301; BESC 403; BIOL 111; CHEM 227, CHEM 237; ECCB 308, ECCB 309. Only 6 hours of 484, 485, and 491 courses may apply towards this requirement.

³ If students use nine credits of allowed OCNG courses (e.g. OCNG 251, OCNG 252, OCNG 350, OCNG 451, OCNG 485) as technical electives and general electives, they will receive an OCNG minor with their BS in METR degree.

⁴ Students will not be permitted to receive credit for both undergraduate-level and graduate-level versions of stacked courses because the content and learning outcomes are too similar (e.g. OCNG 404/OCNG 604; OCNG 456/OCNG 656)."

⁵ General electives may not include ENGL 103; KINE 198-199 (p. 1109); MATH 102, MATH 131, MATH 141-142 (p. 1135), MATH 150-152 (p. 1135), MATH 171-172 (p. 1135), MATH 221, MATH 251, MATH 253; PHYS 101, PHYS 201-202 (p. 1205), PHYS 208, PHYS 218-219 (p. 1205); AERS 100-499 (p. 900); MLSC 100-499 (p. 1151); NVSC 100-499 (p. 1178); SOMS 100-499. (p. 1237)

⁶ MLSC, NVSC and AERS courses can be used as general electives if a minor is completed in Military Science. See an academic advisor for more information.

⁷ All students enter as Lower Level Meteorology (METL) until completion of ATMO 335 and ATMO 336 and the associated prerequisite courses. Once students have completed these courses, their major will be changed to Upper Level Meteorology (METR), and they will be eligible to take upper-level electives. This change should occur following Fall of the junior year.

⁸ Two graduate courses will be taken for dual undergraduate/graduate credit and will contribute to the technical electives.

The program includes a total of 156 hours with 6 hours being applied toward both the Bachelor of Science in Meteorology and the Master of Ocean Science and Technology.

Climate Change - Minor

The minor in Climate Change aims to provide an overview of how the climate system works from an earth systems sciences perspective and how humans and the environment interact within it.

Climate change is one of the most pressing issues of our time. It will impact every aspect of our lives, and unless our economies take aggressive action to reduce emissions, today's students will live through climate change unprecedented in modern human history. The minor in Climate Change draws on multiple courses exploring the science of climate change as well as the multitude of impacts ranging from farming and food production, water availability, ocean acidification to the potential of sustainable energy to replace fossil fuels, as well as the policy decisions governments are making. Students learn about climate change and how to understand and forecast its potential impacts from varied disciplinary and interdisciplinary perspectives, while getting a firm grounding in the basic physical, ecological and social sciences.

Program Requirements

Code	Title	Semester Credit Hours
ATMO 210	Climate Change	3
ATMO 444	The Science and Politics of Global Climate Change	3
Select the remaining courses from the following: ¹		9
ATMO 201	Weather and Climate	
or ENSS	or Introduction to Environmental Systems Science	
ATMO 324	Physical and Regional Climatology	
GEOG 309	Geography of Energy	
GEOG 324	Global Climatic Regions	
GEOG 409	Geographies of Decarbonization	
GEOG 410/	Global Change	
OCNG 412		
GEOG 442/	Past Climates	
GEOL 442		
OCNG 413	Polar Regions of the Earth: Science, Society and Discovery	
Total Semester Credit Hours		15

¹ At least 3 hours of elective coursework must be selected from 400-level courses.

ENGS majors may not select this minor.

Meteorology - Minor

The minor in Meteorology begins with a broad survey of the atmospheric sciences and associated weather analysis.

It is then followed by a more detailed introduction to at least one subdiscipline of the atmospheric sciences, such as atmospheric chemistry, dynamics, computer applications, or severe weather. The minor also introduces students to related Earth systems topics, such as oceanography, Earth-surface processes, or atmosphere-biosphere interactions. Students interested in pursuing the minor are encouraged

to meet with the department’s academic advisor to identify appropriate courses.

Program Requirements

Code	Title	Semester Credit Hours
300-level requirement		
ATMO 300-399	(p. 940)	6
400-level requirement		
Select from the following:		3
ATMO 400-499	(p. 940)	
ENSS 400-499	(https://catalog.tamu.edu/undergraduate/course-descriptions/enss/)	
Electives		
Select from the following:		7
ATMO 100-499	(p. 940)	
ENSS 400-499	(https://catalog.tamu.edu/undergraduate/course-descriptions/enss/)	
Total Semester Credit Hours		16

Must maintain a minimum GPA of 2.000 in order to pursue this minor.

At least 9 hours of ATMO courses are required and a minimum of 3 hours at the 400 level.

Department of Biology

No one really knows what the world will be like 50 years from now, but it is certain that biologists will be at the forefront of science attempting to find solutions to many of the world’s problems and to find answers to intriguing questions about animals, plants and microbes at the molecular, cellular, organismal and ecosystem levels. Biologists will be concerned with pollution of the environment, cause and cure of disease, population control, recurring food shortages, preservation of species and many other aspects resulting from the impact of technological changes on life forms. Those who are astounded by the array of living things on the earth and who seek challenging, creative work should consider a career in biology or in a biology-related field. The Department of Biology offers six distinct four-year curricula which lead to the baccalaureate degree. These are the Bachelor of Arts in Biology, Bachelor of Science in Biology, Bachelor of Science in Molecular and Cell Biology, Bachelor of Science in Microbiology, Bachelor of Science in Neuroscience (Molecular and Cellular Neuroscience Track), and Bachelor of Science in Zoology. The curricula are designed to maximize postbaccalaureate opportunities in:

- 1. professional schools of medicine, veterinary medicine and dentistry;
- 2. allied health schools of physical and occupational therapy, physician assistant programs, optometry, pharmacy, and nursing;
- 3. graduate education leading to teaching and research careers in universities, in industry or in state or national agencies;
- 4. teaching at junior high or high school levels and
- 5. jobs in biotechnology, research laboratories, pharmaceutical companies and field biology.

The Department of Biology degree plans will enable students to complete all entrance requirements for graduate and professional schools as well as medical technology, pharmacy, optometry, nursing, physical therapy, and other paramedical and health support fields.

Advising

Because some careers in biology require advanced and/or specialized training, it is essential to take advantage of advising opportunities. In the Department of Biology, there are professional advisors in the Biology Undergraduate Programs Office. The advisor may be consulted prior to each registration period and as the student needs. Questions regarding registration, degree checks, transfer of courses, advanced placements and other academic matters are handled in the Office of Undergraduate Programs. Students with special interests in graduate study should consult the graduate advisor. Information concerning entrance to professional schools of medicine, dentistry and other health related fields is available from the Office of Professional School Advising.

Requirements for all Baccalaureate Degrees in the Department of Biology

Each student seeking a baccalaureate degree in the Department of Biology is required to master a common body of knowledge in science. In addition, the student must take courses essential to a liberal education. Students will note that the first two years of all curricula offered by the Department of Biology are similar. Electives must include a 3 hour international and cultural diversity elective and a 3 hour cultural discourse elective required for graduation. Students must also take at least two writing-intensive courses in biology. Other requirements for graduation are listed in the Texas A&M University Student Rules and this catalog.

Students in the Department of Biology must make a grade of C or better in BIOL 111 and BIOL 112. Additionally, students may have only one D in courses within the major used to satisfy required or directed electives for a given degree plan. It is required that the freshman and sophomore level biology, chemistry and math courses be completed before the start of the 5th full semester and before enrollment in any junior or senior level science.

Common Body of Knowledge

To assure that students have sufficient prerequisite training for advanced courses, Biology majors must complete a series of courses comprising a Common Body of Knowledge (CBK) prior to their junior year (5th full semester) and enrollment in upper level BIOL courses. A Biology student will be admitted into upper level Biology classes when he or she has met the following criteria:

Completion of a set of CBK courses (37-38 hours) before the student’s 5th full semester to include:

Code	Title	Semester Credit Hours
BIOL 111	Introductory Biology I	4
BIOL 112	Introductory Biology II	4
BIOL 213	Molecular Cell Biology	3
BIOL 214	Genes, Ecology and Evolution	3
CHEM 119	Fundamentals of Chemistry I	4
CHEM 120	Fundamentals of Chemistry II	4
Select one of the following:		4
CHEM 257	Organic Chemistry I - Structure and Function	
CHEM 227	Organic Chemistry I & CHEM 237and Organic Chemistry Laboratory	

Select one of the following: 4

CHEM 258 Organic Chemistry II - Reactivity and Applications

CHEM 228 Organic Chemistry II
& CHEM 231 and Organic Chemistry Laboratory

Select one of the following: 4

MATH 147 Calculus I for Biological Sciences

MATH 151 Engineering Mathematics I

MATH 171 Calculus I

Select one of the following: 3-4

MATH 148 Calculus II for Biological Sciences

MATH 152 Engineering Mathematics II

MATH 172 Calculus II

STAT 201 Elementary Statistical Inference

Total Semester Credit Hours 37-38

A student must be in good academic standing with an overall grade point average of a 2.0 or better overall and in the major.

Process

Students will be audited by the department to monitor progress of the CBK. Students failing to complete the CBK within the first four full semesters (two full semesters for Transfer Students) at Texas A&M University may be blocked and forced to change majors or be required to meet with an academic advisor to see if they can be successful in the major. Students registering for upper-level Biology classes without completing the CBK, or without approval of the Undergraduate Advising Office, will be dropped from the roster.

Transfer Students

1. Transfer from within Texas A&M University: The Biology Department will accept changes of major from other departments at Texas A&M upon completion of AT LEAST one semester of an applicable BIOL course taken at Texas A&M and AT LEAST one semester of an applicable CHEM course taken at Texas A&M, with a minimum 2.5 grade point average overall for courses taken at Texas A&M, a 2.5 or better grade point average in BIOL courses taken at Texas A&M, and a 2.5 or better grade point average in CHEM courses taken at Texas A&M. Students still must complete the CBK before being admitted to upper level BIOL courses.
2. Transfer students from other institutions to Biology must have completed the following:
 - a. A minimum of 24 accredited college hours including prescribed coursework
 - b. Prescribed coursework:
 - i. Eight hours of General Biology (TAMU BIOL 111 and BIOL 112 or Texas Common Course Numbers BIOL 1406 and 1407) with B's or better in each course, and
 - ii. Eight hours of General Chemistry (TAMU CHEM 119 and CHEM 120 or Texas Common Course Numbers CHEM 1411 and CHEM 1412) with B's or better in each course, and
 - iii. Four hours of Calculus (TAMU MATH 147 or MATH 151 or MATH 171 and four hours of Calculus II (TAMU MATH 148 or MATH 152 or MATH 172 or three hours of Statistics STAT 201 or Texas Common Courses Numbers MATH 2413 and MATH 2414 or MATH1342) with C's or better
 - c. A minimum cumulative grade point average of a 3.0

- d. A minimum Biology and Chemistry grade point average of a 3.0 in each
- e. Please refer to admissions.tamu.edu (http://admissions.tamu.edu/transfer/apply/?_ga=2.156153723.1190088441.1615999771-1217340481.1615999771)

Biology Honors Program

The Biology Department Honors Program is open to highly talented and motivated students pursuing a major in any of our degree plans. Honors students will be part of a vibrant community within the department with enriched learning experiences in both the classroom and biology research laboratories.

Honors Requirements: Students wishing to graduate with honors distinctions in either Biology (BIOL), Microbiology (MBIO), Zoology (ZOO), or Molecular and Cellular Biology (BMCB) must earn 21 credits in Honors courses and meet the following minimum honors requirements in addition to those listed in the degree plan:

- 4 credits BIOL 111H or BIOL 112H*
- 3 credits BIOL 213H or BIOL 214H
- 3 credits at 300/400 BIOL honors or honors contract; any 600 BIOL; not to include BIOL 485H, BIOL 491H, or BIOL 495H
- 6 credits BIOL 491H
- 2 credits BIOL 495H
- 3 credits any honors course outside the College of Arts and Sciences

* This requirement may be waived with a score of 5 on the Biology AP exam, a score of 6 on the IB exam, or by taking an additional honors biology course at the 300 or 400 level.

Grade requirements at time of graduation:

- cumulative Texas A&M University GPA of 3.5 or higher
- cumulative honors GPA of 3.25 or higher
- no grade lower than a B in courses counting toward honors. If a student earns less than a B in an honors course, they will still receive University credit. However, they will need to take a different course to fulfill the honors requirement.
- no F*, given in cases of academic dishonesty, on the transcript

Honors recognition: All honors courses will be denoted as honors on students' official transcripts. Furthermore, students completing the honors program will have the departmental Biology honors distinction as well as any earned university or college distinction noted on the official transcript.

Admission to the Honors Program in Biology

Incoming Freshmen: Incoming freshmen applicants should indicate their interest in the departmental honors program through the ApplyTexas site and by choosing the "Apply to any Honors Program" after August 1. Qualified applicants will be contacted by the department with further information on joining Biology Honors. Current qualifications for freshman admission are detailed on the Biology Honors website (<https://artsci.tamu.edu/biology/academics/undergraduate/honors-program/>).

Students who have already completed their application and now wish to apply to the Biology Honors program can use the "Apply to any Honors Program" link at the Texas A&M Honors program site (<http://honorsprograms.tamu.edu/Home/>) or contact biohonors@bio.tamu.edu.

Current or transfer students: Current or transfer students with a cumulative GPA of 3.5 or better can apply for admission to the Biology Honors Program by writing a short (less than 300 word) email to the department's Honors Director. When applying students should keep in mind that they will need to fulfill all honors requirements. Please send email to: biohonors@bio.tamu.edu.

Remaining in the program

In order to remain in the Biology Honors program, students must maintain a cumulative GPA at Texas A&M of 3.5 and honors GPA of 3.25. Students falling below these standards will be placed on probation for the next semester. Students unable to meet these standards for a second semester may be dismissed from the Biology Honors Program.

Please direct any questions to biohonors@bio.tamu.edu or the Biology Undergraduate Advising office.

Course Recommendations

The following suggestions are to assist the student in course selections to support their career choice.

Human Biology

These are recommended courses for students interested in pursuing professional schools including medical, dental and allied health programs (e.g., nursing, occupational therapy, optometry, pharmacy, physical therapy and physician assistant). The focus of the science courses on human biology will better prepare these students for their chosen fields. Suggested courses include:

Code	Title	Semester Credit Hours
Social and Behavioral Science		
PBSI 107	Introduction to Psychology	3
	or SOCI 205 or Introduction to Sociology	
Biology Electives		
BIOL 319	Integrated Human Anatomy and Physiology I	4
BIOL 320	Integrated Human Anatomy and Physiology II	4
BIOL 351	Fundamentals of Microbiology	4
BIOL 388	Principles of Animal Physiology	4
BIOL 445	Biology of Viruses	3
BIOL 454	Immunology	3
BIOL 456	Medical Microbiology	3
Free Electives		
HLTH 335	Human Diseases	3
HLTH 354/ PHLT 354	Medical Terminology for the Health Professions	3
PBSI 107	Introduction to Psychology	3
	or SOCI 205 or Introduction to Sociology	
URPN 370	Health Systems Planning	3
International and Cultural Diversity		
HLTH 236	Introduction to Health Disparities and Diversity	3
HLTH 334	Women's Health	3
Total Semester Credit Hours		46

Students should consult their academic advisor about the courses that best fit their career interests.

Education

This is for students wishing to acquire state certification to teach at the secondary level upon graduation. Students should seek advice from the advisors within their department and from the School of Education and Human Development, as well as from the advisor in charge of their teaching option. The intention is to make the best possible use of social science, humanity, free and directed electives in the Bachelor of Arts in Biology, thereby condensing as many of the certification requirements as possible into the degree plan and allowing the student to obtain a minor in Secondary Education (SEED). Courses should include:

Code	Title	Semester Credit Hours
Social and Behavioral Science		
INST 210	Understanding Special Populations	3
INST 222	Foundations of Education in a Multicultural Society	3
Biology Electives		
	Upper-level BIOL courses, including two writing intensive courses (p. 951)	14
Free Electives		
RDNG 372	Reading and Writing across the Middle Grades Curriculum	3
	or RDNG 465 or Reading in the Middle and Secondary Grades	
TEFB 322	Teaching and Schooling in Modern Society	3
TEFB 324	Teaching Skills II	3
TEFB 406	Science in the Middle and Secondary School	3
	Student teaching	
Total Semester Credit Hours		32

Marine Biology

These are recommended courses for students desiring a more rigorous and in-depth foundation in biological courses that apply to marine environments and ecosystems. This suggested plan is ideal for students who intend to pursue graduate studies in marine biology or serve as field biologists at national seashores or sanctuaries. Suggested courses include:

Code	Title	Semester Credit Hours
Biology Electives		
BIOL 335	Invertebrate Zoology	4
BIOL 440	Marine Biology	4
	Related ZOOL research or field experience (p. 1271)	3
Free Electives		
ECCB 311	Ichthyology	3
OCNG 251	The Blue Planet - Our Oceans	3
WFSC 425	Marine Fisheries	3
Total Semester Credit Hours		20

Students should consult their academic advisor about the courses that best fit their career interests.

Ecology/Environmental Biology

This is for students who are interested in environmental consulting, environmental protection and ecosystem evaluation. This suggested plan can be adapted to focus on particular areas or populations within an ecosystem. Suggested courses include:

Code	Title	Semester Credit Hours
Communication		
ENGL 210	Technical and Professional Writing	3
Biology Electives		
Select one of the following:		3-4
BIOL 335	Invertebrate Zoology	
BIOL 357	Ecology	
BIOL 440	Marine Biology	
BIOL 467	Integrative Animal Behavior	
ECCB 462	Amazon River Tropical Biology	
Free Electives		
CHEM 315 & CHEM 318	Fundamentals of Quantitative Analysis and Quantitative Analysis Laboratory	4
ENTO 201	General Entomology	3
Select one of the following:		3-4
ECCB 311	Ichthyology	
ECCB 401	General Mammalogy	
ECCB 402	General Ornithology	
PLPA 301 & PLPA 303	Plant Pathology and Plant Pathology Laboratory	
Total Semester Credit Hours		17-18

Students should consult their academic advisor about the courses that best fit their career interests.

Liberal Education Requirements of the University, College or State

Code	Title	Semester Credit Hours
	American history (p. 30)	6
	Communication (p. 27)	6
	Language, philosophy and culture (p. 28)	3
	Government/Political science (p. 31)	6
	Social and behavioral sciences (p. 31)	3
	Creative arts (p. 30)	3
	International and cultural diversity (p. 49)	0-3
	Cultural Discourse (p. 48)	0-3
Total Semester Credit Hours		27-33

Faculty

Aramayo, Rodolfo, Associate Professor
Biology
PHD, University of Georgia, 1992

Bard, Jared Abraham, Assistant Professor
Biology
PHD, University of California, Berkeley, 2018

Basu, Samarpita, Instructional Assistant Professor
Biology
PHD, Indian Institute of Technology Guwahati, Assam, India, 2016

Bell-Pedersen, Deborah, Professor
Biology
PHD, State University of New York at Albany, 1991

Benedik, Michael J, Professor
Biology
PHD, Stanford University, 1982

Blackmon, Heath L, Associate Professor
Biology
PHD, University of Texas at Arlington, 2015

Butler, Chris, Instructional Associate Professor
Biology
PHD, Oxford University, 2004

Chakraborty, Mahul, Assistant Professor
Biology
PHD, University of Rochester, 2014

Cohn, William B, Instructional Associate Professor
Biology
PHD, Texas A&M University, 2000

Criscione, Charles D, Professor
Biology
PHD, Oregon State University, 2005

Dulin, Jennifer N, Associate Professor
Biology
PHD, University of Texas Health Science Center, 2012

Erickson, James W, Associate Professor
Biology
PHD, University of Wisconsin, Madison, 1989

Farhy, Isabella, Assistant Professor
Biology
PHD, Tel Aviv University, 2013

Fitzpatrick, Courtney, Assistant Professor
Biology
PHD, Duke University, 2012

Fletcher, Samantha A, Instructional Associate Professor
Biology
PHD, Texas A&M University, 2019

Garcia, Luis R, Professor
Biology
PHD, University of Texas, 1996

Ghose, Debarati, Instructional Assistant Professor
Biology
PHD, Northern Illinois University, 2018

Gomer, Richard H, Professor
Biology
PHD, California Institute of Technology, 1983

Griffing, Lawrence R, Associate Professor
Biology
PHD, Stanford University, 1981

Hardin, Paul E, Distinguished Professor
Biology
PHD, Indiana University, 1987

Hawkins, Angela K, Instructional Associate Professor
Biology
PHD, Texas A&M University, 2018

Herman, Benjamin, Professor
Biology
PHD, Iowa State University, 2010

Hooshyar, Mohsen, Lecturer
Biology
PHD, Carleton University, Canada, 2015

Janes, Donna M, Instructional Associate Professor
Biology
PHD, University of Illinois, 2004

Jones, Jeff, Assistant Professor
Biology
PHD, Vanderbilt University, 2015

Karpac, Jason S, Associate Professor
Biology
PHD, The University of Oklahoma Health Sciences Center, 2007

Keene, Alex Carl, Professor
Biology
PHD, University of Massachusetts, 2006

Koch, Matthias Daniel, Assistant Professor
Biology
PHD, University of Freiburg, Germany, 2015

Kuhn, Deborah, Instructional Assistant Professor
Biology
PHD, The University of South Florida, 2004

Leboeuf, Brigitte L, Instructional Associate Professor
Biology
PHD, Texas A&M University, 2009

Lee, Christopher P, Instructional Associate Professor
Biology
PHD, Texas A&M University, 2014

Li, Wanhe, Assistant Professor
Biology
PHD, Stony Brook University, 2011

Lillvis, Joshua, Assistant Professor
Biology
PHD, Georgia State University, 2012

Mashoof, Sara, Lecturer
Biology
PHD, Texas A&M University, 2014

McCreedy, Dylan A, Assistant Professor
Biology
PHD, Washington University, St. Louis, 2013

McKnight, Thomas D, Professor
Biology
PHD, University of Georgia, 1983

Menet, Jerome, Associate Professor
Biology
PHD, Louis Pasteur University, 2003

Merlin, Christine, Professor
Biology
PHD, University Pierre and Marie Curie, 2006

Mitchell, Angela M, Associate Professor
Biology
PHD, University of North Carolina at Chapel Hill, 2013

Moran, Rachel, Assistant Professor
Biology
PHD, University of Illinois at Urbana-Champaign, 2019

Moulton, Matt, Assistant Professor
Biology
PHD, University of Utah, 2017

Nan, Beiyan, Associate Professor
Biology
PHD, Peking University, 2007

Neuman, Benjamin W, Professor
Biology
PHD, University of Reading, UK, 2001

Paredes-Sabja, Daniel, Associate Professor
Biology
PHD, Oregon State University, 2009

Pepper, Alan E, Professor
Biology
PHD, University of California at Davis, 1990

Pilling, Darrell, Research Assistant Professor
Biology
PHD, University of Birmingham, 1995

Qin, Hongmin, Professor
Biology
PHD, Institute of Microbiology, Chinese Academy of Sciences, 1999

Ramsey, Jolene, Assistant Professor
Biology
PHD, Indiana University Bloomington, 2017

Rao, Asha, Instructional Professor
Biology
PHD, Texas A&M University, 2002

Riley, Bruce B, Professor
Biology
PHD, University of Wisconsin, Madison, 1990

Roy Sarkar, Tapasree, Assistant Professor
Biology
PHD, Purdue University, 2008

Ryan, Kathryn J, Instructional Associate Professor
Biology
PHD, Baylor College of Medicine, 1998

Sachs, Matthew S, Professor
Biology
PHD, Massachusetts Institute of Technology, 1986

Sangare, Lamba Omar, Assistant Professor
Biology
PHD, Lille 2 University, 2015

Sato, Shogo, Assistant Professor
Biology
PHD, Waseda University, 2012

Scott, Timothy P, Professor
Biology
PHD, Texas A&M University, 1996

Seely, Andrew, Instructional Associate Professor
Biology
PHD, Texas A&M University, 2017

Siegele, Deborah A, Associate Professor
Biology
PHD, University of Wisconsin, Madison, 1989

Smith, James L, Professor
Biology
PHD, University of Florida, 2002

Smotherman, Michael S, Professor
Biology
PHD, University of California at Los Angeles, 1998

Sorg, Joseph A, Professor
Biology
PHD, University of Chicago, 2006

St. Clair, Allison, Senior Lecturer
Biology
PHD, Texas A&M University, 2017

Strader, Marie, Assistant Professor
Biology
PHD, The University of Texas at Austin, 2017

Tag, Andrew, Instructional Associate Professor
Biology
PHD, Texas A&M University, 2003

Taylor, Lathrop, Instructional Associate Professor
Biology
PHD, Texas A&M University, 1985

Tewari, Bhanu, Assistant Professor
Biology
PHD, National Institute of Mental Health and Neurosciences, 2014

Versaw, Wayne K, Professor
Biology
PHD, University of Wisconsin, Madison, 1995

Wicksten, Mary K, Professor
Biology
PHD, University of Southern California, 1977

Wright, Rachel N, Instructional Assistant Professor
Biology
PHD, Texas A&M University, 2011

Xie, Runshi, Instructional Assistant Professor
Biology
PHD, Texas A&M University, 2022

Zarin, Aref, Assistant Professor
Biology
PHD, The University of Dublin, 2013

Zoran, Mark J, Professor
Biology
PHD, Iowa State University, 1987

Majors

- Bachelor of Arts in Biology (p. 298)
- Bachelor of Science in Biology (p. 299)
- Bachelor of Science in Microbiology (p. 301)
- Bachelor of Science in Molecular and Cell Biology (p. 302)
- Bachelor of Science in Neuroscience, Molecular and Cellular Neuroscience (p. 304)
- Bachelor of Science in Zoology (p. 305)

Minors

- Bioinformatics Minor (p. 306)
- Biology Minor (p. 307)
- Neuroscience Minor (p. 307)
- Pre-Medicine Minor (p. 308)

Courses

- Biology (BIOL) (p. 293)
- Botany (BOTN) (p. 297)
- Microbiology (MICR) (p. 298)
- Zoology (ZOOL) (p. 298)

Biology (BIOL)

BIOL 100 Horizons in Biology

Credits 0-1. 0-1 Lecture Hours. Introduction to the study of biology at Texas A&M University; gain knowledge of departmental and campus resources to assist and enhance the pursuit of a degree in biology, microbiology, molecular and cellular biology or zoology. **Prerequisites:** First-year and first-time-in-college freshman majoring in BIOL, MBIO, BMCB and ZOOL.

BIOL 101 Botany

Credits 4. 3 Lecture Hours. 3 Lab Hours. Structure, physiology and development of plants with an emphasis on seed plants. (Not open to students who have taken BIOL 111 and BIOL 112 or BIOL 113.); includes laboratory that reinforces and provides supplemental information related to the lecture topics.

BIOL 104 Contemporary Issues in Science - Cosmos, Earth and Humanity

Credits 3. 3 Lecture Hours. Science for citizens; interdisciplinary survey of contemporary issues in the science of our universe or cosmos, Earth and humanity, including the big bang, evolution, genetics, vaccines and drugs; future outlook on humanity, including artificial intelligence, cryptography and cybersecurity; critically analyze science presented in the news, on television and on social media; ethical implications of research. **Cross Listing:** ARSC 104 and PHYS 104.

BIOL 107 Zoology

Credits 4. 3 Lecture Hours. 3 Lab Hours. (BIOL 1313 and 1113, 1413) Zoology. Survey of animal life with respect to cell organization, genetics, evolution, diversity of invertebrates/vertebrates, anatomy/physiology, and interaction of animals with their environment; includes laboratory that reinforces and provides supplemental information related to lecture topics. (Not open to students who have taken BIOL 111 and BIOL 112 or BIOL 113).

BIOL 111 Introductory Biology I

Credits 4. 3 Lecture Hours. 3 Lab Hours. (BIOL 1306 and 1106, 1406) Introductory Biology I. First half of an introductory two-semester survey of contemporary biology that covers the chemical basis of life, structure and biology of the cell, molecular biology and genetics; includes laboratory that reinforces and provides supplemental information related to the lecture topics; also taught at Galveston campus.

BIOL 112 Introductory Biology II

Credits 4. 3 Lecture Hours. 3 Lab Hours. (BIOL 1307 and 1107, 1407) Introductory Biology II. The second half of an introductory two-semester survey of contemporary biology that covers evolution, history of life, diversity and form and function of organisms; includes laboratory that reinforces and provides supplemental information related to the lecture topics. **Prerequisite:** BIOL 111; also taught at Galveston campus.

BIOL 113 Essentials in Biology

Credits 3. 3 Lecture Hours. (BIOL 1308, BIOL 1408) Essentials in Biology. One-semester biology for non-majors; overview of essential biological concepts and their application to real world and contemporary issues; topics include evolution, biodiversity, cellular, molecular and forensic biology, genetics and heredity to scientific literacy, human impact on the environment, genetically modified organisms and emerging diseases.

BIOL 206 Introductory Microbiology

Credits 4. 3 Lecture Hours. 4 Lab Hours. (BIOL 2320 and 2120, BIOL 2321 and 2121, BIOL 2420, BIOL 2421) Introductory Microbiology. Basic microbiology of prokaryotes and eukaryotes; main topics include morphology, physiology, genetics, taxonomy, ecology, medically important species and immunology; mandatory laboratory designed to give hands-on experience and to reinforce basic principles. **Prerequisites:** BIOL 101, BIOL 107, BIOL 111, or BIOL 113; CHEM 119. May not be used for credit by biology, molecular and cell biology, microbiology, zoology, pre dentistry or premedicine majors.

BIOL 213 Molecular Cell Biology

Credits 3. 3 Lecture Hours. Exploration of the molecular basis of cell structure, function and evolution; gene regulation, cell division cycle, cancer, immunity, differentiation, multicellularity and photosynthesis. **Prerequisite:** BIOL 112 and CHEM 120.

BIOL 214 Genes, Ecology and Evolution

Credits 3. 3 Lecture Hours. A genetically-based introduction to the study of ecology and evolution; emphasis on the interactions of organisms with each other and with their environment. **Prerequisite:** BIOL 112.

BIOL 285 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Problems in various phases of plant, animal and microbial science. **Prerequisites:** Freshman or sophomore classification; approval of ranking professor in field chosen and Undergraduate Advising Office.

BIOL 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of biology. May be repeated for credit. **Prerequisite:** Approval of instructor.

BIOL 291 Research

Credits 0 to 4. 0 to 4 Other Hours. Active research of basic nature under the supervision of a Department of Biology faculty member. May be repeated for credit. **Prerequisites:** Freshman or sophomore classification and approval of faculty member.

BIOL 302 Careers in Biology

Credit 1. 1 Lecture Hour. Development of job search skills; utilization of career resources; self-assessment of career interests and career objectives; strategies for professional correspondence and networking; business etiquette and interviewing techniques; insight into life science career opportunities. **Prerequisites:** Junior or senior classification; department of biology majors only; or approval of instructor.

BIOL 318 Chordate Anatomy

Credits 4. 3 Lecture Hours. 3 Lab Hours. Classification, phylogeny, comparative anatomy, and biology of chordates; diversity, protochordates, vertebrate skeletons, shark and cat anatomy studied in laboratory. **Prerequisite:** BIOL 214 or approval of instructor.

BIOL 319 Integrated Human Anatomy and Physiology I

Credits 4. 3 Lecture Hours. 3 Lab Hours. Integrated approach to cellular, neural, skeletal, muscular anatomy and physiology; includes some histology, histopathology, radiology and clinical correlations. **Prerequisite:** BIOL 111 and BIOL 112, or BIOL 107.

BIOL 320 Integrated Human Anatomy and Physiology II

Credits 4. 3 Lecture Hours. 3 Lab Hours. Continuation of BIOL 319. Integrated approach to endocrine, cardiovascular, respiratory, digestive, urinary, reproductive and developmental anatomy and physiology; includes some histology, histopathology, radiology and clinical correlations. **Prerequisite:** BIOL 319 or approval of instructor.

BIOL 335 Invertebrate Zoology

Credits 4. 3 Lecture Hours. 3 Lab Hours. Morphology, taxonomy, natural history and phylogeny of invertebrate animals, with emphasis on biodiversity; class includes both lecture and lab. Labs include study of preserved material and demonstration of living animals in aquaria and terraria. **Prerequisite:** BIOL 214 or approval of instructor.

BIOL 349 Bioinformatics

Credits 3. 3 Lecture Hours. Comprehensive analysis of bioinformatics tools applicable to eukaryotic organisms; theoretical background of computational algorithms, with an emphasis on application of computational tools related to modern molecular biological research.

Prerequisites: BIOL 213; GENE 301, GENE 302, GENE 303, BIMS 320/GENE 320, or GENE 320/BIMS 320 recommended; or approval of instructor.

BIOL 350 Computational Genomics

Credits 3. 2 Lecture Hours. 2 Lab Hours. Hands-on approach to obtaining, organizing and analyzing genome-related data; emphasis on asking and answering biologically relevant questions by designing and performing experiments using computers; understanding biology from a computational perspective. **Prerequisite:** Junior or senior classification in life sciences, engineering, mathematics, chemistry.

BIOL 351 Fundamentals of Microbiology

Credits 4. 3 Lecture Hours. 4 Lab Hours. Introduction to modern microbiology with emphasis on prokaryotes; includes microbial cell structure, function, and physiology; genetics, evolution, and taxonomy; bacteriophage and viruses; pathogenesis and immunity; and ecology and biotechnology; includes laboratory experience with microbial growth and identification. **Prerequisites:** BIOL 112; CHEM 257, or CHEM 227 and CHEM 237, or CHEM 231; or approval of instructor; also taught at Galveston campus.

BIOL 352 Diagnostic Bacteriology

Credits 4. 2 Lecture Hours. 6 Lab Hours. Practical experience in handling, isolation and identification of pathogenic microorganisms using biochemical tests and rapid identification techniques. **Prerequisite:** BIOL 351 or approval of instructor.

BIOL 357 Ecology

Credits 3. 3 Lecture Hours. Analysis of ecosystems at organismal, population, interspecific and community levels. **Prerequisite:** BIOL 214 or approval of instructor.

BIOL 388 Principles of Animal Physiology

Credits 4. 3 Lecture Hours. 3 Lab Hours. Introduction to how animals function, including basics of neurophysiology, endocrinology, muscular, cardiovascular, respiratory, osmoregulatory, and metabolic physiology; broadly comparative in scope and encompassing adaptation of physiological systems to diverse environments; the laboratory stresses techniques used for monitoring and investigating physiological mechanisms and responses to environmental changes. **Prerequisites:** BIOL 214, CHEM 228, or CHEM 258, or approval of instructor.

BIOL 400 Tropical Ecology of Costa Rica

Credits 6. 2 Lecture Hours. 12 Lab Hours. Advanced field-intensive course conducted at multiple biological field stations located throughout Costa Rica; exposure to a wide variety of tropical ecological principles using largely observational and some sampling techniques; experience with amazing diversity of wildlife and habitats from hot, humid low land rainforests to the high elevations of the Talamanca páramo; development of a variety of natural history skills needed to understand the complex interactions of plants and animals in tropical environments; requires detailed journal of ecological principles observed while in Costa Rica to be used as basis for final written report; opportunities to experience the unique and friendly culture of one of Central America's most successful countries and discover how anthropogenic activities affect biodiversity.

Prerequisites: Junior or senior classification; approval of instructor; BIOL 357 preferred.

BIOL 401 Critical Writing in Biology

Credit 1. 1 Lecture Hour. Reading scientific papers and writing short synopses of papers with a focus on learning how to think and write like a scientist; fills the current Writing Intensive "W" course requirement for biology. **Prerequisite:** BIOL 213 or CHEM 228; junior or senior classification.

BIOL 402 Communicating Biological Research to the Public

Credit 1. 1 Lecture Hour. Interpretation of scientific papers; analysis of how research findings are communicated to lay audiences; creation of synopses of research findings for the general public. **Prerequisite:** BIOL 213 or CHEM 228; junior or senior classification.

BIOL 403 Medical Narratives

Credit 1. 1 Lecture Hour. Focus on reading and analyzing brief nonfiction stories about medicine; exploration of different perspectives and experiences with illness and medicine. **Prerequisites:** BIOL 213 or CHEM 228; junior or senior classification or approval of instructor.

BIOL 405 Comparative Endocrinology

Credits 3. 3 Lecture Hours. Basic principles of endocrinology including structure and functions of hormones in vertebrates; hormonal control of growth, metabolism, osmoregulation, and reproduction; endocrine techniques and mechanism of hormone action. **Prerequisites:** BIOL 214; CHEM 227 or CHEM 257.

BIOL 406/GENE 406 Bacterial Genetics

Credits 3. 3 Lecture Hours. A problem oriented course surveying the manipulation and mechanisms of genetic systems in bacteria; recombination, structure and regulation of bacterial genes, plasmids and phages. **Prerequisites:** BIOL 351; GENE 302. **Cross Listing:** GENE 406/BIOL 406.

BIOL 407 Biological Clocks

Credits 3. 3 Lecture Hours. Examination of the basic mechanisms of biological timing; in depth study of clocks in model organisms and the relationship between clocks and human health and disease. **Prerequisites:** BICH 431/GENE 431, BIOL 213 or GENE 431/BICH 431.

BIOL 411 Synthetic Biology of Microbes

Credits 3. 3 Lecture Hours. Underlying technical basis for synthetic biology; tools used to generate recombinant molecules; genetic circuitry and modules applied to bacteria; design and fabrication of genes, biological components and entire organisms; survey actual and theoretical applications. **Prerequisites:** BIOL 351 or BICH 431/GENE 431.

BIOL 413 Cell Biology

Credits 3. 3 Lecture Hours. Structure, function, and biogenesis of cells and their components; interpretation of dynamic processes of cells, including protein trafficking, motility, signaling and proliferation. **Prerequisites:** BIOL 213, GENE 302, or GENE 303; BICH 410 or BICH 440.

BIOL 414 Developmental Biology

Credits 3. 3 Lecture Hours. Concepts of development in systems ranging from bacteriophage to the mammalian embryo; use of recombinant DNA technology and embryo engineering to unravel the relationships between growth and differentiation, morphogenesis and commitment, aging and cancer. **Prerequisite:** BIOL 213 or GENE 302; BICH 410 or BICH 440.

BIOL 423 Cell Biology Laboratory

Credits 2. 1 Lecture Hour. 3 Lab Hours. Modern methods of study of cell structure and cell function. **Prerequisites:** BICH 410 and BIOL 413, or concurrent enrollment or approval of instructor.

BIOL 428 Cellular Neuroscience

Credits 3. 3 Lecture Hours. Cell biology, molecular biology and biophysics of neurons as it pertains to their fundamental role in the physiological basis of behavior; study of how neurons create, maintain and exploit electrical signals for information coding and transmission; principles of electrical and chemical signaling between neurons, and the role of intracellular signaling for signal modulation and synaptic plasticity; exploration of a broad range of state-of-the-art molecular tools currently used to study the nervous system, and the cellular basis for many of the most common neurological disorders affecting humans as well as the strategies and therapies for their treatment. **Prerequisites:** BIOL 213 and PSYC 235, or approval of instructor. **Cross Listing:** NRSC 428/BIOL 428.

BIOL 430 Biological Imaging

Credits 4. 3 Lecture Hours. 3 Lab Hours. Still and video photography and photomicrography, computerbased digital image analysis and processing of biological images; theory and principles of light and electron microscopy including transmission and scanning electron microscopy; optical contrast methods for light microscopy including phase contrast, DIC, polarizing light and confocal laser scanning microscopy. **Prerequisite:** Junior classification or approval of instructor.

BIOL 434/NRSC 434 Regulatory and Behavioral Neuroscience

Credits 3. 3 Lecture Hours. Cell biology and biophysics of neurons; functional organization of the vertebrate nervous system; physiological basis of behavior. **Prerequisites:** BIOL 213; BIOL 319, BIOL 320, BIOL 388, BIOL 413, or PBSI 235, or approval of instructor. **Cross Listing:** NRSC 434/BIOL 434.

BIOL 435 Laboratory for Regulatory and Behavioral Neuroscience

Credit 1. 3 Lab Hours. Study of modern methods and tools used to investigate nervous system structure and function. **Prerequisite:** BIOL 213; BIOL 319, BIOL 320, BIOL 388, BIOL 413, BIOL 428, BIOL 434/NRSC 434, NRSC 235, NRSC 335, NRSC 428/BIOL 428, NRSC 434/BIOL 434, or PBSI 235, or approval of instructor.

BIOL 438 Bacterial Physiology

Credits 3. 3 Lecture Hours. Structure and function of prokaryotic cells, with emphasis on evolutionary adaptations to different environmental, developmental, and pathogenic selections pressures; formation of teams and preparation of presentations on specific topics in microbiology. **Prerequisites:** BIOL 351; BIOL 406/GENE 406 or concurrent enrollment; BICH 410, BICH 431/GENE 431 and GENE 302 strongly recommended.

BIOL 440 Marine Biology

Credits 4. 3 Lecture Hours. 3 Lab Hours. Introduction to biology of common organisms inhabiting bays, beaches and near-shore oceanic waters with special reference to Gulf of Mexico biota; emphasis on classification, distribution, history, ecology, physiology, mutualism, predation, major community types and economic aspects of marine organisms. **Prerequisite:** BIOL 214 or approval of instructor.

BIOL 443 Early Stages of Animal Evolution

Credits 3. 2 Lecture Hours. 2 Lab Hours. Analysis of the earliest stages of animal evolution by integrating various scientific fields such as genomics, paleontology, metabolism, morphology, environment, development and behavior; includes hands-on exploration of fossils and modern animals to understand how evolution shaped our world. **Prerequisites:** BIOL 214; junior or senior classification.

BIOL 444/NRSC 444 Neural Development

Credits 3. 3 Lecture Hours. Cellular and molecular mechanisms of nervous system development including neural induction and the basis of complex behaviors; use of a wide range of model organisms with a specific emphasis on vertebrate nervous system development. **Prerequisites:** BIOL 213, BIOL 319, BIOL 320, BIOL 413, BIOL 388, or PBSI 235. **Cross Listing:** NRSC 444/BIOL 444.

BIOL 445 Biology of Viruses

Credits 3. 3 Lecture Hours. Structure, composition and life cycles of viruses; methods used to study viruses; their interaction with host cells; mechanisms of pathogenicity and cellular transformation; responses of the host to viral infection, and vaccine applications; in-depth study of the life cycles of the major classes of viruses and discussion of emerging viruses. **Prerequisite:** BIOL 213 or BIOL 351 or approval of instructor.

BIOL 450/BICH 450 Genomics

Credits 4. 3 Lecture Hours. 3 Lab Hours. The study of genomic data includes consideration of the logic behind the most important genomic approaches, as well as their capabilities and limitations in investigating biological processes; the science of accessing and manipulating genomic data; and practical applications, including development of an hypotheses-driven datamining experiment. **Prerequisites:** BIOL 213, GENE 301 or GENE 302, BICH 431/GENE 431 or GENE 431/BICH 431, or BIOL 351; junior or senior classification or approval of instructor. **Cross Listing:** BICH 450/BIOL 450.

BIOL 454 Immunology

Credits 3. 3 Lecture Hours. Introduction to basic immunological concepts and principles of serology. **Prerequisite:** BIOL 351 or equivalent or approval of instructor.

BIOL 455 Laboratory in Immunology

Credits 2. 6 Lab Hours. Practical application of serological principles which include precipitation, agglutination and blood banking principles; techniques in tissue culture and hybridoma technology also included. **Prerequisite:** BIOL 454 or registration therein.

BIOL 456 Medical Microbiology

Credits 3. 3 Lecture Hours. Microbiology, epidemiology and pathology of human pathogens with an emphasis on bacterial agents. **Prerequisite:** BIOL 351 or approval of instructor.

BIOL 461 Antimicrobial Agents

Credit 1. 1 Lecture Hour. Understanding of antimicrobial agents, limitations of use, biosynthesis and regulation, and challenges in development as new therapeutics. **Prerequisites:** BICH 410 or BICH 440 and BIOL 351 or VTPB 405.

BIOL 466 Principles of Evolution

Credits 3. 3 Lecture Hours. Evolutionary patterns, mechanisms and processes at the organismal, chromosomal and molecular levels; modes of adaptation and the behavior of genes in populations. **Prerequisite:** GENE 302 or approval of instructor.

BIOL 467 Integrative Animal Behavior

Credits 3. 3 Lecture Hours. Examines how behavior contributes to survival and reproduction, and how evolutionary history and ecological circumstance interact to shape the expression of behavior; focus on integrative nature of behavior; how the interaction of evolutionary processes, mechanistic constraints, and ecological demands determine behavioral strategies. **Prerequisite:** BIOL 214, BIOL 357, BIOL 388, BIOL 405, BIOL 434/NRSC 434, or BIOL 466, or approval of instructor.

BIOL 480 Departmental Colloquium

Credit 1. 1 Lecture Hour. Attend presentations given by renowned scientists from various fields of biology; learn about new developments in science; stay abreast of current and trending research topics. **Prerequisites:** Senior classification; majors in BIOL, MICRO, BMB and ZOO.

BIOL 481 Seminar in Biology

Credit 1. 1 Lecture Hour. Recent advances. **Prerequisite:** Senior undergraduate majors in biology, microbiology, botany or zoology.

BIOL 484 Internship

Credits 0 to 4. 0-1 Other Hours. Directed internship in a private firm or public agency to provide research experience appropriate to the student's degree program and career objectives. May be taken two times. **Prerequisite:** Approval of internship agency and advising office.

BIOL 485 Directed Studies

Credits 1 to 12. 1 to 12 Other Hours. Problems in various phases of plant, animal and bacteriological science. **Prerequisites:** Junior classification; approval of ranking professor in field chosen and Undergraduate Advising Office.

BIOL 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 10 Lab Hours. Selected topics in an identified area of biology. May be repeated once for credit.

BIOL 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Active research of basic nature under the supervision of a Department of Biology faculty member. May be taken two times. Registration in multiple sections of this course is possible within a given semester provided that the per semester credit hour limit is not exceeded. **Prerequisite:** Approval of departmental faculty member.

BIOL 492 Biomedical Therapeutics Development

Credit 1. 1 Lecture Hour. Basic aspects of the biotechnology business; includes key aspects of biotechnology patents, the main steps in preclinical drug development and company structure and funding. **Prerequisites:** BIOL 213 or equivalent; CHEM 227 and CHEM 228.

BIOL 495 Biology Capstone: Research Communication in the Life Sciences

Credits 2. 2 Lecture Hours. Culmination of capstone research experience; formalization of research results in written and oral forms; introduction to primary genres or scientific writing; apply principles of rhetoric and composition to diverse methods of professional communication. **Prerequisite:** BIOL 452, BICH 464/GENE 464, BIOL 400, BIOL 493 or BIOL 491 or approval of instructor.

BIOL 496 Ethics in Biological Research

Credit 1. 1 Lecture Hour. Fraud in science, how to recognize it, and how to avoid committing fraud; includes the basis of ethics and plagiarism, negotiation techniques and conflict management, the regulations and ethics covering animal and human experiments, record-keeping, data management and peer review. **Prerequisite:** BIOL 491, NRSC 491, BICH 491, GENE 491, BIMS 491, CHEM 491, BIOL 351, or BICH 410, or approval of instructor.

Botany (BOTN)

BOTN 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of botany. May be repeated for credit. **Prerequisite:** Approval of instructor.

BOTN 291 Research

Credits 1 to 4. 1 to 4 Other Hours. Active research of basic nature under the supervision of a Department of Biology faculty member. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

BOTN 485 Directed Studies

Credits 3. 3 Lecture Hours. Problems in various phases of plant, animal and bacteriological science. **Prerequisites:** Junior classification; approval of ranking professor in field chosen and Undergraduate Advising Office.

BOTN 491 Research

Credits 1 to 4. 1 to 4 Other Hours. Active research of basic nature under the supervision of a Department of Biology faculty member. **Prerequisites:** Junior or senior classification and approval of instructor.

Microbiology (MICR)

MICR 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of microbiology. May be repeated for credit. **Prerequisite:** Approval of instructor.

MICR 291 Research

Credits 1 to 4. 1 to 4 Other Hours. Active research of basic nature under the supervision of a Department of Biology faculty member. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

MICR 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of microbiology. May be repeated once for credit.

MICR 491 Research

Credits 1 to 4. 1 to 4 Other Hours. Active research of basic nature under the supervision of a Department of Biology faculty member. **Prerequisites:** Junior or senior classification and approval of instructor.

Zoology (ZOOL)

ZOOL 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of zoology. May be repeated for credit. **Prerequisite:** Approval of instructor.

ZOOL 291 Research

Credits 1 to 4. 1 to 4 Other Hours. Active research of basic nature under the supervision of a Department of Biology faculty member. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

ZOOL 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of zoology. May be repeated once for credit.

ZOOL 491 Research

Credits 1 to 4. 1 to 4 Other Hours. Active research of basic nature under the supervision of a Department of Biology faculty member. **Prerequisites:** Junior or senior classification and approval of instructor.

Biology - BA

The Bachelor of Arts (BA) in Biology, through the availability of a large number of electives, gives students maximum flexibility in earning a biology degree.

The BA has a minor requirement that includes advanced courses in a discipline other than biology and provides students with the opportunity to include significant coursework in areas such as foreign language, business, education, or social sciences. The BA program is recommended for students with broad educational objectives or who intend to pursue further education in areas such as allied health professions, professional schools, or teaching certification.

Program Requirements

First Year		Semester
Fall		Credit Hours
BIOL 111	Introductory Biology I ^{1,2}	4
CHEM 119	Fundamentals of Chemistry I ²	4
Select one of the following: ^{2,3}		4
MATH 147	Calculus I for Biological Sciences	
MATH 151	Engineering Mathematics I	
MATH 171	Calculus I	
Communication (p. 27)		3
Semester Credit Hours		15
Spring		
BIOL 112	Introductory Biology II ^{1,2}	4
CHEM 120	Fundamentals of Chemistry II ²	4
Select one of the following: ²		3-4
MATH 148	Calculus II for Biological Sciences	
MATH 152	Engineering Mathematics II	
MATH 172	Calculus II	
STAT 201	Elementary Statistical Inference	
Communication (p. 27)		3
Semester Credit Hours		14
Second Year		
Fall		
BIOL 213	Molecular Cell Biology ²	3
PHYS 201	College Physics	4
Select one of the following: ²		4
CHEM 257	Organic Chemistry I - Structure and Function	
CHEM 227 & CHEM 237	Organic Chemistry I and Organic Chemistry Laboratory	
American history (p. 30) ^{4,5}		3
Semester Credit Hours		14
Spring		
BIOL 214	Genes, Ecology and Evolution ²	3
PHYS 202	College Physics	4
Select one of the following: ²		4
CHEM 258	Organic Chemistry II - Reactivity and Applications	
CHEM 228 & CHEM 238	Organic Chemistry II and Organic Chemistry Laboratory	
American history (p. 30) ^{4,5}		3
Semester Credit Hours		14
Total Semester Credit Hours		57

¹ Grade of C or better required.
² Must be completed by start of 5th full semester.
³ Students may not use MATH 142 to satisfy this requirement.
⁴ Students seeking teacher certification must take HIST 105 and HIST 106. Other students may choose HIST 105 and HIST 106 or any 6 hours of American history courses (3 hours may be in Texas history).

⁵ Students successfully completing the required four semesters of upper-level ROTC courses may substitute these courses for 3 hours of American history and 3 hours of government/political science.

The following are CBK courses and must be completed prior to the start of 5th full semester: BIOL 111, BIOL 112, BIOL 213, BIOL 214, CHEM 119, CHEM 120, CHEM 257 (orCHEM 227 & CHEM 237), CHEM 258 (orCHEM 228 & CHEM 238), MATH 147, MATH 148 or STAT 201.

Third Year

Fall		Semester Credit Hours
BICH 410 or BICH 440	Comprehensive Biochemistry I or Biochemistry I	3
POLS 206	American National Government ⁵	3
STAT 312	Statistics for Biology	3
Select one of the following:		1
BICH 412	Biochemistry Laboratory I	
BICH 414	Biochemical Techniques I	
BICH 432/ GENE 432	Laboratory in Molecular Genetics	
General elective ⁶		4
Semester Credit Hours		14

Spring

BICH 411 or BICH 441	Comprehensive Biochemistry II or Biochemistry II	3
POLS 207	State and Local Government ⁵	3
Select one of the following: ⁷		3
BICH 464/ GENE 464	Bacteriophage Genomics	
BIOL 300-499 (p. 951)		
GENE 302 & GENE 314	Principles of Genetics and Principles of Genetics Laboratory	
GENE 400-499 (p. 1053)		
OCNG 320	Biological Oceanography	
VIBS 343	Histology	
VIBS 443	Biology of Mammalian Cells and Tissues	
General elective ⁶		6
Semester Credit Hours		15

Fourth Year

Fall		Semester Credit Hours
Select 7 hours from the following: ⁷		7
BICH 464/ GENE 464	Bacteriophage Genomics	
BIOL 300-499 (p. 951)		
GENE 302 & GENE 314	Principles of Genetics and Principles of Genetics Laboratory	
GENE 400-499 (p. 1053)		
OCNG 320	Biological Oceanography	
VIBS 343	Histology	
VIBS 443	Biology of Mammalian Cells and Tissues	
Social and behavioral sciences (p. 31)		3
General elective ⁶		7
Semester Credit Hours		17

Spring

Select 7 hours from the following: ⁷		4
BICH 464/ GENE 464	Bacteriophage Genomics	
BIOL 300-499 (p. 951)		
GENE 302 & GENE 314	Principles of Genetics and Principles of Genetics Laboratory	
GENE 400-499 (p. 1053)		
OCNG 320	Biological Oceanography	
VIBS 343	Histology	
VIBS 443	Biology of Mammalian Cells and Tissues	
Creative arts (p. 30)		3
Language, philosophy and culture (p. 28)		3
General elective ⁶		7
Semester Credit Hours		17
Total Semester Credit Hours		63

⁶ Select from any 100-499 course not used elsewhere. (Except AGLS 101; ASCC 101, ASCC 102, ASCC 289; BIMS 101; BIOL 101, BIOL 107, BIOL 113, BIOL 206; CHEM 106, CHEM 116; MATH 102, MATH 142.) Only one KINE 199 may be used as a general elective.

⁷ Two courses in the major must be designated as writing intensive. A maximum combination of 7 hours of BIOL484/485/491 may be applied.

Total Program Hours 120 Biology - BS

The Bachelor of Science in Biology is designed for students to obtain a comprehensive, solid foundation in the major branches of Biology.

The degree provides the opportunity for extensive study across the breadth of biological disciplines, ranging from molecular and cellular biology to ecology and evolution. This degree plan is recommended for students preparing for graduate programs in biological sciences or any professional programs in health and medical sciences such as medical, dental or veterinary schools.

Program Requirements

First Year

Fall		Semester Credit Hours
BIOL 111	Introductory Biology I ^{1,2}	4
CHEM 119	Fundamentals of Chemistry I ²	4
Select one of the following: ^{2,3}		4
MATH 147	Calculus I for Biological Sciences	
MATH 151	Engineering Mathematics I	
MATH 171	Calculus I	
Communication (p. 27)		3
Semester Credit Hours		15

Spring

BIOL 112	Introductory Biology II ^{1,2}	4
CHEM 120	Fundamentals of Chemistry II ²	4
Select one of the following: ²		3-4
MATH 148	Calculus II for Biological Sciences	

MATH 152	Engineering Mathematics II	
MATH 172	Calculus II	
STAT 201	Elementary Statistical Inference	
Communication (p. 27)		3
Semester Credit Hours		14
Second Year		
Fall		
BIOL 213	Molecular Cell Biology ²	3
PHYS 201	College Physics	4
Select one of the following: ²		4
CHEM 257	Organic Chemistry I - Structure and Function	
CHEM 227 & CHEM 237	Organic Chemistry I and Organic Chemistry Laboratory	
American history (p. 30) ^{4,5}		3
Semester Credit Hours		14
Spring		
BIOL 214	Genes, Ecology and Evolution ²	3
PHYS 202	College Physics	4
Select one of the following: ²		4
CHEM 258	Organic Chemistry II - Reactivity and Applications	
CHEM 228 & CHEM 238	Organic Chemistry II and Organic Chemistry Laboratory	
American history (p. 30) ^{4,5}		3
Semester Credit Hours		14
Total Semester Credit Hours		57

¹ Grade of C or better required.

² Must be completed by start of 5th full semester.

³ Students may not use MATH 142 to satisfy this requirement.

⁴ Students seeking teacher certification must take HIST 105 and HIST 106. Other students may choose HIST 105 and HIST 106 or any 6 hours of American history courses (3 hours may be in Texas history).

⁵ Students successfully completing the required four semesters of upper-level ROTC courses may substitute these courses for 3 hours of American history and 3 hours of government/political science.

The following are CBK courses and must be completed prior to the start of 5th full semester: BIOL 111, BIOL 112, BIOL 213, BIOL 214, CHEM 119, CHEM 120, CHEM 257 (orCHEM 227 & CHEM 237), CHEM 258 (orCHEM 228 & CHEM 238), MATH 147, MATH 148 or STAT 201.

Third Year

Fall		Semester Credit Hours
BICH 410 or BICH 440	Comprehensive Biochemistry I or Biochemistry I	3
GENE 302 & GENE 314	Principles of Genetics and Principles of Genetics Laboratory	4
STAT 312	Statistics for Biology	3
Select one of the following:		1
BICH 412	Biochemistry Laboratory I	
BICH 414	Biochemical Techniques I	

BICH 432/ GENE 432	Laboratory in Molecular Genetics	
General elective ⁶		4
Semester Credit Hours		15
Spring		
BICH 411 or BICH 441	Comprehensive Biochemistry II or Biochemistry II	3
Select 4 hours from the following: ⁷		4
BICH 464/ GENE 464	Bacteriophage Genomics	
BIOL 300-499 (p. 951)		
GENE 400-499 (p. 1053)		
OCNG 320	Biological Oceanography	
VIBS 343 or VIBS 443	Histology or Biology of Mammalian Cells and Tissues	
Social and behavioral sciences (p. 31)		3
General electives ⁶		6
Semester Credit Hours		16
Fourth Year		
Fall		
POLS 206	American National Government ⁵	3
Select 7 hours from the following: ⁷		7
BICH 464/ GENE 464	Bacteriophage Genomics	
BIOL 300-499 (p. 951)		
GENE 400-499 (p. 1053)		
OCNG 320	Biological Oceanography	
VIBS 343 or VIBS 443	Histology or Biology of Mammalian Cells and Tissues	
Language, philosophy and culture (p. 28)		3
General elective ⁶		3
Semester Credit Hours		16
Spring		
POLS 207	State and Local Government ⁵	3
Select 7 hours from the following: ⁷		7
BICH 464/ GENE 464	Bacteriophage Genomics	
BIOL 300-499 (p. 951)		
GENE 400-499 (p. 1053)		
OCNG 320	Biological Oceanography	
VIBS 343 or VIBS 443	Histology or Biology of Mammalian Cells and Tissues	
Creative arts (p. 30)		3
General elective ⁶		3
Semester Credit Hours		16
Total Semester Credit Hours		63

⁶ Select from any 100-499 course not used elsewhere. (Except AGLS 101; ASCC 101, ASCC 102, ASCC 289; BIMS 101; BIOL 101, BIOL 107 BIOL 113, BIOL 206; CHEM 106, CHEM 116; MATH 102, MATH 142.) Only one KINE 199 may be used as a general elective.

⁷ Two courses in the major must be designated as writing intensive. A maximum combination of 7 hours of BIOL 484, 485, 491 may be applied.

Total Program Hours 120

Microbiology - BS

The Bachelor of Science (BS) in Microbiology is designed to provide a comprehensive education in the biology of microorganisms.

A graduate of this program will have a thorough grounding in the classical areas of microbial physiology and biochemistry, microbial genetics, and developing areas like the molecular biology of microorganisms. The curriculum provides excellent training toward a career in any of the many areas of industrial microbiology and public health services. It is also an ideal preparation for advanced study or professional school in medicine, dentistry and other related fields, especially medical technology and biotechnology.

Program Requirements

First Year

Fall		Semester Credit Hours
BIOL 111	Introductory Biology I ^{1,2}	4
CHEM 119	Fundamentals of Chemistry I ²	4
Select one of the following: ^{2,3}		4
MATH 147	Calculus I for Biological Sciences	
MATH 151	Engineering Mathematics I	
MATH 171	Calculus I	
Communication (p. 27)		3
Semester Credit Hours		15

Spring		
BIOL 112	Introductory Biology II ^{1,2}	4
CHEM 120	Fundamentals of Chemistry II ²	4
Select one of the following: ²		3-4
MATH 148	Calculus II for Biological Sciences	
MATH 152	Engineering Mathematics II	
MATH 172	Calculus II	
STAT 201	Elementary Statistical Inference	
Communication (p. 27)		3
Semester Credit Hours		14

Second Year

Fall		
BIOL 213	Molecular Cell Biology ²	3
PHYS 201	College Physics	4
Select one of the following: ²		4
CHEM 257	Organic Chemistry I - Structure and Function	
CHEM 227 & CHEM 237	Organic Chemistry I and Organic Chemistry Laboratory	
American history (p. 30) ^{4,5}		3
Semester Credit Hours		14

Spring

BIOL 214	Genes, Ecology and Evolution ²	3
PHYS 202	College Physics	4
Select one of the following: ²		4
CHEM 258	Organic Chemistry II - Reactivity and Applications	
CHEM 228 & CHEM 238	Organic Chemistry II and Organic Chemistry Laboratory	
American history (p. 30) ^{4,5}		3
Semester Credit Hours		14
Total Semester Credit Hours		57

¹ Grade of C or better required.

² Must be completed by start of 5th full semester.

³ Students may not use MATH 142 to satisfy this requirement.

⁴ Students seeking teacher certification must take HIST 105 and HIST 106. Other students may choose HIST 105 and HIST 106 or any 6 hours of American history courses (3 hours may be in Texas history).

⁵ Students successfully completing the required four semesters of upper-level ROTC courses may substitute these courses for 3 hours of American history and 3 hours of government/political science.

The following are CBK courses and must be completed prior to the start of 5th full semester: BIOL 111, BIOL 112, BIOL 213, BIOL 214, CHEM 119, CHEM 120, CHEM 257 (or CHEM 227 & CHEM 237), CHEM 258 (or CHEM 228 & CHEM 238), MATH 147, MATH 148 or STAT 201.

Third Year

Fall		Semester Credit Hours
BICH 410 or BICH 440	Comprehensive Biochemistry I or Biochemistry I	3
BIOL 351	Fundamentals of Microbiology	4
GENE 302 & GENE 314	Principles of Genetics and Principles of Genetics Laboratory	4
STAT 312	Statistics for Biology	3
Semester Credit Hours		14

Spring

BICH 411 or BICH 441	Comprehensive Biochemistry II or Biochemistry II	3
BICH 414 or BICH 432/GENE 432	Biochemical Techniques I or Laboratory in Molecular Genetics	2
POLS 206	American National Government ⁵	3
Social and behavioral science (p. 31)		3
General elective ⁶		6
Semester Credit Hours		17

Fourth Year

Fall		
BIOL 406/GENE 406	Bacterial Genetics	3
BIOL 445 or BIOL 454	Biology of Viruses or Immunology	3
POLS 207	State and Local Government ⁵	3
Language, philosophy and culture (p. 28)		3

Directed electives ^{7,8}	4
Semester Credit Hours	16
Spring	
BIOL 438 Bacterial Physiology	3
Creative arts (p. 30)	3
Directed elective ^{7,8}	3
General elective ⁷	7
Semester Credit Hours	16
Total Semester Credit Hours	63

⁶ Select from any 100-499 course not used elsewhere. (Except AGLS 101; ASCC 101, ASCC 102, ASCC 289; BIMS 101; BIOL 101, BIOL 107, BIOL 113, BIOL 206; CHEM 106, CHEM 116; MATH 102, MATH 142.) Only one KINE 199 may be used as a general elective.

⁷ Select directed electives from the list below.

⁸ Two courses in the major must be designated as writing intensive.

Total Program Hours 120 Directed Electives

Code	Title	Semester Credit Hours
Select one course from the following:		
BIOL 300-499 (p. 951)		
OCNG 320	Biological Oceanography	4
Select remaining courses from the following:		
Industrial Microbiology		
BIOL 352	Diagnostic Bacteriology	4
BIOL 414	Developmental Biology	3
BIOL 430	Biological Imaging	4
BIOL 450/ BICH 450	Genomics	4
BIOL 461	Antimicrobial Agents	1
BESC 401	Bioenvironmental Microbiology	3
BESC 402	Microbial Processes in Bioremediation	3
Environmental Microbiology		
BIOL 352	Diagnostic Bacteriology	4
BIOL 430	Biological Imaging	4
BIOL 440	Marine Biology	4
SCSC 405	Soil and Water Microbiology	3
BESC 401	Bioenvironmental Microbiology	3
BESC 402	Microbial Processes in Bioremediation	3
BESC 403	Sampling and Environmental Monitoring	3
Medical Microbiology		
BIOL 352	Diagnostic Bacteriology	4
BIOL 445	Biology of Viruses	3
BIOL 454	Immunology	3
BIOL 455	Laboratory in Immunology	2
BIOL 456	Medical Microbiology	3
VTPB 487	Biomedical Parasitology	4
Molecular Microbiology		

BIOL 352	Diagnostic Bacteriology	4
BIOL 413	Cell Biology	3
BIOL 430	Biological Imaging	4
BIOL 445	Biology of Viruses	3

Molecular and Cell Biology - BS

Students who select Molecular and Cell Biology as their major will receive a strong background in the cellular and molecular aspects of biology with particular emphasis on eukaryotes. The major provides an excellent foundation for a career in biotechnology, genetic engineering, MD/PhD programs or basic biological research.

Program Requirements

First Year

Fall		Semester Credit Hours
BIOL 111	Introductory Biology I ^{1,2}	4
CHEM 119	Fundamentals of Chemistry I ²	4
Select one of the following: ^{2,3}		4
MATH 147	Calculus I for Biological Sciences	
MATH 151	Engineering Mathematics I	
MATH 171	Calculus I	
Communication (p. 27)		3
Semester Credit Hours		15

Spring

BIOL 112	Introductory Biology II ^{1,2}	4
CHEM 120	Fundamentals of Chemistry II ²	4
Select one of the following: ²		3-4
MATH 148	Calculus II for Biological Sciences	
MATH 152	Engineering Mathematics II	
MATH 172	Calculus II	
STAT 201	Elementary Statistical Inference	
Communication (p. 27)		3
Semester Credit Hours		14

Second Year

Fall		
BIOL 213	Molecular Cell Biology ²	3
PHYS 201	College Physics	4
Select one of the following: ²		4
CHEM 257	Organic Chemistry I - Structure and Function	
CHEM 227	Organic Chemistry I & CHEM 237 and Organic Chemistry Laboratory	
American history (p. 30) ^{4,5}		3
Semester Credit Hours		14

Spring

BIOL 214	Genes, Ecology and Evolution ²	3
PHYS 202	College Physics	4
Select one of the following: ²		4
CHEM 258	Organic Chemistry II - Reactivity and Applications	

CHEM 228 & CHEM 238	Organic Chemistry II and Organic Chemistry Laboratory	
American history (p. 30) ^{4,5}		3
Semester Credit Hours		14
Total Semester Credit Hours		57

¹ Grade of C or better required.

² Must be completed by start of 5th full semester.

³ Students may not use MATH 142 to satisfy this requirement.

⁴ Students seeking teacher certification must take HIST 105 and HIST 106. Other students may choose HIST 105 and HIST 106 or any 6 hours of American history courses (3 hours may be in Texas history).

⁵ Students successfully completing the required four semesters of upper-level ROTC courses may substitute these courses for 3 hours of American history and 3 hours of government/political science.

The following are CBK courses and must be completed prior to the start of 5th full semester: BIOL 111, BIOL 112, BIOL 213, BIOL 214, CHEM 119, CHEM 120, CHEM 257 (orCHEM 227 & CHEM 237), CHEM 258 (orCHEM 228 & CHEM 238), MATH 147, MATH 148 or STAT 201.

Third Year

Fall		Semester Credit Hours
BICH 410 or BICH 440	Comprehensive Biochemistry I or Biochemistry I	3
BIOL 351	Fundamentals of Microbiology	4
GENE 302 & GENE 314	Principles of Genetics and Principles of Genetics Laboratory	4
STAT 312	Statistics for Biology	3
Semester Credit Hours		14

Spring

BICH 411 or BICH 441	Comprehensive Biochemistry II or Biochemistry II	3
BICH 414 or BICH 432/ GENE 432	Biochemical Techniques I or Laboratory in Molecular Genetics	2
BICH 431/ GENE 431	Molecular Genetics	3
Social and behavioral sciences (p. 31)		3
General elective ⁶		5
Semester Credit Hours		16

Fourth Year

Fall		
BIOL 413	Cell Biology	3
BIOL 414	Developmental Biology	3
BIOL 423	Cell Biology Laboratory	2
POLS 206	American National Government ⁵	3
Language, philosophy and culture (p. 28)		3
General elective ⁶		3
Semester Credit Hours		17

Spring

POLS 207	State and Local Government ⁵	3
Creative arts (p. 30)		3
Directed electives ^{7, 8}		6

General elective ⁶	4
Semester Credit Hours	16
Total Semester Credit Hours	63

⁶ Select from any 100-499 course not used elsewhere. (Except AGLS 101; ASCC 101, ASCC 102, ASCC 289; BIMS 101; BIOL 101, BIOL 107, BIOL 113, BIOL 206; CHEM 106, CHEM 116; MATH 102, MATH 142.) Only one KINE 199 may be used as a general elective.

⁷ Directed electives choose from list below.

⁸ Two courses in the major must be designated as writing intensive.

Total Program Hours 120 Directed Electives

Code	Title	Semester Credit Hours

Select one course from the following:

BICH 464/ GENE 464	Bacteriophage Genomics	3

BIOL 300-499 (p. 951)

OCNG 320	Biological Oceanography	4

Select remaining courses from the following:

Cell Biology		
BIOL 430	Biological Imaging	4
VIBS 343	Histology	4
VIBS 443	Biology of Mammalian Cells and Tissues	4

Organismal Biology

BIOL 388	Principles of Animal Physiology	4
BIOL 434/ NRSC 434	Regulatory and Behavioral Neuroscience	3
BIOL 435	Laboratory for Regulatory and Behavioral Neuroscience	1
BIOL 466	Principles of Evolution	3
BIOL 467	Integrative Animal Behavior	3
HORT 313	Introduction to Plant Physiology	3

Molecular and Computational Biology

BIOL 349	Bioinformatics	3
BIOL 450/ BICH 450	Genomics	4
BICH 432/ GENE 432	Laboratory in Molecular Genetics	2
CHEM 327	Physical Chemistry I	3
CHEM 328	Physical Chemistry II	3

Microbiology

BIOL 406/ GENE 406	Bacterial Genetics	3
BIOL 438	Bacterial Physiology	3
BIOL 445	Biology of Viruses	3
BIOL 454	Immunology	3
BIOL 455	Laboratory in Immunology	2
BIOL 456	Medical Microbiology	3

Neuroscience - BS, Molecular and Cellular Neuroscience

The Bachelor of Science (BS) in Neuroscience degree track administered by the Department of Biology focuses on the biological basis of neurological processes at the molecular and cellular level.

Neuroscience is the study of the nervous system and its impact on behavior and cognitive functions. This interdisciplinary field integrates several areas of study, including biology, chemistry, physics, biochemistry, psychology, and medicine. The core courses for this degree include a foundation in the life sciences, and a foundational sequence in neuroscience that will prepare students for more advanced NRSC courses. Students completing the BS in Neuroscience, Molecular and Cellular Neuroscience track, will be well prepared for jobs in medical and biotechnology fields, and they will be competitive for admission to medical or graduate school.

Program Requirements

First Year

Fall		Semester Credit Hours
BIOL 111	Introductory Biology I ^{1,2}	4
CHEM 119	Fundamentals of Chemistry I ¹	4
ENGL 104	Composition and Rhetoric ²	3
MATH 147 or MATH 151	Calculus I for Biological Sciences ¹ or Engineering Mathematics I	4
Semester Credit Hours		15
Spring		
BIOL 112	Introductory Biology II ^{1,2}	4
CHEM 120	Fundamentals of Chemistry II ¹	4
PBSI 107	Introduction to Psychology	3
Select one of the following: ¹		3-4
MATH 148	Calculus II for Biological Sciences	
MATH 152	Engineering Mathematics II	
STAT 201	Elementary Statistical Inference	
Communication (p. 27) ³		3
Semester Credit Hours		17

Second Year

Fall		
BIOL 213	Molecular Cell Biology ¹	3
PHYS 201	College Physics	4
Select one of the following: ¹		4
CHEM 227 & CHEM 237	Organic Chemistry I and Organic Chemistry Laboratory ¹	
CHEM 257	Organic Chemistry I - Structure and Function ¹	
General elective ⁴		3
Semester Credit Hours		14
Spring		
PBSI 235 or VIBS 277	Introduction to Behavioral and Cognitive Neuroscience ^{1,2} or Essential Neuroscience - From Molecules to Nervous Systems	3

PHYS 202	College Physics	4
POLS 206	American National Government	3
Select one of the following: ¹		4
CHEM 228 & CHEM 238	Organic Chemistry II and Organic Chemistry Laboratory ¹	
CHEM 258	Organic Chemistry II - Reactivity and Applications ¹	
Semester Credit Hours		14
Third Year		
Fall		
BICH 410	Comprehensive Biochemistry I	3
STAT 312	Statistics for Biology	3
American history (p. 30) ³		3
Creative arts (p. 30) ³		3
General elective ⁴		4
Semester Credit Hours		16
Spring		
BICH 411	Comprehensive Biochemistry II	3
BIOL 428	Cellular Neuroscience	3
American history (p. 30) ³		3
Language, philosophy and culture (p. 28) ³		3
General elective ⁴		3
Semester Credit Hours		15
Fourth Year		
Fall		
BIOL 413	Cell Biology	3
BIOL 434/ NRSC 434	Regulatory and Behavioral Neuroscience	3
BIOL 435	Laboratory for Regulatory and Behavioral Neuroscience	1
Neuroscience electives ⁵		6
Semester Credit Hours		13
Spring		
POLS 207	State and Local Government	3
Neuroscience electives ⁵		6
General electives ⁴		6-7
Semester Credit Hours		16
Total Semester Credit Hours		120

¹ Course must be completed by start of fifth full semester.

² Must earn a grade of C or better.

³ Select any approved course in area from University Core Curriculum (p.) list.

⁴ Select from any 100-499 course not used elsewhere except AGLS 101; ASCC 101; ASCC 102; ASCC 289; BIMS 101; BIOL 101, BIOL 107, BIOL 113, BIOL 206; CHEM 106, CHEM 116; ECCB 101 MATH 102; MATH 142. Only one KINE 199 can be used as a general elective. Three hours must be in the area of International and Cultural Diversity (p. 49), and three hours must be in the area of Cultural Discourse (p. 48). These may be in addition to other University Core Curriculum courses, or, if a course in this category satisfies another area of the Core, it can be used to meet both requirements.

⁵ Select from BIOL 388; BIOL 430, BIOL 444/NRSC 444, BIOL 467; NRSC 300-499 (p. 1167); PBSI 311, PBSI 320, PBSI 332, PBSI 333,

PBSI 336, PBSI 340, PBSI 350, PBSI 360, PBSI 440, VIBS 450. Maximum combination of 7 hours from 485 and 491 may be used.

The following are CBK courses and must be completed prior to the start of 5th full semester: BIOL 111, BIOL 112, BIOL 213; PBSI 235 or VIBS 277; CHEM 119, CHEM 120, CHEM 257 or CHEM 227 and CHEM 237, CHEM 258 or CHEM 228 and CHEM 238; MATH 147, MATH 148 or STAT 201.

Graduation requirements must include two courses in the major with the Writing Intensive (UWRT) attribute. Please see advisor for options.

Zoology - BS

The Bachelor of Science in Zoology degree program is designed to expose students to all aspects of the study of animals.

Following foundation courses on the principles of vertebrate and invertebrate zoology, students may select from a broad range of classes in animal biology, ranging from cellular and developmental biology, physiology, and anatomy to ecology and evolution. Graduates enter into advanced studies in zoology, specialized zoological fields in agriculture and renewable resources, or such professional fields as medicine, veterinary medicine, dentistry and other health-related areas.

Program Requirements

First Year

Fall		Semester Credit Hours
BIOL 111	Introductory Biology I ^{1,2}	4
CHEM 119	Fundamentals of Chemistry I ²	4
Select one of the following: ^{2,3}		4
MATH 147	Calculus I for Biological Sciences	
MATH 151	Engineering Mathematics I	
MATH 171	Calculus I	
Communication (p. 27)		3
Semester Credit Hours		15
Spring		
BIOL 112	Introductory Biology II ^{1,2}	4
CHEM 120	Fundamentals of Chemistry II ²	4
Select one of the following: ²		3-4
MATH 148	Calculus II for Biological Sciences	
MATH 152	Engineering Mathematics II	
MATH 172	Calculus II	
STAT 201	Elementary Statistical Inference	
Communication (p. 27)		3
Semester Credit Hours		14

Second Year

Fall		
BIOL 213	Molecular Cell Biology ²	3
PHYS 201	College Physics	4
Select one of the following: ²		4
CHEM 257	Organic Chemistry I - Structure and Function	

CHEM 227 & CHEM 237	Organic Chemistry I and Organic Chemistry Laboratory	
American history (p. 30) ^{4,5}		3
Semester Credit Hours		14
Spring		
BIOL 214	Genes, Ecology and Evolution ²	3
PHYS 202	College Physics	4
Select one of the following: ²		4
CHEM 258	Organic Chemistry II - Reactivity and Applications	
CHEM 228 & CHEM 238	Organic Chemistry II and Organic Chemistry Laboratory	
American history (p. 30) ^{4,5}		3
Semester Credit Hours		14
Total Semester Credit Hours		57

¹ Grade of C or better required.

² Must be completed by start of 5th full semester.

³ Students may not use MATH 142 to satisfy this requirement.

⁴ Students seeking teacher certification must take HIST 105 and HIST 106. Other students may choose HIST 105 and HIST 106 or any 6 hours of American history courses (3 hours may be in Texas history).

⁵ Students successfully completing the required four semesters of upper-level ROTC courses may substitute these courses for 3 hours of American history and 3 hours of government/political science.

The following are CBK courses and must be completed prior to the start of 5th full semester: BIOL 111, BIOL 112, BIOL 213, BIOL 214, CHEM 119, CHEM 120, CHEM 257 (orCHEM 227 & CHEM 237), CHEM 258 (orCHEM 228 & CHEM 238), MATH 147, MATH 148 or STAT 201.

Third Year

Fall		Semester Credit Hours
BICH 410 or BICH 440	Comprehensive Biochemistry I or Biochemistry I	3
BIOL 318	Chordate Anatomy	4
STAT 312	Statistics for Biology	3
Select one of the following:		1
BICH 412	Biochemistry Laboratory I	
BICH 414	Biochemical Techniques I	
BICH 432/ GENE 432	Laboratory in Molecular Genetics	
General elective ⁶		6
Semester Credit Hours		17
Spring		
BICH 411 or BICH 441	Comprehensive Biochemistry II or Biochemistry II	3
BIOL 388	Principles of Animal Physiology	4
GENE 302 & GENE 314	Principles of Genetics and Principles of Genetics Laboratory	4
Social and behavioral science (p. 31)		3
Semester Credit Hours		14

Fourth Year**Fall**

BIOL 466	Principles of Evolution	3
POLS 206	American National Government ⁵	3
Creative arts (p. 30)		3
Language, philosophy and culture (p. 28)		3
Directed elective ^{7,8}		4
Semester Credit Hours		16

Spring

BIOL 335	Invertebrate Zoology	4
POLS 207	State and Local Government ⁵	3
Directed elective ^{7,8}		4
General elective ⁶		5
Semester Credit Hours		16
Total Semester Credit Hours		63

⁶ Select from any 100-499 course not used elsewhere. (Except AGLS 101; ASCC 101, ASCC 102, ASCC 289; BIMS 101; BIOL 101, BIOL 107, BIOL 113, BIOL 206; CHEM 106, CHEM 116; MATH 102, MATH 142.) Only one KINE 199 may be used as a general elective.

⁷ Select from directed elective list below.

⁸ Two courses in the major must be designated as writing intensive.

Total Program Hours 120

Directed Electives

Code	Title	Semester Credit Hours
One course may be chosen from the following:		
BIOL 300-499 (p. 951)		
OCNG 320	Biological Oceanography	4
Select remaining courses from the following:		
Developmental Biology		
BIOL 413	Cell Biology	3
BIOL 414	Developmental Biology	3
BIOL 423	Cell Biology Laboratory	2
BIOL 430	Biological Imaging	4
BIOL 434/ NRSC 434	Regulatory and Behavioral Neuroscience	3
BIOL 435	Laboratory for Regulatory and Behavioral Neuroscience	1
GENE 431/ BICH 431	Molecular Genetics	3
Ecology/Evolution		
BIOL 357	Ecology	3
BIOL 440	Marine Biology	4
BIOL 467	Integrative Animal Behavior	3
ECCB 311	Ichthyology	3
ECCB 313	Diversity and Evolution of Invertebrates	3
ECCB 315	Herpetology	3
ECCB 401	General Mammalogy	3
ECCB 402	General Ornithology	3
ECCB 422	Behavioral Ecology	3

GENE 412	Population, Quantitative and Ecological Genetics	3
Physiology/Neuroscience		
BIOL 405	Comparative Endocrinology	3
BIOL 413	Cell Biology	3
BIOL 423	Cell Biology Laboratory	2
BIOL 434/ NRSC 434	Regulatory and Behavioral Neuroscience	3
BIOL 435	Laboratory for Regulatory and Behavioral Neuroscience	1
BIOL 454	Immunology	3
ECCB 422	Behavioral Ecology	3
GENE 431/ BICH 431	Molecular Genetics	3
Preveterinary Medicine		
ANSC 303/ NUTR 303	Principles of Animal Nutrition	3
ANSC 320	Animal Nutrition and Feeding	3
BIOL 351	Fundamentals of Microbiology	4
NUTR 303/ ANSC 303	Principles of Animal Nutrition	3

Bioinformatics - Minor

The minor in Bioinformatics aims to equip students with foundational skills in computational tools and data analysis, preparing them to lead in the rapidly evolving field of biological sciences.

In the early 21st century we have gained the ability to decipher and manipulate the genetic information of organisms. We have also seen dramatic advances in imaging technologies from the macro to nano scales (Satellites/UAVs, hyper-spectral imaging, GPS, MRI, confocal and two photon microscopy, x-ray crystallography, etc.). Concomitant with, and underlying these advances, has been a revolution in information technology in which we have seen ever accelerating computational processing speeds and ever more massive data sets. These changes are driving a fundamental transformation of the biological sciences. In order to provide our students with the educational foundation they need to not just flourish, but to lead in this dramatically altered environment, we are offering a minor in the area of Bioinformatics to provide effective training at the interface of biological applications and computational tools. While students will be trained using the most advanced tools and applications available, the minor will focus on core concepts and approaches, to provide a durable skill set that can be applied to new tools and applications that will inevitably develop. The core curriculum of the minor will cover the essentials of effective computation, as well as the handling, exploration and utilization of large data sets.

Program Requirements

Code	Title	Semester Credit Hours
Required Courses		
Introduction to Computation		4
CSCE 110 Programming I or CSCE 110r Introduction to Computer Science Concepts and Programming		
Bioinformatic Fundamentals		3

BIOL 451	
Computational Bioinformatics	3
BIOL 350 Computational Genomics	
Upper Level Biology	
Biological Molecules and Processes	3-4
Select one of the following:	
BIOL 213 Molecular Cell Biology	
GENE 302 Principles of Genetics	
GENE 320/ Biomedical Genetics	
BIMS 320	
Applied Bioinformatics	3-4
Select one of the following:	
BICH 419/ Computational Techniques for	
GENE 419 Evolutionary Analysis	
BICH 464/ Bacteriophage Genomics	
GENE 464	
BIOL 430 Biological Imaging	
BIOL 450/ Genomics	
BICH 450	
STAT 446 Statistical Bioinformatics	
VTPP 438 Analysis of Genomic Signals	
Total Semester Credit Hours	16

Minimum of 16 hours required.

Minimum of 6 hours at the 300- to 400-level.

Must make a grade of C or better in all required Bioinformatics minor courses.

Students must complete at least one course in each of the five categories. If a course in statistics is not already required for a student's major, then STAT 211, STAT 301, STAT 302, or STAT 303 is strongly recommended. Independent research experiences through 491 courses is encouraged.

Biology - Minor

A minor in Biology should represent coursework taken in the discipline beyond courses that might be used to satisfy core curriculum science requirements. Therefore, though BIOL 111 and BIOL 112 are prerequisites to all of the listed courses, they are not considered part of the minor program. Some coursework will require organic chemistry. The coursework listed represents various sub-disciplines within the field of Biology and would give the student an overall knowledge base fitting a minor in Biology. Students majoring in Biomedical Sciences or pursuing any degree from the Department of Biology are not eligible to pursue this minor.

Program Requirements

Students must have a C average in all courses taken for a minor in Biology. BIOL 484, BIOL 491 and BIOL 485 credits will not be allowed to count for the minor, nor used in the Biology GPA calculation.

Code	Title	Semester Credit Hours
BIOL 213	Molecular Cell Biology	3
BIOL 214	Genes, Ecology and Evolution	3

BIOL 351	Fundamentals of Microbiology	4
Select two of the following:		6
BICH 409	Principles of Biochemistry	
BICH 464/ Bacteriophage Genomics		
GENE 464		
BIOL 300-499 (p. 951)		
GENE 302 Principles of Genetics		
& GENE 314and Principles of Genetics		
Laboratory		
OCNG 320 Biological Oceanography		

Total Semester Credit Hours 16

Neuroscience - Minor

A minor in Neuroscience is considered an interdisciplinary minor with course selections in Biology, Psychology, Philosophy and Veterinary Integrative Biosciences. Please be aware that each course selection may have prerequisite requirements that must be met.

To apply for admission to the Minor in Neuroscience, please visit the Texas A&M Institute for Neuroscience (<https://tamin.tamu.edu/>) website. A Neuroscience Minor Approval Form will need to be completed and must be signed by the NRSC academic advisor and then submitted to your major advisor. The minor must be declared before the student has completed 90 hours.

Program Requirements

The coursework listed represents various sub-disciplines within the field of Neuroscience and would give the student an overall knowledge base fitting a minor in Neuroscience. No grade below a C is acceptable to meet minor requirements.

Code	Title	Semester Credit Hours
Select from the following:		15
BIOL 388	Principles of Animal Physiology	
BIOL 435	Laboratory for Regulatory and Behavioral Neuroscience	
NRSC 289	Special Topics in...	
NRSC 401/ Developmental Neurotoxicology		
VIBS 401		
NRSC 407/ Core Ideas in Neuroscience		
VIBS 407		
NRSC 434/ Regulatory and Behavioral		
BIOL 434	Neuroscience	
NRSC 485	Directed Studies	
NRSC 489	Special Topics in...	
NRSC 491	Research	
PBSI 235	Introduction to Behavioral and Cognitive Neuroscience	
PBSI 311	Psychology of Animal Behavior	
PBSI 320	Sensation-Perception	
PBSI 332	Neuroscience of Learning and Memory	
PBSI 333	Biology of Psychological Disorders	
PBSI 340	Psychology of Learning	
PBSI 350	Cognitive Neuroscience	

PBSI 360	Health Psychology and Behavioral Medicine	
PHIL 320	Philosophy of Mind	
VIBS 277	Essential Neuroscience - From Molecules to Nervous Systems	
VIBS 450	Mammalian Functional Neuroanatomy	
Total Semester Credit Hours		15

The minor must be declared before the student has completed 95 credit hours.

Student must make a grade of C or better.

No more than 6 credit hours can be counted toward both the Neuroscience Minor and the student's major(s). Hours cannot be counted towards both the Neuroscience Minor and an additional minor.

A total of 6 hours of directed research (485/491) may be counted toward the minor. Directed studies may be conducted with any member of the faculty of Neuroscience. Research experiences must be approved by the NRSC faculty mentor.

Pre-Medicine - Minor

The minor in Pre-Medicine is designed for students intending to apply to medical or dental school and who are pursuing a major that does not already include the required prerequisite courses in their degree plan. Students majoring in Biomedical Sciences or pursuing any degree from the Department of Biology are not eligible to pursue this minor.

Program Requirements

Code	Title	Semester Credit Hours
BICH 409	Principles of Biochemistry	3
BIOL 213	Molecular Cell Biology	3
PHYS 202	College Physics ¹	4
	or PHYS 207 or Electricity and Magnetism for Engineering and Science	
Select one of the following:		3
STAT 211	Principles of Statistics I	
STAT 301	Introduction to Biometry	
STAT 302	Statistical Methods	
STAT 303	Statistical Methods	
STAT 312	Statistics for Biology	
Select one of the following:		4
BIOL 319	Integrated Human Anatomy and Physiology I	
BIOL 320	Integrated Human Anatomy and Physiology II	
BIOL 351	Fundamentals of Microbiology	
BIOL 388	Principles of Animal Physiology	
Total Semester Credit Hours		17

¹ If PHYS 207 is selected, 1 hour should be added from PHYS 217/ ENGR 217 or PHYS 227.

Department of Chemistry

An understanding of chemistry is critical to an understanding of life and its associated activities. Chemistry and chemical principles profoundly influence the way we live, communicate, and interact with one another, so it is little wonder that a strong background in chemistry provides a solid foundation for a variety of careers of major importance in the twenty-first century. Chemistry is uniquely positioned at the crossroad between the biological and physical sciences. By exploiting their understanding of both realms, chemists and other professionals with strong backgrounds in chemistry have made, and continue to make, major contributions to improve the human condition. Major technological and biological discoveries almost always depend on a fundamental understanding of chemistry and the pursuit of these discoveries, as a way to improve the world in which we live, drives those who seek to be a part of the process.

The Department of Chemistry offers coursework and research in all the major areas of chemistry, organized into programs leading to the degrees of Bachelor of Arts and Bachelor of Science. Both degree programs are suitable as terminal degree programs as well as for preparation for more advanced study in chemistry and related areas or as preparation for many professional programs in a variety of career fields. The BS program is more rigorous with respect to required mathematics and chemistry courses. It is particularly appropriate for those students who plan a career in the chemical industry or who intend to pursue advanced degrees in chemistry, biochemistry, chemical physics or forensics. An attractive number of free electives in this degree program allows students to take courses in interdisciplinary focus areas. The BA program offers the greatest degree of flexibility for students who see chemistry as a springboard into a related career field such as medicine, pharmacy, law, science writing, teaching or business, for example. Chemistry majors are counseled by PhD chemistry faculty advisors fully familiar with the many options available in the chemistry and other departments, so as to optimize each student's program of study to meet individual needs. The Department of Chemistry (<https://www.chem.tamu.edu/>) website provides additional information about the degree plans, advising, and career opportunities for chemistry majors.

Although students may choose a variety of electives and/or minors in either the BA or BS degree programs, the following chemistry tracks have been developed to guide students in choosing electives.

Chemistry Tracks

In addition to the traditional BS degree (which allows for optional minors) and the traditional BA degree (minor required), the Department of Chemistry offers six tracks to guide students in their selection of electives for particular career paths in biological chemistry, environmental chemistry, materials chemistry, chemical education, medicine, dentistry and pharmacy. A traditional minor requires that all minor courses must be taken from the same department and approved by the department granting the minor. These tracks provide the student an opportunity to replace a traditional minor with a broad spectrum of elective courses focused, not in a single department, but in an area of emphasis. A list of the recommended elective courses are included in the Program of Study for each track.

Cooperative Education Program in Chemistry

Under suitable circumstances, chemistry majors may participate in a cooperative education program in which the student alternates periods of attendance at the University with periods of employment in industry.

This year-round cooperative program of college study and industrial experience is educationally enriching and meaningful, and also has the benefit of providing substantial financial assistance to the student without unduly prolonging the completion of the BS or BA degree program.

Faculty

Altemose, Alicia Sioux, Instructional Associate Professor
Chemistry
PHD, Penn State University, 2020

Altman, Alison, Assistant Professor
Chemistry
PHD, University of California, Berkeley, 2017

Baker, Lane, Professor
Chemistry
PHD, Texas A&M University, 2001

Barondeau, David P, Associate Professor
Chemistry
PHD, Texas A&M University, 1996

Batteas, James D, Professor
Chemistry
PHD, University of California at Berkeley, 1995

Begley, Tadhg P, Distinguished Professor
Chemistry
PHD, California Institute of Technology, 1983

Bergbreiter, David E, Professor
Chemistry
PHD, Massachusetts Institute of Technology, 1974

Bluemel, Janet F, Professor
Chemistry
PHD, Technical University of Munich, Germany, 1989

Burgess, Kevin, Professor
Chemistry
PHD, The University of Cambridge, 1983

Cai, Yuguang, Instructional Associate Professor
Chemistry
PHD, Princeton University, 2003

Collins, Daniel P, Instructional Associate Professor
Chemistry
PHD, University of South Carolina, 2012

Cremar, Lee Daniel, Lecturer
Chemistry
PHD, University of Illinois at Urbana-Champaign, 2012

Darensbourg, Donald J, Professor
Chemistry
PHD, University of Illinois at Urbana-Champaign, 1968

Darensbourg, Marcetta, Distinguished Professor
Chemistry
PHD, University of Illinois at Urbana-Champaign, 1967

Edwards, Josh David, Instructional Assistant Professor
Chemistry
PHD, University of Utah, 2022

Fang, Lei, Professor
Chemistry
PHD, Northwestern University, 2010

Folden, Charles M, Professor
Chemistry
PHD, University of California at Berkeley, 2004

Fout, Alison, Professor
Chemistry
PHD, Indiana University, Bloomington, 2009

Gabbai, Francois P, Professor
Chemistry
PHD, Technische Universitat Munchen, Germany, 1999

Gaede, Holly C, Instructional Professor
Chemistry
PHD, University of California at Berkeley, 1995

Ghanbaripour, Rashid Ryan, Lecturer
Chemistry
PHD, Tarbiat Modares University, 2015

Gladysz, John A, Distinguished Professor
Chemistry
PHD, Stanford University, 1974

Goodey, Joanna R, Instructional Professor
Chemistry
PHD, University of Houston, 2001

HAN, SUNGYUB, Instructional Assistant Professor
Chemistry
PHD, University of South Florida, 2015

Hagler, Lauren, Assistant Professor
Chemistry
PHD, University of Illinois at Urbana-Champaign, 2020

Hall, Michael B, Professor
Chemistry
PHD, University of Wisconsin, Madison, 1971

Hampton, Joshua, Research Assistant Professor
Chemistry
PHD, Texas A&M University, 2023

Hilty, Christian B, Professor
Chemistry
PHD, Swiss Federal Institute of Technology Zurich, 2004

Karim, Afroz, Instructional Assistant Professor
Chemistry
MS, University of Texas at El Paso, 2018

Laganowsky, Arthur D, Professor
Chemistry
PHD, University of California Los Angeles, 2011

Lee, Edward J, Instructional Associate Professor
Chemistry
PHD, University of Virginia at Charlottesville, 2011

Lim, Soon Mi, Instructional Professor
Chemistry
PHD, Texas A&M University, 2006

Lindahl, Paul A, Professor
Chemistry
PHD, Massachusetts Institute of Technology, 1985

Liu, Wenshe, Professor
Chemistry
PHD, University of California at Davis, 2005

Lugo, Catherine Serrano, Instructional Associate Professor
Chemistry
PHD, University of Utah, 2015

Mandal, Arkajit, Assistant Professor
Chemistry
PHD, University of Rochester, 2021

Martinez, Zachary M, Instructional Assistant Professor
Chemistry
PHD, Texas A&M University, 2022

Mawk, Elmo J, Instructional Associate Professor
Chemistry
PHD, Texas A&M University, 1999

Michaudel, Justine N., Instructional Associate Professor
Chemistry
PHD, Scripps Research, 2019

Michaudel, Quentin, Associate Professor
Chemistry
PHD, The Scripps Research Institute, 2015

Nippe, Michael, Associate Professor
Chemistry
PHD, University of Wisconsin, Madison, 2011

North, Simon W, Professor
Chemistry
PHD, University of California at Berkeley, 1995

Ozerov, Oleg V, Professor
Chemistry
PHD, University of Kentucky, 2000

Pennington, James D, Instructional Associate Professor
Chemistry
PHD, University of Michigan, 1998

Pentzer, Emily B, Professor
Chemistry
PHD, Northwestern University, 2010

Ponnamperuma, Krishan, Senior Lecturer
Chemistry
PHD, University of Cambridge, UK, 1992

Powers, David C, Professor
Chemistry
PHD, Harvard University, 2012

Powers, Tamara M, Instructional Associate Professor
Chemistry
PHD, Harvard University, 2013

Pullanchery, Saranya, Assistant Professor
Chemistry
PHD, The Pennsylvania State University, 2019

Raushel, Frank M, Distinguished Professor
Chemistry
PHD, University of Wisconsin, Madison, 1976

Russell, David H, Professor
Chemistry
PHD, University of Nebraska at Lincoln, 1978

Salmani, Khalid, Lecturer
Chemistry
PHD, Drexel University, 2010

San Pedro, Joanna Maria N, Instructional Associate Professor
Chemistry
PHD, Johns Hopkins University, 2014

Schaefer, Amber J, Instructional Associate Professor
Chemistry
PHD, Rice University, 2007

Schweikert, Emile A, Professor
Chemistry
PHD, Universite de Paris, France, 1964

Sczepanski, Jonathan T, Professor
Chemistry
PHD, The Johns Hopkins University, 2010

Singleton, Daniel A, Professor
Chemistry
PHD, University of Minnesota, 1986

Son, Dong H, Professor
Chemistry
PHD, The University of Texas at Austin, 2002

Songok, Abigael C, Instructional Assistant Professor
Chemistry
PHD, Louisiana State University, 2018

Tabor, Daniel, Assistant Professor
Chemistry
PHD, University of Wisconsin, Madison, 2016

Thomas, Andy Alexander, Assistant Professor
Chemistry
PHD, University of Illinois at Urbana - Champaign, 2017

Thompson, Tye S, Instructional Assistant Professor
Chemistry
PHD, Texas A&M University, 2024

Waas, Jack R, Senior Lecturer
Chemistry
PHD, University of Michigan, 1997

Wang, Xuan, Instructional Associate Professor
Chemistry
PHD, Texas A&M University, 2016

Watanabe, Coran M, Professor
Chemistry
PHD, John Hopkins University, 1999

Weitzel, Christopher Shawn, Instructional Associate Professor
Chemistry
PHD, Indiana University, Bloomington, 2009

Wooley, Karen L, Distinguished Professor
Chemistry
PHD, Cornell University, 1993

Xu, Shiqing, Assistant Professor
Chemistry
PHD, Fudan University, 2009

Yan, Xin, Associate Professor
Chemistry
PHD, Purdue University, 2015

Yennello, Sherry J, Professor
Chemistry
PHD, Indiana University, 1990

Zhou, Hongcai J, Professor
Chemistry
PHD, Texas A&M University, 2000

Zhu, Lin, Instructional Professor
Chemistry
PHD, University of Hawaii at Manoa, 2000

Majors

- Bachelor of Arts in Chemistry (p. 311)
- Bachelor of Arts in Chemistry, Biological Chemistry or Medical, Dental, Pharmacy School Track (p. 312)
- Bachelor of Arts in Chemistry, Chemical Education Track (p. 314)
- Bachelor of Arts in Chemistry, Environmental Chemistry Track (p. 315)
- Bachelor of Science in Chemistry (p. 316)
- Bachelor of Science in Chemistry, Biological Chemistry Track (p. 318)
- Bachelor of Science in Chemistry, Environmental Chemistry Track (p. 319)
- Bachelor of Science in Chemistry, Materials Chemistry Track (p. 320)
- Bachelor of Science in Chemistry and Master of Science in Chemistry, 5-Year Degree Program (p. 321)

Minors

- Chemistry Minor (p. 323)

Chemistry - BA

The Bachelor of Arts program provides a firm and broadly-based foundation in chemistry.

The Bachelor of Arts (BA) program, through the availability of a generous number of electives, gives the student a firm and broadly-based foundation in chemistry, with the option of pursuing other educational objectives involving specialization in at least one other field in depth. This objective is accomplished by means of the BA program flexibility and by the inclusion of a minor area of study in another discipline. Additional elective hours allow further diversification.

The BA degree offers somewhat more flexibility than the Bachelor of Science program, in terms of tailoring a program of study that combines chemistry with an interest in subject areas such as biochemistry, biology, business, computer science, education, forensics, medicine or physics. Although the BA program may in any specific case turn out to be a somewhat less technical curriculum, it meets the needs of many students who plan to use chemistry as a springboard to a career in chemical sales, marketing, law, technical writing, teaching at a pre-college level, science journalism, etc., to name only a few possibilities.

A BA in Chemistry degree coupled with completion of a biological chemistry track or a minor in Pre-Medicine or Biology, is excellent preparation for a variety of careers in the health-related disciplines. In particular, a BA degree in Chemistry is excellent and proven preparation for pharmacy, medical, dental schools, and affords the superior student the opportunity to maintain flexibility for a broad spectrum of allied health careers.

Although not required for the BA program, abundant research opportunities are available to students. The BA program also permits and encourages non-technical elective courses.

Program Requirements

Course	Title	Semester Credit Hours
First Year		
Fall		
CHEM 100	Horizons in Chemistry	1
CHEM 119	Fundamentals of Chemistry I ¹	4
Select one of the following:		3
ENGL 103	Introduction to Rhetoric and Composition	
ENGL 104	Composition and Rhetoric	
ENGL 210	Technical and Professional Writing	
Select one of the following:		4
MATH 151	Engineering Mathematics I	
MATH 147	Calculus I for Biological Sciences	
MATH 171	Calculus I	
American history (p. 30)		3
Semester Credit Hours		15
Spring		
CHEM 120	Fundamentals of Chemistry II ¹	4
Select one of the following:		4
MATH 148	Calculus II for Biological Sciences	
MATH 152	Engineering Mathematics II	

MATH 172	Calculus II	
American history (p. 30)		3
General elective ²		4
Semester Credit Hours		15
Second Year		
Fall		
CHEM 227	Organic Chemistry I ¹	3
CHEM 231	Techniques of Organic Chemistry	2
POLS 207	State and Local Government	3
Select one of the following:		4
PHYS 201	College Physics	
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences	
Language, philosophy and culture (p. 28)		3
Semester Credit Hours		15
Spring		
CHEM 228	Organic Chemistry II ¹	3
CHEM 234	Organic Synthesis and Analysis ³	3
POLS 206	American National Government	3
Select one of the following:		4
PHYS 202	College Physics	
PHYS 207 & PHYS 227	Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences	
Communication (p. 27)		3
Semester Credit Hours		16
Third Year		
Fall		
CHEM 315	Fundamentals of Quantitative Analysis ¹	3
CHEM 318	Quantitative Analysis Laboratory	1
Advanced chemistry ⁴		3
Creative arts (p. 30)		3
General elective ²		6
Semester Credit Hours		16
Spring		
CHEM 321 or CHEM 328	Physical Chemistry for Life Sciences or Physical Chemistry II	3
Social and behavioral sciences (p. 31)		3
General elective ²		9
Semester Credit Hours		15
Fourth Year		
Fall		
CHEM 481	Seminar ³	2
Select one of the following:		2
BICH 412	Biochemistry Laboratory I	
CHEM 325	Physical Chemistry Laboratory I	
CHEM 326	Physical Chemistry Laboratory II	
CHEM 433	Advanced Inorganic Chemistry Laboratory	
CHEM 434	Analytical Instrumentation Laboratory	
Advanced chemistry ⁴		3

General elective ²	9
Semester Credit Hours	16
Spring	
Advanced chemistry ⁴	3
General elective ²	9
Semester Credit Hours	12
Total Semester Credit Hours	120

¹ Choose a section designated for chemistry majors.

² Select any course 100-499 not used elsewhere except AERS 100-299 (p. 900); CHEM 222, CHEM 242; MATH 102, MATH 140, MATH 142, MATH 167, MATH 168; MLSC 100-299 (p. 1151); NVSC 100-299 (p. 1178); PHYS 205. General elective hours must be used to complete a required minor approved by the granting department.

³ This is a designated oral communication (C) or writing (W) course.

⁴ Select from BICH 410, BICH 411, BICH 440, BICH 441; CHEM 327, CHEM 362, CHEM 415, CHEM 446, CHEM 456, CHEM 458, CHEM 462, CHEM 464, CHEM 466, CHEM 468, CHEM 470, CHEM 483, CHEM 489; PHYS 309.

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a general elective can be used to satisfy this requirement.

Chemistry majors may take CHEM 485 or CHEM 491 as elective courses. The total hours of CHEM 485 and CHEM 491 taken on a graded (A-F) basis may not exceed 9. Additional hours of these courses may be taken on an S/U basis. A maximum of 6 hours of these courses may be included on the degree plan.

Electives should be chosen in consultation with the chemistry advisor and should be selected to meet the residency requirement. (p. 34)

Chemistry - BA, Biological Chemistry or Medical, Dental, Pharmacy School Track

The Bachelor of Arts in Chemistry - Biological Chemistry or Medical, Dental, Pharmacy School track provides an effective way to use available free electives to satisfy the pre-professional requirements for these programs.

Many students planning to enter medical, dental, or pharmacy school prefer a bachelor of arts degree that contains a large number of elective courses that may be used to satisfy pre-professional school requirements. With that in mind, this track provides an effective way to use some of the available free electives in the Bachelor of Arts in Chemistry program to satisfy the pre-professional requirements for these programs. Courses in anatomy, biochemistry, biology, genetics, and microbiology are included. Additional free electives, of which there will be many, may be used to strengthen the student's program of study in a manner decided by the student and the academic advisor.

Program Requirements

First Year

Fall		Semester Credit Hours
CHEM 100	Horizons in Chemistry	1
CHEM 119	Fundamentals of Chemistry I ¹	4
Select from the following:		3
ENGL 103	Introduction to Rhetoric and Composition	
ENGL 104	Composition and Rhetoric	
ENGL 210	Technical and Professional Writing	
Select from the following:		4
MATH 147	Calculus I for Biological Sciences	
MATH 151	Engineering Mathematics I	
MATH 171	Calculus I	
American history (p. 30)		3

Semester Credit Hours 15

Spring

BIOL 111	Introductory Biology I	4
CHEM 120	Fundamentals of Chemistry II ¹	4
Select from the following:		4
MATH 148	Calculus II for Biological Sciences	
MATH 152	Engineering Mathematics II	
MATH 172	Calculus II	
American history (p. 30)		3

Semester Credit Hours 15

Second Year

Fall		
BIOL 112	Introductory Biology II	4
CHEM 227	Organic Chemistry I ¹	3
CHEM 231	Techniques of Organic Chemistry	2
POLS 207	State and Local Government	3
General elective ²		3

Semester Credit Hours 15

Spring

CHEM 228	Organic Chemistry II ¹	3
CHEM 234	Organic Synthesis and Analysis ³	3
POLS 206	American National Government	3
Select one of the following:		4
PHYS 201	College Physics	
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences	
Communication (p. 27)		3

Semester Credit Hours 16

Third Year

Fall		
BICH 410 or BICH 440	Comprehensive Biochemistry I or Biochemistry I	3
CHEM 315	Fundamentals of Quantitative Analysis ¹	3
CHEM 318	Quantitative Analysis Laboratory	1

GENE 301 or GENE 320/ BIMS 320	Comprehensive Genetics or Biomedical Genetics	3

Select one of the following: 4

PHYS 202	College Physics	
PHYS 207 & PHYS 227	Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences	

Semester Credit Hours 14

Spring

BICH 411 or BICH 441	Comprehensive Biochemistry II or Biochemistry II	3

Select one of the following: 4

BIOL 318	Chordate Anatomy	
BIOL 319	Integrated Human Anatomy and Physiology I	
VIBS 305	Biomedical Anatomy	

Advanced lecture ⁴ 3

Language, philosophy and culture (p. 28) 3

General elective 2

Semester Credit Hours 15

Fourth Year

Fall

CHEM 321 or CHEM 328	Physical Chemistry for Life Sciences or Physical Chemistry II	3
CHEM 481	Seminar ³	2
Select one of the following:		4

BIOL 320	Integrated Human Anatomy and Physiology II	

BIOL 388	Principles of Animal Physiology	

VTPP 423	Applied Biomedical Physiology I	

Creative arts (p. 30) 3

Social and behavioral sciences (p. 31) 3

Semester Credit Hours 15

Spring

BIOL 351	Fundamentals of Microbiology	4

Select one of the following: 2

BICH 412	Biochemistry Laboratory I	

CHEM 325	Physical Chemistry Laboratory I	

CHEM 326	Physical Chemistry Laboratory II	

CHEM 433	Advanced Inorganic Chemistry Laboratory	

CHEM 434	Analytical Instrumentation Laboratory	

General elective ² 9

Semester Credit Hours 15

Total Semester Credit Hours 120

¹ Select a section designated for chemistry majors.

² Select any course 100-499 not used elsewhere except AERS 100-299 (p. 900); CHEM 222, CHEM 242; MATH 102, MATH 140, MATH 142, MATH 167, MATH 168; MLSC 100-299 (p. 1151); NVSC 100-299 (p. 1178); PHYS 205.

³ This is a designated oral communication (C) or writing (W) course.

⁴ Select from CHEM 327, CHEM 362, CHEM 415, CHEM 446, CHEM 456, CHEM 458, CHEM 462, CHEM 464, CHEM 466, CHEM 468, CHEM 470, CHEM 483, CHEM 489; PHYS 309.

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a general elective can be used to satisfy this requirement.

BA chemistry majors may take CHEM 485 or CHEM 491 as elective courses. The total hours of CHEM 485 and CHEM 491 taken on a graded (A-F) basis may not exceed 9. Additional hours of these courses may be taken on an S/U basis. A maximum of 6 hours of these courses may be included on the degree plan.

Electives should be chosen in consultation with the chemistry advisor and should be selected to meet the residency requirement. (p. 34)

Chemistry - BA, Chemical Education Track

The Chemical Education track for the Bachelor of Science in Chemistry provides an opportunity to obtain secondary teacher certification in addition to completion of the requirements for a degree in chemistry.

Many students who plan to become high school chemistry teachers or to pursue a master's degree in chemical education will find this track attractive. Students must complete the requirements for secondary teacher certification as defined by the College of Education and Human Development. Consultation with the College of Education and Human Development is required.

Program Requirements

First Year

Fall		Semester Credit Hours
ARSC 201	Self-Directed Experiences with Adolescents	1
CHEM 100	Horizons in Chemistry	1
CHEM 119	Fundamentals of Chemistry I ¹	4
Select one of the following:		3
ENGL 103	Introduction to Rhetoric and Composition	
ENGL 104	Composition and Rhetoric	
ENGL 210	Technical and Professional Writing	
Select one of the following:		4
MATH 147	Calculus I for Biological Sciences	
MATH 151	Engineering Mathematics I	
MATH 171	Calculus I	
American history (p. 30)		3
Semester Credit Hours		16

Spring

CHEM 120	Fundamentals of Chemistry II ¹	4
Select one of the following:		4
MATH 148	Calculus II for Biological Sciences	
MATH 152	Engineering Mathematics II	
MATH 172	Calculus II	

American history (p. 30)	3
Language, philosophy and culture (p. 28)	3

Semester Credit Hours 14

Second Year

Fall

CHEM 227	Organic Chemistry I ¹	3
CHEM 231	Techniques of Organic Chemistry	2
POLS 207	State and Local Government	3

Select one of the following:

PHYS 201	College Physics	
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences	

Communication (p. 27)	3

Semester Credit Hours 15

Spring

CHEM 228	Organic Chemistry II ¹	3
CHEM 234	Organic Synthesis and Analysis ²	3
INST 222	Foundations of Education in a Multicultural Society	3
POLS 206	American National Government	3

Select one of the following:

PHYS 202	College Physics	
PHYS 207 & PHYS 227	Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences	

Semester Credit Hours 16

Third Year

Fall

CHEM 315	Fundamentals of Quantitative Analysis ¹	3
CHEM 318	Quantitative Analysis Laboratory	1
TEFB 322	Teaching and Schooling in Modern Society	3
Advanced chemistry ³		3
Creative arts (p. 30)		3
Social and behavioral sciences (p. 31)		3

Semester Credit Hours 16

Spring

CHEM 321 or CHEM 328	Physical Chemistry for Life Sciences or Physical Chemistry II	3
RDNG 465 or RDNG 372	Reading in the Middle and Secondary Grades or Reading and Writing across the Middle Grades Curriculum	3
TEFB 324	Teaching Skills II	3
Advanced chemistry ³		3
General elective ⁴		3

Semester Credit Hours 15

Fourth Year

Fall

Select from		2
BICH 412	Biochemistry Laboratory I	
CHEM 325	Physical Chemistry Laboratory I	

CHEM 326	Physical Chemistry Laboratory II	
CHEM 433	Advanced Inorganic Chemistry Laboratory	
CHEM 434	Analytical Instrumentation Laboratory	
CHEM 481	Seminar ²	2
INST 210	Understanding Special Populations	3
TEFB 406	Science in the Middle and Secondary School	3
Advanced chemistry ³		3
General elective ⁴		3
Semester Credit Hours		16
Spring		
General electives ^{4,5}		12
Semester Credit Hours		12
Total Semester Credit Hours		120

¹ Select a section designated for chemistry majors.

² This is a designated oral communication (C) or writing (W) course.

³ Select from BICH 410, BICH 411, BICH 440, BICH 441; CHEM 327, CHEM 362, CHEM 415, CHEM 446, CHEM 456, CHEM 458, CHEM 462, CHEM 464, CHEM 466, CHEM 468, CHEM 470, CHEM 483, CHEM 489; PHYS 309.

⁴ Select any course 100-499 not used elsewhere except AERS 100-299 (p. 900); CHEM 222, CHEM 242; MATH 102, MATH 140, MATH 142, MATH 167, MATH 168; MLSC 100-299 (p. 1151); NVSC 100-299 (p. 1178); PHYS 205.

⁵ Students planning to become certified to teach should reserve this semester for a clinical teaching semester.

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a general elective can be used to satisfy this requirement.

BA chemistry majors may take CHEM 485 or CHEM 491 as elective courses. The total hours of CHEM 485 and CHEM 491 taken on a graded (A-F) basis may not exceed 9. Additional hours of these courses may be taken on an S/U basis. A maximum of 6 hours of these courses may be included on the degree plan.

Electives should be chosen in consultation with the chemistry advisor and should be selected to meet the residency requirement. (p. 34)

Chemistry - BA, Environmental Chemistry Track

This Environmental Chemistry track for the Bachelor of Science in Chemistry provides an opportunity to select courses that provide for a career focus in environmental chemistry.

The large number of electives makes it possible for students to combine interests in environmental issues with other interests such as business, law, and politics. Electives may be chosen from recommended courses in atmospheric sciences, bioenvironmental science, biology, geography, geology, geosciences, microbiology and oceanography.

Program Requirements

First Year

Fall		Semester Credit Hours
CHEM 100	Horizons in Chemistry	1
CHEM 119	Fundamentals of Chemistry I ¹	4
Select one of the following:		3
ENGL 103	Introduction to Rhetoric and Composition	
ENGL 104	Composition and Rhetoric	
ENGL 210	Technical and Professional Writing	
Select one of the following:		4
MATH 147	Calculus I for Biological Sciences	
MATH 151	Engineering Mathematics I	
MATH 171	Calculus I	
American history (p. 30)		3
Semester Credit Hours		15

Spring

CHEM 120	Fundamentals of Chemistry II ¹	4
Select one of the following:		4
MATH 148	Calculus II for Biological Sciences	
MATH 152	Engineering Mathematics II	
MATH 172	Calculus II	
Select 3-4 hours of the following:		3-4
ATMO 363	Introduction to Atmospheric Chemistry and Air Pollution	
BIOL 111	Introductory Biology I	
BIOL 112	Introductory Biology II	
GEOL 101	Principles of Geology	
GEOL 102	Principles of Geology Laboratory	
GEOL 104	Physical Geology	
OCNG 310	Physical Oceanography	
American history (p. 30)		3
Semester Credit Hours		15

Second Year

Fall		
CHEM 227	Organic Chemistry I ¹	3
CHEM 231	Techniques of Organic Chemistry	2
POLS 207	State and Local Government	3
Select one of the following:		4
PHYS 201	College Physics	
PHYS 206	Newtonian Mechanics for Engineering and Science	
& PHYS 226	and Physics of Motion Laboratory for the Sciences	
Select 3-4 hours of the following:		3-4
ATMO 363	Introduction to Atmospheric Chemistry and Air Pollution	
BIOL 111	Introductory Biology I	
BIOL 112	Introductory Biology II	
GEOL 101	Principles of Geology	
GEOL 102	Principles of Geology Laboratory	
GEOL 104	Physical Geology	

OCNG 310	Physical Oceanography	
Semester Credit Hours		16
Spring		
CHEM 228	Organic Chemistry II ¹	3
CHEM 234	Organic Synthesis and Analysis ²	3
POLS 206	American National Government	3
Select one of the following:		4
PHYS 202	College Physics	
PHYS 207 & PHYS 227	Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences	
Communication (p. 27)		3
Semester Credit Hours		16
Third Year		
Fall		
CHEM 315	Fundamentals of Quantitative Analysis ¹	3
CHEM 318	Quantitative Analysis Laboratory	1
Select three of the following:		9
BESC 403	Sampling and Environmental Monitoring	
BIOL 214	Genes, Ecology and Evolution	
GEOG 330	Resources and the Environment	
GEOG 324	Global Climatic Regions	
GEOG 370/ MARS 370	Coastal Processes	
GEOG 410/ OCNG 412	Global Change	
GEOL 301	Mineral Resources	
GEOL 351	Geochemistry	
GEOL 410	Hydrogeology	
GEOL 440	Engineering Geology	
OCNG 320	Biological Oceanography	
Advanced chemistry ³		3
Semester Credit Hours		16
Spring		
CHEM 321	Physical Chemistry for Life Sciences or CHEM 328 or Physical Chemistry II	3
Select two of the following:		6-8
ATMO 363	Introduction to Atmospheric Chemistry and Air Pollution	
BIOL 111	Introductory Biology I	
BIOL 112	Introductory Biology II	
GEOL 101	Principles of Geology	
GEOL 102	Principles of Geology Laboratory	
GEOL 104	Physical Geology	
OCNG 310	Physical Oceanography	
Creative arts (p. 30)		3
Language, philosophy and culture (p. 28)		3
Semester Credit Hours		15
Fourth Year		
Fall		
CHEM 481	Seminar ²	2
Select from the following:		2

CHEM 325	Physical Chemistry Laboratory I	
CHEM 326	Physical Chemistry Laboratory II	
BICH 412	Biochemistry Laboratory I	
CHEM 433	Advanced Inorganic Chemistry Laboratory	
CHEM 434	Analytical Instrumentation Laboratory	
Advanced chemistry ³		3
Social and behavioral sciences (p. 31)		3
General electives ⁴		5-7
Semester Credit Hours		15
Spring		
CHEM 483	Green Chemistry	3
General electives ⁴		9
Semester Credit Hours		12
Total Semester Credit Hours		120

¹ Select a section designated for chemistry majors.

² This is a designated oral communication (C) or writing (W) course.

³ Select from BICH 410, BICH 411, BICH 440, BICH 441; CHEM 327, CHEM 362, CHEM 415, CHEM 446, CHEM 456, CHEM 458, CHEM 462, CHEM 464, CHEM 466, CHEM 468, CHEM 470, CHEM 483, CHEM 489; PHYS 309.

⁴ Select any course 100-499 not used elsewhere except AERS 100-299 (p. 900); CHEM 222, CHEM 242; MATH 102, MATH 140, MATH 142, MATH 167, MATH 168; MLSC 100-299 (p. 1151); NVSC 100-299 (p. 1178); PHYS 205.

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a general elective can be used to satisfy this requirement.

BA chemistry majors may take CHEM 485 or CHEM 491 as elective courses. The total hours of CHEM 485 and CHEM 491 taken on a graded (A-F) basis may not exceed 9. Additional hours of these courses may be taken on an S/U basis. A maximum of 6 hours of these courses may be included on the degree plan.

Electives should be chosen in consultation with the chemistry advisor and should be selected to meet the residency requirement. (p. 34)

Chemistry - BS

The Bachelor of Science (BS) in Chemistry program is arranged so that students obtain a comprehensive, solid foundation in all of the major branches of chemistry, combined with a suitable measure of individual flexibility.

The latter objective is met in part by a strong emphasis on involving the undergraduate BS chemistry major in exciting, innovative, state-of-the-art research programs. Students in the BS program may become involved in research as early as their first year and continue this until graduation. Students frequently receive research scholarships and fellowships, which include opportunities for summer research programs. It is not uncommon for an undergraduate chemistry major to be a coauthor of scientific publications in major research journals before graduation.

Undergraduate chemistry research activities involve substantial use of modern scientific equipment, including major instrumentation. The student involved in this activity also gains considerable insight into the

profession by means of substantial individual contact with chemistry department faculty.

The BS degree in Chemistry is the appropriate program for students planning advanced degree programs in chemistry, biochemistry, forensics, chemical physics and other fields. Students planning careers in chemical industry should also choose the BS degree in Chemistry. Students may wish to choose electives suggested in the biological or environmental chemistry tracks. This degree program satisfies fully the accreditation requirements of the American Chemical Society.

Program Requirements

First Year

		Semester Credit Hours
Fall		
CHEM 100	Horizons in Chemistry	1
CHEM 119	Fundamentals of Chemistry I ¹	4
Select one of the following:		3
ENGL 103	Introduction to Rhetoric and Composition	
ENGL 104	Composition and Rhetoric	
ENGL 210	Technical and Professional Writing	
MATH 151	Engineering Mathematics I	4
or MATH 171	or Calculus I	
American history (p. 30)		3

Semester Credit Hours 15

Spring		
CHEM 120	Fundamentals of Chemistry II ¹	4
MATH 152	Engineering Mathematics II	4
or MATH 172	or Calculus II	
PHYS 206	Newtonian Mechanics for Engineering and Science	3
PHYS 226	Physics of Motion Laboratory for the Sciences	1
American history (p. 30)		3

Semester Credit Hours 15

Second Year

Fall		
CHEM 227	Organic Chemistry I ¹	3
CHEM 231	Techniques of Organic Chemistry	2
PHYS 207	Electricity and Magnetism for Engineering and Science	3
PHYS 227	Electricity and Magnetism Laboratory for the Sciences	1
Select one of the following		3-4
MATH 221	Several Variable Calculus	
MATH 251	Engineering Mathematics III	
MATH 253	Engineering Mathematics III	

Semester Credit Hours 13

Spring		
CHEM 228	Organic Chemistry II ¹	3
CHEM 234	Organic Synthesis and Analysis ²	3
CHEM 362	Descriptive Inorganic Chemistry	3
Select one of the following:		3
MATH 304	Linear Algebra	

MATH 308	Differential Equations	
STAT 211	Principles of Statistics I	
Communication (p. 27)		3

Semester Credit Hours 15

Third Year

Fall		
CHEM 315	Fundamentals of Quantitative Analysis ¹	3
CHEM 318	Quantitative Analysis Laboratory	1
CHEM 327	Physical Chemistry I	3
CHEM 433	Advanced Inorganic Chemistry Laboratory	2
CHEM 491	Research	3
POLS 206	American National Government	3

Semester Credit Hours 15

Spring		
CHEM 325	Physical Chemistry Laboratory I	1
CHEM 328	Physical Chemistry II	3
CHEM 491	Research	3
POLS 207	State and Local Government	3
Social and behavioral sciences (p. 31)		3
General elective ³		3

Semester Credit Hours 16

Fourth Year

Fall		
CHEM 326	Physical Chemistry Laboratory II	1
CHEM 415	Analytical Chemistry	3
Advanced chemistry ^{5,6}		3
Creative arts (p. 30)		3
General electives ³		6

Semester Credit Hours 16

Spring		
CHEM 434	Analytical Instrumentation Laboratory	2
CHEM 481	Seminar ²	2
Advanced chemistry ^{5,6}		3
Language, philosophy, and culture (p.)		3
General electives ³		5-6

Semester Credit Hours 15

Total Semester Credit Hours 120

¹ Select a section designated for chemistry majors.

² This is a designated oral communication (C) or writing (W) course.

³ Select any course 100-499 not used elsewhere except AERS 100-299 (p. 900); CHEM 222, CHEM 242; MATH 102, MATH 140, MATH 142, MATH 167, MATH 168; MLSC 100-299 (p. 1151); NVSC 100-299 (p. 1178); PHYS 201, PHYS 202, PHYS 205.

⁴ Students may substitute 3 hours of CHEM 484 for CHEM 491 in consultation with an advisor.

⁵ Students wishing to complete an American Chemical Society certified degree program must take at least one semester of biochemistry (i.e., BICH 410 or BICH 440).

⁶ Select from BICH 410, BICH 411, BICH 440, BICH 441; CHEM 446, CHEM 456, CHEM 458, CHEM 462, CHEM 464, CHEM 466, CHEM 468, CHEM 470, CHEM 483, CHEM 489; PHYS 309. (Note: 3 hours of BICH is required for ACS certification.)

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a general elective can be used to satisfy this requirement.

The total hours of CHEM 484, CHEM 485, and CHEM 491 taken by BS chemistry majors on a graded (A–F) basis may not exceed 15. Additional hours of these courses may be taken on a satisfactory/unsatisfactory basis.

Electives should be chosen in consultation with the chemistry advisor and should be selected to meet the residency requirement. (p. 34)

Chemistry - BS, Biological-Chemistry Track

The Biological-Chemistry track for the Bachelor of Science in Chemistry has been designed for those students interested in pursuing graduate study in biological chemistry, biochemistry, pharmacology or related fields or a career in the pharmaceutical industry.

Students who wish to enter into a Doctor of Medicine (MD)/Doctor of Philosophy (PhD) program or medical, dental or pharmacy school will, in most cases, need to take an additional advanced biology course beyond those recommended for this track and should check the admission requirements for these programs with the Office of Professional School Advising. Courses in biology, biochemistry, genetics and statistics are recommended as electives.

Program Requirements

First Year

Fall		Semester Credit Hours
CHEM 100	Horizons in Chemistry	1
CHEM 119	Fundamentals of Chemistry I ¹	4
Select one of the following:		3
ENGL 103	Introduction to Rhetoric and Composition	
ENGL 104	Composition and Rhetoric	
ENGL 210	Technical and Professional Writing	
MATH 151 or MATH 171	Engineering Mathematics I or Calculus I	4
American history (p. 30)		3
Semester Credit Hours		15
Spring		
CHEM 120	Fundamentals of Chemistry II ¹	4
MATH 152 or MATH 172	Engineering Mathematics II or Calculus II	4
PHYS 206	Newtonian Mechanics for Engineering and Science	3
PHYS 226	Physics of Motion Laboratory for the Sciences	1
American history (p. 30)		3
Semester Credit Hours		15

Second Year

Fall		
CHEM 227	Organic Chemistry I ¹	3
CHEM 231	Techniques of Organic Chemistry	2
PHYS 207	Electricity and Magnetism for Engineering and Science	3
PHYS 227	Electricity and Magnetism Laboratory for the Sciences	1
Select one of the following:		3-4
MATH 221	Several Variable Calculus	
MATH 251	Engineering Mathematics III	
MATH 253	Engineering Mathematics III	
Semester Credit Hours		13

Spring		
BIOL 111	Introductory Biology I	4
CHEM 228	Organic Chemistry II ¹	3
CHEM 234	Organic Synthesis and Analysis ²	3
CHEM 362	Descriptive Inorganic Chemistry	3
STAT 211 or STAT 302	Principles of Statistics I or Statistical Methods	3
Semester Credit Hours		16

Third Year

Fall		
BIOL 112	Introductory Biology II	4
CHEM 315	Fundamentals of Quantitative Analysis ¹	3
CHEM 318	Quantitative Analysis Laboratory	1
CHEM 327	Physical Chemistry I	3
CHEM 433	Advanced Inorganic Chemistry Laboratory	2
CHEM 491	Research	3
Semester Credit Hours		16
Spring		
CHEM 325	Physical Chemistry Laboratory I	1
CHEM 328	Physical Chemistry II	3
CHEM 491	Research	3
POLS 207	State and Local Government	3
GENE 301 or GENE 320/ BIMS 320	Comprehensive Genetics or Biomedical Genetics	3
Communication (p. 27)		3
Semester Credit Hours		16

Fourth Year

Fall		
BICH 410 or BICH 440	Comprehensive Biochemistry I or Biochemistry I	3
CHEM 326	Physical Chemistry Laboratory II	1
CHEM 415	Analytical Chemistry	3
POLS 206	American National Government	3
Language, philosophy and culture (p. 28)		3
Social and behavioral sciences (p. 31)		3
Semester Credit Hours		16
Spring		
BICH 411 or BICH 441	Comprehensive Biochemistry II or Biochemistry II	3

CHEM 434	Analytical Instrumentation Laboratory	2
CHEM 481	Seminar ²	2
Creative arts (p. 30)		3
General elective ⁴		3-4
Semester Credit Hours		13
Total Semester Credit Hours		120

¹ Select a section designated for chemistry majors.

² This is a designated oral communication (C) or writing (W) course.

³ Three hours of CHEM 484 may be substituted for 3 hours of CHEM 491 in consultation with an advisor.

⁴ Select any course 100-499 not used elsewhere except AERS 100-299 (p. 900); CHEM 222, CHEM 242; MATH 102, MATH 140, MATH 142, MATH 167, MATH 168; MLSC 100-299 (p. 1151); NVSC 100-299 (p. 1178); PHYS 201, PHYS 202, PHYS 205.

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a general elective can be used to satisfy this requirement.

The total hours of CHEM 484, CHEM 485, CHEM 491 taken by BS chemistry majors on a graded (A–F) basis may not exceed 15. Additional hours of these courses may be taken on a satisfactory/unsatisfactory basis.

Electives should be chosen in consultation with the chemistry advisor and should be selected to meet the residency requirement. (p. 34)

Chemistry - BS, Environmental Chemistry Track

Chemistry plays a major role in most environmental issues and this track provides elective choices in a broad spectrum of courses designed to prepare students to address environmental problems from a variety of perspectives. Electives may be chosen from recommended courses in atmospheric sciences, bioenvironmental science, biology, geography, geology, microbiology and oceanography.

Program Requirements

First Year

Fall		Semester Credit Hours
CHEM 100	Horizons in Chemistry	1
CHEM 119	Fundamentals of Chemistry I ¹	4
Select one of the following:		3
ENGL 103	Introduction to Rhetoric and Composition	
ENGL 104	Composition and Rhetoric	
ENGL 210	Technical and Professional Writing	
MATH 151	Engineering Mathematics I	4
or MATH 171	or Calculus I	
American history (p. 30)		3
Semester Credit Hours		15
Spring		
CHEM 120	Fundamentals of Chemistry II ¹	4

MATH 152	Engineering Mathematics II	4
or MATH 172	or Calculus II	
PHYS 206	Newtonian Mechanics for Engineering and Science	3
PHYS 226	Physics of Motion Laboratory for the Sciences	1
American history (p. 30)		3
Semester Credit Hours		15

Second Year

Fall

CHEM 227	Organic Chemistry I ¹	3
CHEM 231	Techniques of Organic Chemistry	2
PHYS 207	Electricity and Magnetism for Engineering and Science	3
PHYS 227	Electricity and Magnetism Laboratory for the Sciences	1
Select one of the following:		3-4
MATH 221	Several Variable Calculus	
MATH 251	Engineering Mathematics III	
MATH 253	Engineering Mathematics III	

Semester Credit Hours

13

Spring

CHEM 228	Organic Chemistry II ¹	3
CHEM 234	Organic Synthesis and Analysis ²	3
CHEM 362	Descriptive Inorganic Chemistry	3
Select one of the following:		3
MATH 304	Linear Algebra	
MATH 308	Differential Equations	
STAT 211	Principles of Statistics I	
Select 3-4 hours of the following:		3-4
ATMO 363	Introduction to Atmospheric Chemistry and Air Pollution	
BIOL 111	Introductory Biology I	
BIOL 112	Introductory Biology II	
GEOL 101	Principles of Geology	
GEOL 102	Principles of Geology Laboratory	
GEOL 104	Physical Geology	
OCNG 310	Physical Oceanography	

Semester Credit Hours

15

Third Year

Fall

CHEM 315	Fundamentals of Quantitative Analysis ¹	3
CHEM 318	Quantitative Analysis Laboratory	1
CHEM 327	Physical Chemistry I	3
CHEM 433	Advanced Inorganic Chemistry Laboratory	2
CHEM 491	Research	3
Select 3-4 hours of the following:		3-4
ATMO 363	Introduction to Atmospheric Chemistry and Air Pollution	
BIOL 111	Introductory Biology I	
BIOL 112	Introductory Biology II	
GEOL 101	Principles of Geology	
GEOL 102	Principles of Geology Laboratory	

GEOL 104	Physical Geology	
OCNG 310	Physical Oceanography	
Semester Credit Hours		15
Spring		
CHEM 325	Physical Chemistry Laboratory I	1
CHEM 328	Physical Chemistry II	3
CHEM 491	Research	3
Select two of the following:		6
BESC 403	Sampling and Environmental Monitoring	
BIOL 214	Genes, Ecology and Evolution	
GEOG 324	Global Climatic Regions	
GEOG 330	Resources and the Environment	
GEOG 370/ MARS 370	Coastal Processes	
GEOL 301	Mineral Resources	
GEOL 351	Geochemistry	
GEOL 410	Hydrogeology	
GEOL 440	Engineering Geology	
OCNG 320	Biological Oceanography	
Communication (p. 27)		3
Semester Credit Hours		16
Fourth Year		
Fall		
CHEM 326	Physical Chemistry Laboratory II	1
CHEM 415	Analytical Chemistry	3
POLS 207	State and Local Government	3
Advanced chemistry ^{4,5}		3
Creative arts (p. 30)		3
Language, philosophy and culture (p. 28)		3
Semester Credit Hours		16
Spring		
CHEM 434	Analytical Instrumentation Laboratory	2
CHEM 481	Seminar ²	2
CHEM 483	Green Chemistry	3
POLS 206	American National Government	3
Social and behavioral sciences (p. 31)		3
General elective ⁶		0-3
Semester Credit Hours		15
Total Semester Credit Hours		120

¹ Select a section designated for chemistry majors.² This is a designated oral communication (C) or writing (W) course.³ Three hours of CHEM 484 may be substituted for three hours of CHEM 491 in consultation with an advisor.⁴ Students wishing to complete an American Chemical Society certified degree program must take at least one semester of biochemistry (i.e., BICH 410 or BICH 440).⁵ Select from CHEM 446, CHEM 456, CHEM 458, CHEM 462, CHEM 464, CHEM 466, CHEM 468, CHEM 470, CHEM 483, CHEM 489; BICH 410, BICH 411, BICH 440, BICH 441; PHYS 309. (Note: 3 hours of BICH is required for ACS certification.)⁶ Select any course 100-499 not used elsewhere except AERS 100-299 (p. 900); CHEM 222, CHEM 242; MATH 102, MATH 140, MATH 142,

MATH 167, MATH 168; MLSC 100-299 (p. 1151); NVSC 100-299 (p. 1178); PHYS 201, PHYS 202, PHYS 205.

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a general elective can be used to satisfy this requirement.

The total hours of CHEM 484, CHEM 485, and CHEM 491 taken by BS chemistry majors on a graded (A–F) basis may not exceed 15. Additional hours of these courses may be taken on a satisfactory/unsatisfactory basis.

Electives should be chosen in consultation with the chemistry advisor and should be selected to meet the residency requirement. (p. 34)

Chemistry - BS, Materials Chemistry Track

The Materials Chemistry track for the Bachelor of Science in Chemistry includes a breadth of coverage in both hard and soft materials and prepares students for further study in materials chemistry or employment in a variety of industries.

The Department of Chemistry offers a Bachelor of Science in Chemistry with a Materials Chemistry Track. In materials chemistry, molecular-level understanding drives the design, synthesis, and characterization of materials with interesting and useful properties. Insight into catalytic, electronic, optical, or structural characteristics of substances allows them to be tailored for different applications.

Program Requirements

First Year

Fall		Semester Credit Hours
CHEM 100	Horizons in Chemistry	1
CHEM 119	Fundamentals of Chemistry I ¹	4
Select one of the following:		3
ENGL 103	Introduction to Rhetoric and Composition	
ENGL 104	Composition and Rhetoric	
ENGL 210	Technical and Professional Writing	
MATH 151	Engineering Mathematics I	4
or MATH 171 or Calculus I		
American history (p. 30)		3
Semester Credit Hours		15

Spring

CHEM 120	Fundamentals of Chemistry II ¹	4
MATH 152	Engineering Mathematics II	4
or MATH 172 or Calculus II		
PHYS 206	Newtonian Mechanics for Engineering and Science	3
PHYS 226	Physics of Motion Laboratory for the Sciences	1
American history (p. 30)		3
Semester Credit Hours		15

Second Year**Fall**

CHEM 227	Organic Chemistry I ¹	3
CHEM 231	Techniques of Organic Chemistry	2
PHYS 207	Electricity and Magnetism for Engineering and Science	3
PHYS 227	Electricity and Magnetism Laboratory for the Sciences	1
Select one of the following:		3-4
MATH 221	Several Variable Calculus	
MATH 251	Engineering Mathematics III	
MATH 253	Engineering Mathematics III	

Semester Credit Hours	13

Spring

CHEM 228	Organic Chemistry II ¹	3
CHEM 234	Organic Synthesis and Analysis ²	3
CHEM 362	Descriptive Inorganic Chemistry	3
Select one of the following:		3
MATH 304	Linear Algebra	
MATH 308	Differential Equations	
STAT 211	Principles of Statistics I	
Materials chemistry elective ³		3

Semester Credit Hours	15

Third Year**Fall**

CHEM 315	Fundamentals of Quantitative Analysis ¹	3
CHEM 318	Quantitative Analysis Laboratory	1
CHEM 327	Physical Chemistry I	3
CHEM 433	Advanced Inorganic Chemistry Laboratory	2
CHEM 466	Polymer Chemistry	3
CHEM 491	Research	3

Semester Credit Hours	15

Spring

CHEM 325	Physical Chemistry Laboratory I	1
CHEM 328	Physical Chemistry II	3
CHEM 491	Research	3
POLS 207	State and Local Government	3
Communication (p. 27)		3
Materials chemistry elective ³		3

Semester Credit Hours	16

Fourth Year**Fall**

CHEM 326	Physical Chemistry Laboratory II	1
CHEM 415	Analytical Chemistry	3
CHEM 468	Materials Chemistry of Inorganic Materials	3
Creative arts (p. 30)		3
Language, philosophy and culture (p. 28)		3
Materials chemistry elective ³		3

Semester Credit Hours	16

Spring

CHEM 434	Analytical Instrumentation Laboratory	2
CHEM 481	Seminar ²	2

POLS 206	American National Government	3
Social and behavioral sciences (p. 31)		3
Materials chemistry elective ³		3
General elective ⁵		2-3
Semester Credit Hours		15
Total Semester Credit Hours		120

¹ Select a section designated for chemistry majors.

² This is a designated oral communication (C) or writing (W) course.

³ In consultation with an advisor, select 12 hours from among CHEM 220; CHEM 462; CHEM 470; MEEN 222/MSEN 222 or BMEN 343, MEEN 458.

⁴ Three hours of CHEM 484 may be substituted for 3 hours of CHEM 491 in consultation with an advisor.

⁵ Select any course 100-499 not used elsewhere except AERS 100-299 (p. 900); CHEM 222, CHEM 242; MATH 102, MATH 140, MATH 142, MATH 167, MATH 168; MLSC 100-299 (p. 1151); NVSC 100-299 (p. 1178); PHYS 201, PHYS 202, PHYS 205.

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a general elective can be used to satisfy this requirement.

The total hours of CHEM 484, CHEM 485 and CHEM 491 taken by BS chemistry majors on a graded (A–F) basis may not exceed 15. Additional hours of these courses may be taken on a satisfactory/unsatisfactory basis.

Electives should be chosen in consultation with the chemistry advisor and should be selected to meet the residency requirement. (p. 34)

Chemistry - 5-Year Bachelor of Science and Master of Science in Chemistry

This combination degree program allows ambitious and academically talented chemistry majors to earn both a bachelor's degree and a master's degree within five years.

The curriculum in the Bachelor of Science and Masters of Science (MS) in Chemistry 5-year combined program provides a comprehensive, solid foundation in all of the major branches of chemistry, including undergraduate research. Undergraduate chemistry research activities involve substantial use of modern scientific techniques and equipment, including major instrumentation. The student involved in this activity also gains considerable insight into the profession by means of substantial individual contact with chemistry department faculty. Students in this program pursue electives in science and related fields that provide a measure of flexibility to develop expertise in areas complementary to chemistry. Among the various advantages of the program, upon its completion a student will be in an exceptionally strong position to enter:

- the professional industrial job marketplace;
- a career in educational technology, science policy, or science communication;
- a doctoral program in chemistry, or in a related discipline, particularly at international institutions that require an MS for admission.

Program Requirements

First Year

Fall		Semester Credit Hours
CHEM 100	Horizons in Chemistry	1
CHEM 119	Fundamentals of Chemistry I ¹	4
MATH 151 or MATH 171	Engineering Mathematics I or Calculus I	4
American history (p. 30)		3
Government/Political science (p. 31)		3
Semester Credit Hours		15

Spring

CHEM 120	Fundamentals of Chemistry II ¹	4
Select one of the following:		3
ENGL 103	Introduction to Rhetoric and Composition	
ENGL 104	Composition and Rhetoric	
ENGL 210	Technical and Professional Writing	
MATH 152 or MATH 172	Engineering Mathematics II or Calculus II	4
PHYS 206	Newtonian Mechanics for Engineering and Science	3
PHYS 226	Physics of Motion Laboratory for the Sciences	1
Government/Political science (p. 31)		3
Semester Credit Hours		18

Summer

General electives ²		6
Semester Credit Hours		6

Second Year

Fall		
CHEM 227	Organic Chemistry I ¹	3
CHEM 231	Techniques of Organic Chemistry	2
CHEM 315	Fundamentals of Quantitative Analysis ¹	3
CHEM 318	Quantitative Analysis Laboratory	1
PHYS 207	Electricity and Magnetism for Engineering and Science	3
PHYS 227	Electricity and Magnetism Laboratory for the Sciences	1
Select one of the following:		3-4
MATH 221	Several Variable Calculus	
MATH 251	Engineering Mathematics III	
MATH 253	Engineering Mathematics III	
Semester Credit Hours		16

Spring

CHEM 228	Organic Chemistry II ¹	3
CHEM 234	Organic Synthesis and Analysis ³	3
CHEM 362	Descriptive Inorganic Chemistry	3
Select one of the following:		3
MATH 304	Linear Algebra	
MATH 308	Differential Equations	
STAT 211	Principles of Statistics I	
American history (p. 30)		3

Social and behavioral sciences (p. 31)	3

Semester Credit Hours	18

Summer

CHEM 491	Research ⁴	6
Semester Credit Hours		6

Third Year

Fall		
CHEM 327	Physical Chemistry I	3
CHEM 433	Advanced Inorganic Chemistry Laboratory	2
Communication (p. 27)		3
Language, philosophy and culture (p. 28)		3
General electives ²		6

Semester Credit Hours	17

Spring

CHEM 325	Physical Chemistry Laboratory I	1
CHEM 328	Physical Chemistry II	3
CHEM 415	Analytical Chemistry	3
CHEM 434	Analytical Instrumentation Laboratory	2
CHEM 481	Seminar ³	2
Creative arts (p. 30)		3
Graduate Chemistry ⁵		3

Semester Credit Hours	17

Fourth Year

Fall		
CHEM 326	Physical Chemistry Laboratory II	1
Graduate Chemistry ⁵		8
General electives ²		3

Semester Credit Hours	12

Spring

Graduate Chemistry ⁵		10
Semester Credit Hours		10

Fifth Year

Fall		
Graduate Chemistry ⁵		9

Semester Credit Hours	9

Spring

Graduate Chemistry ⁵		6
Semester Credit Hours		6

Total Semester Credit Hours	150

¹ Select a section designated for chemistry majors.

² Select any course 100-499 not used elsewhere except AERS 100-299 (<https://catalog.tamu.edu/undergraduate/course-descriptions/aers/>); CHEM 222 (<https://catalog.tamu.edu/search/?P=CHEM%20222>), CHEM 242 (<https://catalog.tamu.edu/search/?P=CHEM%20242>); MATH 102 (<https://catalog.tamu.edu/search/?P=MATH%20102>), MATH 140 (<https://catalog.tamu.edu/search/?P=MATH%20140>), MATH 142 (<https://catalog.tamu.edu/search/?P=MATH%20142>), MATH 167 (<https://catalog.tamu.edu/search/?P=MATH%20167>), MATH 168 (<https://catalog.tamu.edu/search/?P=MATH%20168>); MLSC 100-299 (<https://catalog.tamu.edu/undergraduate/course-descriptions/mlsc/>); NVSC 100-299 (<https://catalog.tamu.edu/undergraduate/course-descriptions/nvsc/>); PHYS 201 (<https://catalog.tamu.edu/search/?P=PHYS%20201>), PHYS 202 (<https://catalog.tamu.edu/search/?P=PHYS%20202>).

catalog.tamu.edu/search/?P=PHYS%20202), PHYS 205 (<https://catalog.tamu.edu/search/?P=PHYS%20205>).

³ This is a designated C- or W-course.

⁴ Students may substitute 3 hours of CHEM 484 (<https://catalog.tamu.edu/search/?P=CHEM%20484>) for CHEM 491 (<https://catalog.tamu.edu/search/?P=CHEM%20491>) in consultation with an advisor.

⁵ 21 credit hours must be taken from CHEM 601-673 (<https://catalog.tamu.edu/graduate/course-descriptions/chem/>), CHEM 689; 6 of these credit hours will be applied towards both BS and MS degrees in Chemistry; 6 other hours of graduate courses in chemistry may be selected from CHEM 681 (up to 2 hours), CHEM 684 (up to 4 hours), CHEM 685 (up to 6 hours), CHEM 695 (up to 3 hours), or CHEM 697 (up to 2 hours); 9 additional credit hours of graduate courses may be taken from CHEM or other departments; consult with advisor for course selection information.

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (<https://catalog.tamu.edu/undergraduate/general-information/degree-information/international-cultural-diversity-requirements/>) courses and 3 hours or Cultural Discourse (<https://catalog.tamu.edu/undergraduate/general-information/degree-information/cultural-discourse-requirements/>) courses. A course satisfying a Core category, a college/department requirement, or a general elective can be used to satisfy this requirement.

The total hours of CHEM 484 (<https://catalog.tamu.edu/search/?P=CHEM%20484>), CHEM 485 (<https://catalog.tamu.edu/search/?P=CHEM%20485>), and CHEM 491 (<https://catalog.tamu.edu/search/?P=CHEM%20491>) taken by BS chemistry majors on a graded (A–F) basis may not exceed 15. Additional hours of these courses may be taken on a satisfactory/unsatisfactory basis.

Electives should be chosen in consultation with the chemistry advisor and should be selected to meet the residency requirement (36 hours at 300-400 level must be taken at Texas A&M).

The program includes a total of 156 hours, which up to 6 hours may be applied toward both the Bachelor of Science in Chemistry and the Master of Science in Chemistry (Non-thesis option).

Chemistry - Minor

Students seeking a minor in chemistry must complete the Declaration of Minor in Chemistry form and have it approved by the undergraduate advisor in chemistry and their academic advisor. A minor in Chemistry should represent course work taken in the discipline beyond courses that might be used to satisfy core curriculum science requirements (8 credits).

Therefore, though CHEM 119 or CHEM 107/CHEM 117 and CHEM 120 are prerequisites to all of the listed courses, they are not considered part of the minor program. The course work listed represents various sub-disciplines within the field of Chemistry and would give the student an overall knowledge base fitting a Minor in Chemistry. This is consistent with the statement on minors published by the American Chemical Society.

Program Requirements

The student will choose five lecture courses (14-15 credits) and three laboratory courses (3-5 credits) from categories A. through E. below. The student must take at least one course from four of the five categories. Students must have a C average in all courses taken for a minor in Chemistry. CHEM 491 and CHEM 485 credits will not

be allowed to count for the minor nor used in the Chemistry GPA calculation. Substitution of courses without the CHEM prefix will not be allowed.

Code	Title	Semester Credit Hours
A. Organic Chemistry		
CHEM 227	Organic Chemistry I ¹	3
CHEM 228	Organic Chemistry II ²	3
CHEM 237	Organic Chemistry Laboratory ¹	1
CHEM 238	Organic Chemistry Laboratory	1
CHEM 257	Organic Chemistry I - Structure and Function	4
CHEM 258	Organic Chemistry II - Reactivity and Applications ²	4
B. Analytical Chemistry		
CHEM 315	Fundamentals of Quantitative Analysis ³	3
CHEM 316	Quantitative Analysis ³	2
CHEM 318	Quantitative Analysis Laboratory	1
C. Physical Chemistry		
CHEM 310	Elements of Physical Chemistry ⁴	3
CHEM 311	Physical Chemistry Laboratory	1
CHEM 321	Physical Chemistry for Life Sciences ⁴	3
CHEM 322	Physical Chemistry for Engineers ⁴	3
CHEM 325	Physical Chemistry Laboratory I	1
CHEM 326	Physical Chemistry Laboratory II	1
CHEM 327	Physical Chemistry I ⁴	3
CHEM 328	Physical Chemistry II	3
D. Inorganic Chemistry		
CHEM 220	Physics and Chemistry of Inorganic Materials	3
CHEM 362	Descriptive Inorganic Chemistry	3
CHEM 383	Chemistry of Environmental Pollution	3
E. Advanced Chemistry		
CHEM 415	Analytical Chemistry	3
CHEM 433	Advanced Inorganic Chemistry Laboratory	2
CHEM 434	Analytical Instrumentation Laboratory	2
CHEM 446	Organic Chemistry III	3
CHEM 456	Chemical Biology	3
CHEM 458	The Chemistry of Drug Discovery	3
CHEM 462	Inorganic Chemistry	3
CHEM 464	Nuclear Chemistry	3
CHEM 466	Polymer Chemistry	3
CHEM 468	Materials Chemistry of Inorganic Materials	3
CHEM 470	Industrial Chemistry	3
CHEM 483	Green Chemistry	3
CHEM 489	Special Topics in...	1-4

¹ Students may not count both CHEM 227 and CHEM 237.

² Students may not count both CHEM 228 and CHEM 258.

³ Students may not count both CHEM 315 and CHEM 316.

⁴ Students may only count one from CHEM 310, CHEM 321, CHEM 322, or CHEM 327.

Department of Communication and Journalism

Communication is concerned with the most distinct human characteristics: the use of spoken and written language and the use of media to communicate information, maintain social contact, and influence others. Journalism is the ethical collection, research, analysis, and distribution of information in the public interest. Combined, communication and journalism tell the stories that promote human relationships, shape society, sell products and services, analyze and interpret data, support healthy practices, guide leaders, create strategies, implement tactics, guide discussions, and manage conflicts in the complex and wonderful world we live in today!

The Department of Communication and Journalism offers Bachelor of Arts and Bachelor of Science degrees in Communication, Journalism, and Telecommunication Media Studies. Communication and Journalism offers these various undergraduate degrees, minors, and certificates along with optional study abroad trips and field trips, internships, and leadership opportunities that when combined to meet a student's interests, provide unique approaches to acquiring the knowledge and the marketable skills needed to describe, interpret, evaluate, and transform the world around us through the use of communication and media.

Students may select a major in Communication, Journalism, or Telecommunication Media Studies and a minor from among any minor offered at Texas A&M University, in order to customize their choices of classes to their interests and goals. Other students may select to choose a major, a minor, and then pattern their courses to pursue a certificate. Honors students may participate in the the well-established and well-respected COMM-Honors program. *Academic Advisors are on hand to assist students in refining their pathway to their future.*

While some students choose advanced degrees in communication, law, business, or religion, many go straight into the work world to pursue careers in a vast array of areas. Typical choices include positions in strategic communication, public relations, marketing, advertising, promotions and sales, training and human resources, social media, journalism, digital communication, leadership and management, health fields related to communication, organizations and public policy, communication media, sports communication, entertainment and related areas of business, industry, government, and non-profit organizations.

Faculty

Anderson, Chante A, Lecturer
Communication & Journalism
PHD, Texas A&M University, 2021

Aschenbeck, Stacy H, Lecturer
Communication & Journalism
MA, Texas State University, 1999

Bajan, Adam R, Lecturer
Communication & Journalism
PHD, Texas A&M University, 2021

Barge, James K, Professor
Communication & Journalism
PHD, University of Kansas, 1985

Beck, Jake, Lecturer
Communication & Journalism
PHD, Southern Illinois University, 2021

Beck, Sarah Lindsey, Senior Lecturer
Communication & Journalism
PHD, University of Colorado Boulder, 2019

Blacksin, Isaac, Assistant Professor
Communication & Journalism
PHD, University of California, Santa Cruz, 2021

Blanton, Hart C, Professor
Communication & Journalism
PHD, Princeton University, 1994

Bradley, Nicholas Bronson, Visiting Lecturer
Communication & Journalism
BA, The University of Memphis, 2018

Burton, Tom, Associate Professor of the Practice
Communication & Journalism
MA, Ohio University, 2021

Campbell, Heidi A, Professor
Communication & Journalism
PHD, The University of Edinburgh, 2002

Castillo, Mariano, Professor of the Practice
Communication & Journalism
MIA, Columbia University, 2009

Champine, Tyler A, Lecturer
Communication & Journalism
PHD, Texas A&M University, 2023

Charner, Flora, Professor of the Practice
Communication & Journalism
MA, Columbia University, 2013

Crick, Nathan A, Professor
Communication & Journalism
PHD, University of Pittsburgh, 2005

Dorsey, Leroy G, Professor
Communication & Journalism
PHD, Indiana University, 1993

Dubriwny, Tasha N, Associate Professor
Communication & Journalism
PHD, University of Georgia, 2005

Gammon, Angelique C, Professor of the Practice
Communication & Journalism
BA, Texas A&M University, 1982

Gong, Xuanjun, Assistant Professor
Communication & Journalism
PHD, University of California at Davis, 2024

Gonzalez, Michael, Visiting Lecturer
Communication & Journalism
MS, Texas Christian University, 2022

Guajardo, Jonathan Robert, Associate Professor of the Practice
Communication & Journalism
MA, University of the Incarnate Word, 2014

Havens, Jessica M, Senior Lecturer
Communication & Journalism
MA, Colgate University, 2012

Henson, Bryce, Associate Professor
Communication & Journalism
PHD, University of Illinois, 2016

Hlavacik, Mark, Assistant Professor
Communication & Journalism
PHD, The Pennsylvania State University, 2014

Kelly, Kathryn, Lecturer
Communication & Journalism
MA, Texas A&M University, 2007

Kim, Eunhui, Lecturer
Communication & Journalism
MA, University of Louisiana, 2017

Kulhanek, Kristy, Instructional Assistant Professor
Communication & Journalism
EDD, Arizona State University, 2019

La Pastina, Antonio C, Associate Professor
Communication & Journalism
PHD, The University of Texas at Austin, 1999

Lemmons, Larry, Assistant Professor of the Practice
Communication & Journalism
PHD, Texas Tech University, 2021

Lopez, Joseph, Associate Professor of the Practice
Communication & Journalism
PHD, The University of Texas at Austin, 2010

Mercieca, Jennifer R, Professor
Communication & Journalism
PHD, University of Illinois at Urbana-Champaign, 2003

O'Donnell, Paul, Professor of the Practice
Communication & Journalism
BS, Bowling Green State University, 1981

Parish, Nancy B, Instructional Assistant Professor
Communication & Journalism
PHD, University of Florida, 2013

Poirot, Kristan A, Associate Professor
Communication & Journalism
PHD, University of Georgia, 2004

Rice, Dale A, Associate Professor of the Practice
Communication & Journalism
BA, Syracuse University, 1973

Rold, Michael F, Senior Lecturer
Communication & Journalism
PHD, Louisiana State University, 2014

Street, Nancy A, Instructional Professor
Communication & Journalism
MA, The University of Texas at Austin, 1980

Street, Richard L, Professor
Communication & Journalism
PHD, The University of Texas at Austin, 1980

Tang, Lu, Professor
Communication & Journalism
PHD, University of Southern California, 2007

Tarvin, David T, Instructional Professor
Communication & Journalism
PHD, Louisiana State University, 2013

Villanueva, George Allen O., Associate Professor
Communication & Journalism
PHD, University of Southern California, 2014

Wanzer-Serrano, Darrel, Associate Professor
Communication & Journalism
PHD, Indiana University, 2007

Wolfe, Anna W, Associate Professor
Communication & Journalism
PHD, Ohio University, 2013

Xia, Yiping, Assistant Professor
Communication & Journalism
PHD, University Wisconsin-Madison, 2022

Yan, Harry, Assistant Professor
Communication & Journalism
PHD, Indiana University Bloomington, 2023

Yan, Yaojun, Assistant Professor
Communication & Journalism
PHD, University of Indiana, Bloomington, 2023

Yang, Yunkang, Assistant Professor
Communication & Journalism
PHD, University of Washington, 2020

Majors

- Bachelor of Arts in Communication (p. 326)
- Bachelor of Arts in Communication and Master of Arts in Communication, 5-Year Degree Program (p. 327)
- Bachelor of Arts in Journalism (p. 332)
- Bachelor of Arts in Journalism and Master of Arts in Communication, 5-Year Degree Program (p. 333)
- Bachelor of Arts in Telecommunication Media Studies (p. 338)
- Bachelor of Arts in Telecommunication Media Studies and Master of Arts in Communication, 5-Year Degree Program (p. 339)
- Bachelor of Science in Communication (p. 329)
- Bachelor of Science in Communication and Master of Arts in Communication, 5-Year Degree Program (p. 330)
- Bachelor of Science in Journalism (p. 335)

- Bachelor of Science in Journalism and Master of Arts in Communication, 5-Year Degree Program (p. 336)
- Bachelor of Science in Telecommunication Media Studies (p. 341)
- Bachelor of Science in Telecommunication Media Studies and Master of Arts in Communication, 5-Year Degree Program (p. 342)

Minors

- Communication Minor (p. 344)
- Journalism Minor (p. 344)

Certificates

- Communication Leadership and Conflict Management Certificate (p. 344)
- Health Communication Certificate (p. 345)
- Social Media Certificate (p. 345)
- Strategic Communication Certificate (p. 346)

Communication - BA

The Bachelor of Arts (BA) in Communication teaches how to influence and persuade others through the use of language, visual images and other media.

Students who want to transform the world through communication choose the Bachelor of Arts in Communication as a major. This is a major that affords a broad based, liberal arts education that draws from coursework from across the College of Arts and Sciences, and from across the Texas A&M University. In the Communication major, we pursue coursework giving students a background in the processes and theories of communication as well as in the marketable skills that are so valuable in the working world.

Coursework for incoming Freshmen begins with a dedicated first semester experience which introduces them to the breadth of the field of Communication and of Media while also involving them in small groups and acquainting them with Texas A&M University, our resources and our opportunities. We also welcome Transfer students, meeting them where they are and integrating them into the Communication family. All Communication majors take a core of required courses that establish a firm foundation in the field and then select additional coursework that suits their interests and needs. Students who wish to focus their studies further, may choose to earn a certificate in Health Communication, Strategic Communication, Leadership and Conflict Management, or Social Media.

With over a thousand students in the major, there is not one particular career path that they all choose. Many go into careers in public relations, advertising, sales, promotions and marketing. Others work in leadership positions in corporations, or in political, religious or social non-profits.

Still others work in tactics of communication such as spokespersons, event managers, market influencers, graphic designers or digital specialists. Other popular options are careers in sports, social media, international business, and health.

All BA in Communication students choose a minor. A minor area of study fits within the hours required for the degree and helps to further define and focus the student's interests. When making a choice of majors, remember that one can major in Communication and minor in a related area or in a widely divergent area.

Program Requirements

First Year

Fall

	Semester Credit Hours
COMM 100-499 (p. 975) ^{1,2}	4
ENGL 104 Composition and Rhetoric	3
Select one of the following:	3
MATH 140 Mathematics for Business and Social Sciences	
MATH 142 Business Calculus	
MATH 151 Engineering Mathematics I	
MATH 152 Engineering Mathematics II	
PHIL 240 Introduction to Logic	
STAT 201 Elementary Statistical Inference	
American history (p. 30)	3
Language, philosophy and culture (p. 28) ³	3
Semester Credit Hours	16

Spring

Select one of the following: ²	3
COMM 210 Group Communication and Discussion	
COMM 215/ JOUR 215 Interviewing: Principles and Practice	
COMM 230/ JOUR 230 Communication Technology Skills	
COMM 240 Rhetorical Criticism	
COMM 245 Difficult Dialogues on Power, Privilege, and Difference	
COMM 250/ JOUR 250 New Media and the Independent Voice	
Select one of the following:	3
ENGL 103 Introduction to Rhetoric and Composition	
ENGL 203 Writing about Literature ⁴	
ENGL 210 Technical and Professional Writing	
Select one of the following:	3
MATH 140 Mathematics for Business and Social Sciences	
MATH 142 Business Calculus	
MATH 151 Engineering Mathematics I	
MATH 152 Engineering Mathematics II	
PHIL 240 Introduction to Logic	
STAT 201 Elementary Statistical Inference	
Government/Political science (p. 31)	3
Life and physical sciences (p. 27)	3
Semester Credit Hours	15

Second Year

Fall

ENGL 100-499 (p. 1021)	3
Select one of the following: ²	3
COMM 203 Public Speaking	
COMM 205 Communication for Technical Professions	
COMM 243 Argumentation and Debate	
Creative arts (p. 30) ³	3

Social and behavioral sciences (p. 31) ³	3
General elective ⁴	3
Semester Credit Hours	15
Spring	
COMM 300-399 (p. 975) ²	3
ENGL 100-499 (p. 1021)	3
American history (p. 30)	3
Government/Political science (p. 31)	3
Life and physical sciences (p. 27)	3
Semester Credit Hours	15
Third Year	
Fall	
COMM 301 Rhetoric in Western Thought ²	3
COMM 308 Research Methods in Communication ²	3
Language, philosophy and culture or creative arts (p. 28) ³	3
Minor ⁵	3
General elective ⁴	3
Semester Credit Hours	15
Spring	
COMM 300-399 (p. 975) ²	3
COMM 305 Theories of Communication ²	3
Life and physical sciences (p. 27)	3
Minor ⁵	3
General elective ⁴	3
Semester Credit Hours	15
Fourth Year	
Fall	
COMM 100-499 (p. 975) ²	2
COMM 401-480 (p. 975) ²	3
Minor ⁵	3
Minor ⁵	3
General elective ⁴	3
Semester Credit Hours	14
Spring	
COMM 401-480 (p. 975) ²	3
Minor ⁵	3
Minor ⁵	3
General elective ⁴	3
General elective ⁴	3
Semester Credit Hours	15
Total Semester Credit Hours	120

some of these courses may become electives. Minors will range between 15 and 18 hours.

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

Included in graduation requirements are the following stipulations:

1. A minimum of 2.0 GPA
2. Minimum grade of C in each course applied to the major
3. Minimum of 12 hours of upper-level COMM coursework at Texas A&M

Communication - 5-Year Bachelor of Arts and Master of Arts in Communication

This combination program provides a direct pathway for BA COMM majors to transition seamlessly into the MA COMM program thereby earning both degrees in five or fewer years.

The program begins each fall semester. Interested students will apply for the program in the spring of the junior year and must have two full undergraduate terms remaining at the time of application. Academic advisors at both the undergraduate and graduate levels will guide students through the process every step of the way. This program increases students' opportunities to learn and grow while they are here at Texas A&M University. By allowing students additional time to pursue more advanced classes, they have increased opportunities to take advantage of the rich options our department has to offer.

This is a great choice for the many students who come to Texas A&M University with credit by examination, dual credit, and community college credit. The additional year for this program gives these particular students who would otherwise graduate in just two or three years, the time to become involved in student organizations, to take on leadership positions in the university, to pursue career path-altering internships, to participate in our study abroad programs, to collaborate with faculty and graduate students in their research projects, and to compete for fellowships and admission into other Texas A&M programs that can expand their horizons. A Master's degree is value-added and this degree will offer both our students and our faculty opportunities to cultivate stronger mentoring relationships, which often broaden students' horizons and expand their career interests.

Program Requirements

First Year

Fall	Semester Credit Hours
COMM 100-499 (p. 975) ^{1,2}	4
ENGL 104 Composition and Rhetoric ²	3
Select one of the following:	3
MATH 140 Mathematics for Business and Social Sciences	
MATH 142 Business Calculus	

¹ First semester, first time in college students must take COMM 101 and COMM 291.

² Must make a grade of C or better.

³ COMM course may not be used to fulfill this requirement.

⁴ Select any 100-499 course not used elsewhere. Only 14 hours of KINE 199; AERS 100-499 (p.); MLSC 100-499 (p. 1151); NVSC 100-499 (p.); SOMS 100-499 (p. 1237) may be used towards general electives.

⁵ Minor to be selected from among approved university minors. Consult with advisor regarding how to declare desired minor. Courses fulfilling core curriculum requirements may apply to the minor and therefore

MATH 151	Engineering Mathematics I	
MATH 152	Engineering Mathematics II	
PHIL 240	Introduction to Logic	
STAT 201	Elementary Statistical Inference	
American history (p. 30)		3
Language, philosophy and culture (p.) ³		3
Semester Credit Hours		16
Spring		
Select one of the following: ²		3
COMM 210	Group Communication and Discussion	
COMM 215/ JOUR 215	Interviewing: Principles and Practice	
COMM 230/ JOUR 230	Communication Technology Skills	
COMM 240	Rhetorical Criticism	
COMM 245	Difficult Dialogues on Power, Privilege, and Difference	
COMM 250/ JOUR 250	New Media and the Independent Voice	
Select one of the following:		3
ENGL 103	Introduction to Rhetoric and Composition	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
Select one of the following:		3
MATH 140	Mathematics for Business and Social Sciences	
MATH 142	Business Calculus	
MATH 151	Engineering Mathematics I	
MATH 152	Engineering Mathematics II	
PHIL 240	Introduction to Logic	
STAT 201	Elementary Statistical Inference	
Government/Political science (p. 31)		3
Life and physical sciences (p. 27)		3
Semester Credit Hours		15
Second Year		
Fall		
ENGL 100-499 (p. 1021)		3
Select one of the following: ²		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
Creative arts (p. 30) ³		3
Social and behavioral sciences (p. 31) ³		3
General elective ⁴		3
General elective ⁴		3
Semester Credit Hours		18
Spring		
COMM 300-399 (p. 975) ²		3
ENGL 100-499 (p. 1021)		3
American history (p. 30)		3
Government/Political science (p. 31)		3
Life and physical sciences (p. 27)		3

General elective ⁴		3
Semester Credit Hours		18
Third Year		
Fall		
COMM 301	Rhetoric in Western Thought ²	3
COMM 308	Research Methods in Communication ²	3
Language, philosophy and culture or creative arts (p.) ³		3
Minor ⁵		3
General elective ⁴		3
Semester Credit Hours		15
Spring		
COMM 300-399 (p. 975) ²		3
COMM 305	Theories of Communication ²	3
Life and physical sciences (p. 27)		3
Minor ⁵		3
General elective ⁴		3
Semester Credit Hours		15
Fourth Year		
Fall		
COMM 100-499 (p. 975) ²		2
COMM 401-480 (p. 975) ^{2,6}		3
COMM 600-699 (https://catalog.tamu.edu/graduate/course-descriptions/comm/) ⁷		3
Minor ⁵		3
General elective ⁴		3
Semester Credit Hours		14
Spring		
COMM 401-480 (p. 975) ^{2,6}		3
COMM 600-699 (https://catalog.tamu.edu/graduate/course-descriptions/comm/) ⁷		3
Minor ⁵		3
Minor ⁵		3
General elective ⁴		3
Semester Credit Hours		15
Fifth Year		
Fall		
COMM 600-699 (https://catalog.tamu.edu/graduate/course-descriptions/comm/) ⁷		3
COMM 600-699 (https://catalog.tamu.edu/graduate/course-descriptions/comm/) ⁷		3
COMM 600-699 (https://catalog.tamu.edu/graduate/course-descriptions/comm/) ⁷		3
COMM 600-699 (https://catalog.tamu.edu/graduate/course-descriptions/comm/) ^{7,8}		3
Semester Credit Hours		12
Spring		
COMM 600-699 (https://catalog.tamu.edu/graduate/course-descriptions/comm/) ⁷		3
COMM 600-699 (https://catalog.tamu.edu/graduate/course-descriptions/comm/) ⁷		3
COMM 600-699 (https://catalog.tamu.edu/graduate/course-descriptions/comm/) ⁷		3

COMM 600-699 (<https://catalog.tamu.edu/graduate/course-descriptions/comm/>)^{7,8}

Semester Credit Hours	12
Total Semester Credit Hours	150

¹ First semester, first time in college students must take COMM 101 and COMM 291.

² Must make a grade of C or better.

³ COMM course may not be used to fulfill this requirement.

⁴ Select any 100-499 course not used elsewhere. Only 14 hours of KINE 199; AERS 100-499 (p.); MLSC 100-499 (p. 1151); NVSC 100-499 (p.); SOMS 100-499 (p. 1237) may be used towards general electives.

⁵ Minor to be selected from among approved university minors. Consult with advisor regarding how to declare desired minor. Courses fulfilling core curriculum requirements may apply to the minor and therefore some of these courses may become electives. Minors will range between 15 and 18 hours.

⁶ Course will count in undergraduate and in graduate degree.

⁷ Student will select coursework in consultation with Graduate Director.

⁸ With prior approval by Graduate Director, may select out of department graduate level course.

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

Included in graduation requirements are the following stipulations:

1. A minimum of 2.0 GPR
2. Minimum grade of C in each course applied to the major
3. Minimum of 12 hours of upper-level COMM coursework at Texas A&M

The program includes a total of 156 hours which up to 6 hours may be applied toward both the Bachelor of Arts in Communication and the Master of Arts in Communication (Non-thesis).

Communication - BS

The Bachelor of Science (BS) in Communication provides a marketable set of skills aimed toward communication intervention in areas such as business, health communication, media, politics, non-profits and social issues.

The Bachelor of Science in Communication harnesses the power of collaborative communication to solve problems through the very essence of this degree, *communication intervention*. Communication intervention is the skill of collaborating with others effectively to modify outcomes, conditions and processes while also preventing harm with the goal of transforming system functioning. It draws from a transdisciplinary liberal arts and STEM knowledge base. It is a critical key to analyzing and addressing 21st century challenges. We address problem-solving by integrating the critical thinking and perspective taking skills embraced by the liberal arts with the analytical and quantitative proficiencies of STEM (science, technology, engineering and math). In addition to core curriculum required by the University and the State of Texas, Bachelor of Science students will take foundation coursework in the social

scientific study of communication and intervention, communication technology, communication research methods, acquisition, analysis and visualization of data, team facilitation and collaboration, and the design, implementation and assessment of communication interventions.

The field of communication is supremely varied as are the careers pursued by our majors. We address both the science and art of communication in human interactions. Embracing cutting-edge applications, communication specialists are found selling products and promoting initiatives, engaging in public relations, advertising, marketing strategies, digitizing messages, launching and sustaining new media entrepreneurial ventures, facilitating the relationship of doctors and patients, mounting health campaigns and measuring their effects, working on political campaigns, mobilizing the vote, analyzing the ROI of social media initiatives, leading interactions to heal public discord, managing and leading organizations, disseminating concepts, and describing, interpreting and evaluating a wide range of communication phenomena.

The BS is contrasted with the Bachelor of Arts (BA) in the following ways. First, within the major coursework, the courses central to the degree are social scientific in nature. Second, BS students pursue a set of quantitative courses which includes statistics, computer applications and two research methods courses. Third, the required minor may be replaced with a certificate from the Department of Communication and Journalism. The minor or the certificate will provide context and expertise for the communication intervention science focus. Currently, students may choose from any of the minors offered at Texas A&M or from one of these certificates offered by the Department of Communication and Journalism: Social Media, Strategic Communication, Leadership and Conflict Management, or Health Communication.

Similar to the BA in Communication, coursework for incoming Freshmen begins with a dedicated first semester experience which introduces them to the breadth of the field of Communication and of Media while also involving them in small groups and acquainting them with Texas A&M University, our resources and our opportunities. We also welcome Transfer students, meeting them where they are and integrating them into the Communication family. All Communication majors take a specified core of required courses that establishes a firm foundation in the field and then select additional coursework that suits their interests and needs.

Program Requirements

First Year

Fall		Semester Credit Hours
COMM 100-499 (p. 975)	^{1,2}	4
ENGL 104	Composition and Rhetoric	3
Select one of the following:		3
MATH 140	Mathematics for Business and Social Sciences	
MATH 142	Business Calculus	
MATH 151	Engineering Mathematics I	
MATH 152	Engineering Mathematics II	
PHIL 240	Introduction to Logic	
Language, philosophy and culture (p. 28)		³ 3
Social and behavioral sciences (p. 31)		³ 3
Semester Credit Hours		16

Spring		
COMM 230/ JOUR 230	Communication Technology Skills ²	3
Select one of the following:		3
MATH 140	Mathematics for Business and Social Sciences	
MATH 142	Business Calculus ³	
MATH 151	Engineering Mathematics I	
MATH 152	Engineering Mathematics II	
PHIL 240	Introduction to Logic	
Communication (p. 27)		3
Creative arts (p. 30) ³		3
Life and physical sciences (p. 27) ⁴		3
Semester Credit Hours		15
Second Year		
Fall		
COMM 210	Group Communication and Discussion ²	3
STAT 201 or STAT 303	Elementary Statistical Inference or Statistical Methods	3
American history (p. 30)		3
Government/Political science (p. 31)		3
Life and physical sciences (p. 27)		3
Semester Credit Hours		15
Spring		
COMM 100-499 (p. 975) ²		3
ISTM 209	Business Information Systems Concepts	3
Government/Political science (p. 31)		3
Life and physical sciences (p. 27)		3
Social and behavioral sciences (p. 31) ³		3
Semester Credit Hours		15
Third Year		
Fall		
COMM 305	Theories of Communication ²	3
COMM 308	Research Methods in Communication ²	3
COMM 310	Communication Intervention ²	3
American history (p. 30)		3
Minor or certificate ⁴		3
Semester Credit Hours		15
Spring		
COMM 303/ JOUR 305	Communication Data Applications ²	3
COMM 309	Research Method Projects ²	3
Minor or certificate ⁴		3
Minor or certificate ⁴		3
General elective ⁵		3
Semester Credit Hours		15
Fourth Year		
Fall		
COMM 100-499 (p. 975) ²		2
COMM 401-480 (p. 975) ²		3
Minor or Certificate ⁴		3
Minor or certificate ⁴		3

General elective ⁵	3
Semester Credit Hours	14
Spring	
COMM 100-499 (p. 975) ²	3
COMM 400-480 (p. 975) ²	3
Minor or Certificate ⁴	3
General elective ⁵	3
General elective ⁵	3
Semester Credit Hours	15
Total Semester Credit Hours	120

¹ First semester, first time in college students must take COMM 101 and COMM 291 at Texas A&M University. Do not take SPCH 1311 elsewhere to fulfill this requirement.

² Must make a grade of C or better.

³ Except COMM 100-499 (p. 975).

⁴ Select from any 100-499 course not used elsewhere. Includes 12-18 hours of courses used to satisfy the required minor or certificate. Students must earn either a minor to be selected from among university-approved minors or a certificate from among approved Department of Communication and Journalism certificates, which require a grade of B or better in each course. The minor is required unless waived upon completion of the certificate. Consult with an advisor regarding how to declare the desired minor or certificate. Courses fulfilling other requirements may apply to the certificate or the minor; therefore, some of these courses may become general electives.

⁵ Select from any 100-499 course not used elsewhere. Includes 12-18 hours of courses used to satisfy the required minor or CMJR certificate and 3-9 hours of general electives. Only 14 hours of KINE 199; AERS 100-499 (p.); MLSC 100-499 (p. 1151); NVSC 100-499 (p.); SOMS 100-499 (p. 1237) may be used towards general electives.

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a core category, a college/department requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

Communication - 5-Year Bachelor of Science and Master of Arts in Communication

The combination 5-year Bachelor-Master program provides a direct pathway for BS COMM majors to transition seamlessly into the MA COMM program thereby earning both degrees in five or fewer years.

The combination program begins each fall semester. Interested students will apply for the combined program in the spring of the junior year and must have two full undergraduate terms remaining at the time of application. Accepted students will take one graduate course in each of the senior semesters while they complete the undergraduate coursework. These students will then complete the MA. Academic advisors at both the undergraduate and graduate levels will guide students through the process every step of the way. The ABM option increases students' opportunities to learn and grow while they are here at Texas A&M University. By allowing students additional time to pursue more advanced

classes, they have increased opportunities to take advantage of the rich options our department has to offer.

This is a great choice for the many students who come to Texas A&M University with credit by examination, dual credit, and community college credit. The additional year for this program gives these particular students who would otherwise graduate in just two or three years, the time to become involved in student organizations, to take on leadership positions in the university, to pursue career path-altering internships, to participate in our study abroad programs, to collaborate with faculty and graduate students in their research projects, and to compete for fellowships and admission into other Texas A&M programs that can expand their horizons. A Master's degree is value-added and this degree will offer both our students and our faculty opportunities to cultivate stronger mentoring relationships, which often broaden students' horizons and expand their career interests.

Program Requirements

First Year

Fall		Semester Credit Hours
COMM 100-499 (p. 975) ^{1,2}		4
ENGL 104	Composition and Rhetoric ²	3
Select one of the following:		3
MATH 140	Mathematics for Business and Social Sciences	
MATH 142	Business Calculus	
MATH 151	Engineering Mathematics I	
MATH 152	Engineering Mathematics II	
PHIL 240	Introduction to Logic	
Language, philosophy and culture (p. 28) ³		3
Social and behavioral sciences (p. 31) ³		3
Semester Credit Hours		16
Spring		
COMM 230/ JOUR 230	Communication Technology Skills ²	3
Select one of the following:		3
MATH 140	Mathematics for Business and Social Sciences	
MATH 142	Business Calculus ³	
MATH 151	Engineering Mathematics I	
MATH 152	Engineering Mathematics II	
PHIL 240	Introduction to Logic	
Communication (p. 27)		3
Creative arts (p. 30) ³		3
Life and physical sciences (p. 27)		3
Semester Credit Hours		15

Second Year

Fall		
COMM 210	Group Communication and Discussion ²	3
COMM 100-499 (p. 975) ²		3
STAT 201 or STAT 303	Elementary Statistical Inference or Statistical Methods	3
American history (p. 30)		3

Life and physical sciences (p. 27)	3
General elective ⁴	3

Semester Credit Hours 18

Spring

COMM 100-499 (p. 975) ²	3
ISTM 209 Business Information Systems Concepts	3
Government/Political science (p. 31)	3
Life and physical sciences (p.)	3
Social and behavioral sciences (p.) ³	3
General elective ⁴	3

Semester Credit Hours 18

Third Year

Fall

COMM 305	Theories of Communication ²	3
COMM 308	Research Methods in Communication ²	3
COMM 310	Communication Intervention ²	3
American history (p. 30)		3
Minor or certificate ⁵		3

Semester Credit Hours 15

Spring

COMM 309	Research Method Projects ²	3
COMM 303/ JOUR 305	Communication Data Applications ²	3
Minor or certificate ⁵		3
Minor or certificate ⁵		3
General elective ⁴		3

Semester Credit Hours 15

Fourth Year

Fall

COMM 100-499 (p. 975) ²	2
COMM 400-480 (p. 975) ^{2,6}	3
COMM 600-699 (https://catalog.tamu.edu/graduate/course-descriptions/comm/) ⁷	3
Minor or certificate ⁵	3
Minor or certificate ⁵	3

Semester Credit Hours 14

Spring

COMM 400-480 (p. 975) ^{2,6}	3
COMM 600-699 (https://catalog.tamu.edu/graduate/course-descriptions/comm/) ⁷	3
Government/Political science (p. 31)	3
General elective ⁴	3
General elective ⁴	3

Semester Credit Hours 15

Fifth Year

Fall

COMM 600-699 (https://catalog.tamu.edu/graduate/course-descriptions/comm/) ⁷	3
COMM 600-699 (https://catalog.tamu.edu/graduate/course-descriptions/comm/) ⁷	3
COMM 600-699 (https://catalog.tamu.edu/graduate/course-descriptions/comm/) ⁷	3

COMM 600-699 (https://catalog.tamu.edu/graduate/course-descriptions/comm/) ^{7,8}	3
Semester Credit Hours	12
Spring	
COMM 600-699 (https://catalog.tamu.edu/graduate/course-descriptions/comm/) ⁷	3
COMM 600-699 (https://catalog.tamu.edu/graduate/course-descriptions/comm/) ⁷	3
COMM 600-699 (https://catalog.tamu.edu/graduate/course-descriptions/comm/) ⁷	3
COMM 600-699 (https://catalog.tamu.edu/graduate/course-descriptions/comm/) ^{7,8}	3
Semester Credit Hours	12
Total Semester Credit Hours	150

¹ First semester, first time in college students must take COMM 101 and COMM 291. Do NOT take SPCH 1311 elsewhere to fulfill this requirement.

² Must make a grade of C or better.

³ Except COMM 100-499 (<http://catalog.tamu.edu/undergraduate/course-descriptions/comm/>).

⁴ Select from any 100-499 course not used elsewhere. Includes 12-18 hours of courses used to satisfy the required minor or CMJR certificate and 3-9 hours of general electives. Only 14 hours of KINE 199; AERS 100-499 (p.); MLSC 100-499 (p. 1151); NVSC 100-499 (p.); SOMS 100-499 (p. 1237) may be used towards general electives.

⁵ Select from any 100-499 course not used elsewhere. Includes 12-18 hours of courses used to satisfy the required minor or certificate. Students must earn either a minor to be selected from among university-approved minors or a certificate from among approved Department of Communication and Journalism certificates, which require a grade of B or better in each course. The minor is required unless waived upon completion of the certificate. Consult with an advisor regarding how to declare the desired minor or certificate. Courses fulfilling other requirements may apply to the certificate or the minor; therefore, some of these courses may become general electives.

⁶ Course will count toward undergraduate degree and graduate degree.

⁷ Student will select coursework in consultation with Graduate Director.

⁸ With pre-approval by the Graduate Director, students may select out of department graduate course.

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a core category, a college/department requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

The program includes a total of 156 hours, which up to 6 hours may be applied toward both the Bachelor of Science in Communication and the Master of Arts in Communication (Non-Thesis).

Journalism - BA

This program is for journalists of the future who want to cover news, sports, business, politics, arts and entertainment, engage in magazine writing, and digital storytelling to name a few.

New journalists pursuing the Bachelor of Arts in Journalism will take at least 33 hours of journalism coursework, including course work in

media writing, fact gathering, and journalism as a profession. While many immersive experiences in journalism are encouraged, provided and facilitated, each BA student will complete a formal, supervised, credit-bearing, journalism internship relevant to their area of interest and focus.

BA journalism students also complete one of the many minors offered at Texas A&M University, and with the guidance of their academic advisor choose a four-course focus area that allows the student to customize and individualize their own, unique area of interest.

Journalism majors have the option to choose to earn one of the certificates offered by the Department of Communication and Journalism which include Health Communication, Leadership & Conflict Management, Social Media or Strategic Communication.

The Bachelor of Arts in Journalism offers preparation in the art of journalism to the journalists of the future. The new journalist must know how to communicate across platforms, across audiences and with fact-checked precision. Democracy depends on the ethical practice of journalism. The new journalist must understand, adapt to and be able to leverage new economic models that sustain and grow journalism. The new journalist must adhere strictly to the highest ethical principles and practices. There are ample jobs available for new journalists, as well as opportunities to address 'news deserts' state-wide. As a land-grant, sea-grant and space-grant university we are well resourced to prepare new journalists to take advantage of our curricula that incorporate immersive experiences both inside and outside the classroom 1) enabling skill-building in journalistic writing, broadcasting, and digital production, 2) prompting pragmatic and conceptual analyses of the corporate practice of journalism and implementation of entrepreneurial endeavors, and 3) directing the enactment of journalistic ethics articulated by the Society of Professional Journalists: seek truth and report it, minimize harm, act independently, and be accountable and transparent. The Bachelor of Arts in Journalism offers preparation in the art of journalism to the journalists of the future who must carry this torch.

To these ends, we also offer a Bachelor of Science in Journalism. Please examine that option before you make your choice.

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 104	Composition and Rhetoric ¹	3
JOUR 102	American Mass Media ¹	3
POLS 206	American National Government	3
Select one of the following:		3-4
MATH 140	Mathematics for Business and Social Sciences	
MATH 142	Business Calculus	
MATH 151	Engineering Mathematics I	
MATH 152	Engineering Mathematics II	
PHIL 240	Introduction to Logic	
STAT 201	Elementary Statistical Inference	
Creative arts (p. 30)		3
Semester Credit Hours		15

Spring

JOUR 200	Mass Media Information ¹	3
POLS 207	State and Local Government	3

Select one of the following:	3
COMM 203 Public Speaking	
COMM 205 Communication for Technical Professions	
COMM 243 Argumentation and Debate	
ENGL 103 Introduction to Rhetoric and Composition	
ENGL 203 Writing about Literature	
ENGL 210 Technical and Professional Writing	
Select one of the following:	3-4
MATH 140 Mathematics for Business and Social Sciences	
MATH 142 Business Calculus	
MATH 151 Engineering Mathematics I	
MATH 152 Engineering Mathematics II	
PHIL 240 Introduction to Logic	
STAT 201 Elementary Statistical Inference	
Language, philosophy and culture (p. 28)	3
Semester Credit Hours	15
Second Year	
Fall	
JOUR 203 Media Writing I ¹	3
JOUR 200-499 (p. 1106) ¹	3
American history (p. 30)	3
Social and behavioral sciences (p. 31) ²	3
General elective ⁴	3
Semester Credit Hours	15
Spring	
JOUR 200-499 (p. 1106) ¹	3
JOUR 200-499 (p. 1106) ¹	3
Life and physical sciences (p. 27)	3
Focus area ^{1,3}	3
Minor ⁵	3
Semester Credit Hours	15
Third Year	
Fall	
JOUR 300-499 (p. 1106) ¹	3
JOUR 300-499 (p. 1106) ¹	3
Life and physical sciences (p. 27)	3
Focus area ^{1,3}	3
General elective ⁴	3
Semester Credit Hours	15
Spring	
JOUR 484 Internship ¹	3
American history (p. 30)	3
Life and physical sciences (p. 27)	3
Focus area ^{1,3}	3
General elective ⁴	3
Semester Credit Hours	15
Fourth Year	
Fall	
JOUR 300-499 (p. 1106) ¹	3
Focus area ^{1,3}	3
Minor ⁵	3

Minor ⁵	3
General elective ⁴	3
Semester Credit Hours	15
Spring	
JOUR 490 Journalism as a Profession ¹	3
Minor ⁵	3
Minor ⁵	3
General elective ⁴	3
General elective ⁴	1-3
Semester Credit Hours	15
Total Semester Credit Hours	120

¹ Must earn a grade of C or better.

² JOUR 100-499 (p. 1106) cannot be used to fulfill this requirement.

³ Select from JOUR 100-499 (p. 1106) and/or other courses in consultation with the program director or designee to form a supporting focus area.

⁴ Select any 100-499 course not used elsewhere. Only 14 hours of KINE 199; AERS 100-499 (p. 900); MLSC 100-499 (p. 1151); NVSC 100-499 (p. 1178); SOMS 100-499 (p. 1237) may be used towards general electives.

⁵ Minor to be selected from among approved university minors. Consult with advisor regarding how to declare desired minor. Courses fulfilling core curriculum requirements may apply to the minor and therefore some of these courses may become electives. Minors will range between 15 and 18 hours.

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a core category, a college/department requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

Journalism - 5-Year Bachelor of Arts and Master of Arts in Communication

This combination program provides a direct pathway for BA JOUR majors to transition seamlessly into the MA COMM program thereby earning both degrees in five or fewer years.

The program begins each fall semester. Interested students will apply for the combination program in the spring of the junior year and must have two full undergraduate terms remaining at the time of application. Academic advisors at both the undergraduate and graduate levels will guide students through the process every step of the way. This program increases students' opportunities to learn and grow while they are here at Texas A&M University. By allowing students additional time to pursue more advanced classes, they have increased opportunities to take advantage of the rich options our department has to offer.

This is a great choice for the many students who come to Texas A&M University with credit by examination, dual credit, and community college credit. The additional year for this program gives these particular students who would otherwise graduate in just two or three years, the time to become involved in student organizations, to take on leadership positions in the university, to pursue career path-altering internships, to participate in our study abroad programs, to collaborate with faculty and graduate students in their research projects, and to compete for

fellowships and admission into other Texas A&M programs that can expand their horizons. A Master's degree is value-added and this degree will offer both our students and our faculty opportunities to cultivate stronger mentoring relationships, which often broaden students' horizons and expand their career interests.

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 104	Composition and Rhetoric ¹	3
JOUR 102	American Mass Media ¹	3
POLS 206	American National Government	3
Select one of the following:		3
MATH 140	Mathematics for Business and Social Sciences	
MATH 142	Business Calculus	
MATH 151	Engineering Mathematics I	
MATH 152	Engineering Mathematics II	
PHIL 240	Introduction to Logic	
STAT 201	Elementary Statistical Inference	
Creative arts (p. 30)		3
Semester Credit Hours		15

Spring

JOUR 200	Mass Media Information ¹	3
POLS 207	State and Local Government	3
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 103	Introduction to Rhetoric and Composition	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
Select one of the following:		3
MATH 140	Mathematics for Business and Social Sciences	
MATH 142	Business Calculus	
MATH 151	Engineering Mathematics I	
MATH 152	Engineering Mathematics II	
PHIL 240	Introduction to Logic	
STAT 201	Elementary Statistical Inference	
Language, philosophy and culture (p. 28)		3
Semester Credit Hours		15

Second Year

Fall		
JOUR 203	Media Writing I ¹	3
JOUR 200-499 (p. 1106) ¹		3
American history (p. 30)		3
Social and behavioral sciences (p. 31) ²		3
General elective ³		3
General elective ³		3
Semester Credit Hours		18

Spring

JOUR 200-499 (p. 1106) ¹	3
JOUR 200-499 (p. 1106) ¹	3
Life and physical sciences (p. 27)	3
Focus area ^{1,4}	3
Minor ⁵	3
General elective ³	3
Semester Credit Hours	18

Third Year

Fall		
COMM 308	Research Methods in Communication ^{1,6}	3
JOUR 300-499 (p. 1106) ¹		3
JOUR 300-499 (p. 1106) ¹		3
Life and physical sciences (p. 27)		3
Focus area ^{1,4}		3
Semester Credit Hours		15

Spring

JOUR 484	Internship ¹	3
American history (p. 30)		3
Life and physical sciences (p. 27)		3
Focus area ^{1,4}		3
General elective ³		3
Semester Credit Hours		15

Fourth Year

Fall		
COMM 681	Professional Seminar	0
COMM 600-699 (p. 975) ⁷		3
JOUR 300-499 (p. 1106) ¹		3
Focus area ^{1,4}		3
Minor ⁵		3
Minor ⁵		3
Semester Credit Hours		15

Spring

COMM 600-699 (p. 975) ⁷		3
JOUR 490	Journalism as a Profession ^{1,6}	3
Minor ⁵		3
Minor ⁵		3
General elective ³		3
Semester Credit Hours		15

Fifth Year

Fall		
COMM 600-699 (p. 975) ⁷		3
COMM 600-699 (p. 975) ⁷		3
COMM 600-699 (p. 975) ⁷		3
COMM 600-699 (p. 975) ⁷		3
Semester Credit Hours		12

Spring

COMM 600-699 (p. 975) ⁷	3
COMM 600-699 (p. 975) ⁷	3
COMM 600-699 (p. 975) ⁷	3

COMM 600-699 (p. 975) ⁷	3
Semester Credit Hours	12
Total Semester Credit Hours	150

¹ Must make a grade of C or better.

² JOUR 100-499 (p. 1106) may not be used to fulfill this requirement.

³ Select an 100-499 course not used elsewhere. Only 14 hours of KINE 199, AERS 100-499 (p. 900), MLSC 100-499 (p. 1151), NVSC 100-499 (p. 1178), SOMS 100-499 (p. 1237) may be used toward the general electives.

⁴ In consultation with the program director or designee, select from JOUR 100-499 (p. 1106) and/or other courses to form a supporting focus area. Obtain required, written approval of focus area courses.

⁵ Minor to be selected from among approved university minors. Consult with advisor regarding how to declare desired minor. Courses fulfilling core curriculum requirements may apply to the minor and therefore some of these courses may become electives. Minors will range between 15 and 18 hours.

⁶ Course will count toward undergraduate degree and graduate degree.

⁷ Student will select coursework in consultation with the Graduate Director.

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a core category, a college/department requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

The program includes a total of 156 hours which up to 6 hours may be applied toward both the Bachelor of Arts in Journalism and the Master of Arts in Communication (non-thesis).

Journalism - BS

This program is for journalists of the future who want to cover scientific topics, engage in data journalism, employ digital technologies and who are quantitatively oriented.

New journalists pursuing the Bachelor of Science in Journalism will take at least 33 hours of journalism coursework, including course work in media writing, fact gathering, and journalism as a profession. While many immersive experiences in journalism are encouraged, provided and facilitated, each BS student will complete a formal, supervised, credit-bearing internship relevant to their area of interest and focus. The science aspect of the degree is rounded out with a course in statistics, a course in research methods, and with the guidance of their academic advisor, the selection of a two-course combination to complete the individualized and customized focus area. Each Bachelor of Science in Journalism student will earn a minor in one of the many scientific minors offered at Texas A&M University.

Journalism majors have the option to choose to earn one of the certificates offered by the Department of Communication and Journalism which include, Health Communication, Leadership & Conflict Management, Social Media or Strategic Communication.

Democracy depends on the ethical practice of journalism. The Bachelor of Science in Journalism offers preparation in the science of journalism to the journalists of the future who must carry this torch. The new journalist must know how to communicate across platforms, across audiences and with fact-checked precision. The new journalist must

understand, adapt to and be able to leverage new economic models that sustain and grow journalism. The new journalist must adhere strictly to the highest ethical principles and practices. There are ample jobs available for new journalists, as well as opportunities to address 'news deserts' state-wide. As a land-grant, sea-grant and space-grant university we are well resourced to prepare new journalists to take advantage of our curricula that incorporate immersive experiences both inside and outside the classroom 1) enabling skill-building in journalistic writing, broadcasting, and digital production, 2) prompting pragmatic and conceptual analyses of the corporate practice of journalism and implementation of entrepreneurial endeavors, and 3) directing the enactment of journalistic ethics articulated by the Society of Professional Journalists: seek truth and report it, minimize harm, act independently, and be accountable and transparent.

To these ends, we also offer a Bachelor of Arts in Journalism. Please examine that option before you make your choice.

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 104	Composition and Rhetoric ¹	3
JOUR 102	American Mass Media ¹	3
POLS 206	American National Government	3
Select one of the following:		3-4
MATH 140	Mathematics for Business and Social Sciences	
MATH 142	Business Calculus	
MATH 151	Engineering Mathematics I	
MATH 152	Engineering Mathematics II	
PHIL 240	Introduction to Logic	
Creative arts (p. 30)		3
Semester Credit Hours		15

Spring

JOUR 200	Mass Media Information ¹	3
POLS 207	State and Local Government	3
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 103	Introduction to Rhetoric and Composition	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
Select one of the following:		3-4
MATH 140	Mathematics for Business and Social Sciences	
MATH 142	Business Calculus	
MATH 151	Engineering Mathematics I	
MATH 152	Engineering Mathematics II	
PHIL 240	Introduction to Logic	
Language, philosophy and culture (p. 28)		3
Semester Credit Hours		15

Second Year**Fall**

JOUR 203	Media Writing I ¹	3
JOUR 200-499 (p. 1106) ¹		3
American history (p. 30)		3
Social and behavioral sciences (p. 31) ²		3
General elective ⁴		3
Semester Credit Hours		15

Spring

JOUR 200-499 (p. 1106) ¹		3
JOUR 200-499 (p. 1106) ¹		3
STAT 201	Elementary Statistical Inference ¹	3
or STAT 303	or Statistical Methods	
Life and physical sciences (p. 27)		3
Minor ⁵		3
Semester Credit Hours		15

Third Year**Fall**

COMM 308	Research Methods in Communication ¹	3
JOUR 300-499 (p. 1106) ¹		3
JOUR 300-499 (p. 1106) ¹		3
Life and physical sciences (p. 27)		3
General elective ³		3
Semester Credit Hours		15

Spring

JOUR 484	Internship ¹	3
American history (p. 30)		3
Life and physical sciences (p. 27)		3
Focus area ^{1,3}		3
Minor ⁵		3
Semester Credit Hours		15

Fourth Year**Fall**

JOUR 300-499 (p. 1106) ¹		3
Focus area ^{1,3}		3
Minor ⁵		3
Minor ⁵		3
General elective ³		3
Semester Credit Hours		15

Spring

JOUR 490	Journalism as a Profession ¹	3
Minor ⁵		3
Minor ⁵		3
General elective ⁴		3
General elective ⁴		1-3
Semester Credit Hours		15

Total Semester Credit Hours **120**

⁴ Any 100-499 course not used elsewhere. Only 14 hours of KINE 199; AERS 100-499 (p. 900); MLSC 100-499 (p. 1151); NVSC 100-499 (p. 1178); SOMS 100-499 (p. 1237) may be used towards general electives.

⁵ Minor to be selected from among approved university science minors. Consult with advisor regarding how to declare desired minor. Courses fulfilling core curriculum requirements may apply to the minor and therefore some of these courses may become electives. Minors will range between 15 and 18 hours.

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a core category, a college/department requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

Journalism - 5-year Bachelor of Science and Master of Arts in Communication

This combination program provides a direct pathway for BS JOUR majors to transition seamlessly into the MA COMM program thereby earning both degrees in five or fewer years.

The program begins each fall semester. Interested students will apply for the combination program in the spring of the junior year and must have two full undergraduate terms remaining at the time of application. Academic advisors at both the undergraduate and graduate levels will guide students through the process every step of the way. This program increases students' opportunities to learn and grow while they are here at Texas A&M University. By allowing students additional time to pursue more advanced classes, they have increased opportunities to take advantage of the rich options our department has to offer.

This is a great choice for the many students who come to Texas A&M University with credit by examination, dual credit, and community college credit. The additional year for this program gives these particular students who would otherwise graduate in just two or three years, the time to become involved in student organizations, to take on leadership positions in the university, to pursue career path-altering internships, to participate in our study abroad programs, to collaborate with faculty and graduate students in their research projects, and to compete for fellowships and admission into other Texas A&M programs that can expand their horizons. A Master's degree is value-added and this degree will offer both our students and our faculty opportunities to cultivate stronger mentoring relationships, which often broaden students' horizons and expand their career interests.

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 104	Composition and Rhetoric ¹	3
JOUR 102	American Mass Media ¹	3
POLS 206	American National Government	3
Select one of the following:		3

¹ Must earn a grade of C or better

² JOUR 100-499 (p. 1106) cannot be used to fulfill this requirement.

³ Select from JOUR 100-499 (p. 1106) and/or other courses in consultation with the program director or designee to form a supporting focus area.

MATH 140	Mathematics for Business and Social Sciences	
MATH 142	Business Calculus	
MATH 151	Engineering Mathematics I	
MATH 152	Engineering Mathematics II	
PHIL 240	Introduction to Logic	
Creative arts (p. 30)		3
Semester Credit Hours		15
Spring		
JOUR 200	Mass Media Information ¹	3
POLS 207	State and Local Government	3
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 103	Introduction to Rhetoric and Composition	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
Select one of the following:		3
MATH 140	Mathematics for Business and Social Sciences	
MATH 142	Business Calculus	
MATH 151	Engineering Mathematics I	
MATH 152	Engineering Mathematics II	
PHIL 240	Introduction to Logic	
Language, philosophy and culture (p. 28)		3
Semester Credit Hours		15
Second Year		
Fall		
JOUR 203	Media Writing I ¹	3
JOUR 200-499 (p. 1106) ¹		3
American history (p. 30)		3
Social and behavioral sciences (p. 31) ²		3
General elective ³		3
General elective ³		3
Semester Credit Hours		18
Spring		
JOUR 200-499 (p. 1106) ¹		3
JOUR 200-499 (p. 1106) ¹		3
STAT 201 or STAT 303	Elementary Statistical Inference or Statistical Methods	3
Life and physical sciences (p. 27)		3
Minor ⁴		3
General elective ³		3
Semester Credit Hours		18
Third Year		
Fall		
COMM 308	Research Methods in Communication ^{1,5}	3
JOUR 300-499 (p. 1106) ¹		3
JOUR 300-499 (p. 1106) ¹		3
Life and physical sciences (p. 27)		3

General elective ³		3
Semester Credit Hours		15
Spring		
JOUR 484	Internship ¹	3
American history (p. 30)		3
Life and physical sciences (p. 27)		3
Focus area ^{1,6}		3
Minor ⁴		3
Semester Credit Hours		15
Fourth Year		
Fall		
COMM 600-699 (p. 975) ⁷		3
JOUR 300-499 (p. 1106) ¹		3
Focus area ^{1,6}		3
Minor ⁴		3
Minor ⁴		3
Semester Credit Hours		15
Spring		
COMM 600-699 (p. 975) ⁷		3
JOUR 490	Journalism as a Profession ^{1,5}	3
Minor ⁴		3
Minor ⁴		3
General elective ³		3
Semester Credit Hours		15
Fifth Year		
Fall		
COMM 600-699 (p. 975) ⁷		3
COMM 600-699 (p. 975) ⁷		3
COMM 600-699 (p. 975) ⁷		3
COMM 600-699 (p. 975) ⁷		3
Semester Credit Hours		12
Spring		
COMM 600-699 (p. 975) ⁷		3
COMM 600-699 (p. 975) ⁷		3
COMM 600-699 (p. 975) ⁷		3
COMM 600-699 (p. 975) ⁷		3
Semester Credit Hours		12
Total Semester Credit Hours		150

¹ Must make a grade of C or better.

² JOUR 100-499 (p. 1106) may not be used to fulfill this requirement.

³ Select any 100-499 course not used elsewhere. Only 14 hours of KINE 199, AERS 100-499 (p. 900), MLSC 100-499 (p. 1151), NVSC 100-499 (p. 1178), SOMS 100-499 (p. 1237) may be used towards general electives.

⁴ Minor to be selected from among approved university science minors. Consult with advisor regarding how to declare desired minor. Courses fulfilling core curriculum requirements may apply to the minor and therefore some of these courses may become electives. Minors will range between 15 and 18 hours.

⁵ Course will count toward undergraduate degree and graduate degree.

⁶ In consultation with the program director or designee, select from JOUR 100-499 (p. 1106) and/or other courses to form a supporting focus area. Obtain required, written approval of focus area courses.

⁷ Student will select coursework in consultation with the Graduate Director.

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a core category, a college/department requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

The program includes a total of 156 hours which up to 6 hours may be applied toward both the Bachelor of Science in Journalism and the Master of Arts in Communication (non-thesis).

Telecommunication Media Studies - BA

This program is designed to educate students for a productive future in an ever-changing world, preparing them for media-related positions in business, government, non-profit organizations, and higher education, and emphasizing the story.

Students with a passion for media, choose the Bachelor of Arts in Telecommunication Media Studies (TCMS). The BA in TCMS features a broad, liberal arts approach to media topics and is supported by classwork from across the College of Arts and Sciences, and beyond. The BA in TCMS requires study in communication technology skills, technology and communication, research methods and media theory, and then branches out to permit choices among a number of TCMS electives in communication, film studies, journalism and business. The BA is a flexible, liberal arts, media-oriented degree.

Coursework for incoming Freshmen begins with a dedicated first semester experience which introduces them to the breadth of the field of Communication and of Media while also involving them in small groups and acquainting them with Texas A&M University, our resources and our opportunities. We also welcome transfer students, meeting them where they are and integrating them into the Communication, Media and Journalism family.

A Bachelor of Arts degree in Telecommunication Media Studies serves well in a broad variety of careers. Our students may become social media experts, online marketers, broadcasters, producers, filmmakers, digital media specialists, industry leaders, government regulators, spokespeople, politicians, writers, artists, activists, and informed citizens.

TCMS-BA students will select a minor. They have the option to select a certificate in Health Communication, Leadership and Conflict Management, Social Media, and in Strategic Communication.

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 104	Composition and Rhetoric	3
Select one of the following:		3
MATH 140	Mathematics for Business and Social Sciences	
MATH 142	Business Calculus	

MATH 151	Engineering Mathematics I	
MATH 152	Engineering Mathematics II	
PHIL 240	Introduction to Logic	
STAT 201	Elementary Statistical Inference	
American history (p. 30)		3
Language, philosophy and culture (p. 28) ¹		3
Telecommunication Media Studies elective ^{2,3,4}		4
Semester Credit Hours		16

Spring

COMM 230/	Communication Technology Skills ³	3
JOUR 230		
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 103	Introduction to Rhetoric and Composition	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
Select one of the following:		3
MATH 140	Mathematics for Business and Social Sciences	
MATH 142	Business Calculus	
MATH 151	Engineering Mathematics I	
MATH 152	Engineering Mathematics II	
PHIL 240	Introduction to Logic	
STAT 201	Elementary Statistical Inference	
Government/Political science (p. 31)		3
Life and physical sciences (p. 27)		3
Semester Credit Hours		15

Second Year

Fall

ECON 202	Principles of Economics	3
ENGL 100-499 (p. 1021)		3
Creative arts (p. 30) ¹		3
Telecommunication Media Studies elective ^{3,4}		3
General elective ⁵		3
Semester Credit Hours		15

Spring

ENGL 100-499 (p. 1021)		3
American history (p. 30)		3
Government/Political science (p. 31)		3
Life and physical sciences (p. 27)		3
Telecommunication Media Studies elective ³		3
Semester Credit Hours		15

Third Year

Fall

COMM 308	Research Methods in Communication ³	3
COMM 330	Technology and Human Communication ³	3
Language, philosophy and culture or creative arts (p. 28) ¹		3
Minor ⁶		3
General elective ⁵		3
Semester Credit Hours		15

Spring

COMM 350	Theories of Mediated Communication ³	3
Life and physical sciences (p. 27)		3
Telecommunication Media Studies elective ^{3,4}		3
Minor ⁶		3
General elective ⁵		3
Semester Credit Hours		15

Fourth Year**Fall**

COMM 401-480 (p. 975) ³	3
Telecommunication Media Studies elective ^{3,4}	2
Minor ⁶	3
Minor ⁶	3
General elective ⁵	3
Semester Credit Hours	14

Spring

COMM 401-480 (p. 975) ³	3
Minor ⁶	3
Minor ⁶	3
General elective ⁵	3
General elective ⁵	3
Semester Credit Hours	15

Total Semester Credit Hours 120

¹ COMM course may not be used to fulfill this requirement.

² First semester, first time in college students must take COMM 101 and COMM 291.

³ Must earn a grade of C or better.

⁴ Select from: COMM 101-499 (p. 975); CSCE 110, CSCE 206; ENGL 251/FILM 251; FILM 251/ENGL 251; ISTM 250, ISTM 310, ISTM 315, ISTM 325; ITSV 274; JOUR 102, JOUR 301/COMM 307; POLS 302, POLS 313; WGST 407/COMM 407.

⁵ Select any 100-499 course not used elsewhere. Only 14 hours of KINE 199; AERS 100-499 (p.); MLSC 100-499 (p. 1151); NVSC 100-499 (p.); SOMS 100-499 (p. 1237) may be used towards general electives.

⁶ Minor to be selected from among approved university minors. Consult with advisor regarding how to declare desired minor. Courses fulfilling core curriculum requirements may apply to the minor and therefore some of these courses may become electives. Minors will range between 15 and 18 hours.

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

Students take 21 credit hours of the required program core courses and 12 credit hours of telecommunication elective courses for a total of 33 credit hours. At least 12 credits must be at the upper-division level. At least 12 credits must be taken in residence at Texas A&M University. Minimum grade of C in each course. No more than 3 credit hours of COMM 484; no more than 6 credit hours of COMM 485.

Telecommunication Media Studies - 5-Year Bachelor of Arts and Master of Arts in Communication

This combination program provides a direct pathway for BA TCMS majors to transition seamlessly into the MA COMM program thereby earning both degrees in five years.

The combined cohort begins each fall semester. Interested students will apply for the combined program in the spring of the junior year and must have two full undergraduate terms remaining at the time of application. Academic advisors at both the undergraduate and graduate levels will guide students through the process every step of the way. This program increases students' opportunities to learn and grow while they are here at Texas A&M University. By allowing students additional time to pursue more advanced classes, they have increased opportunities to take advantage of the rich options our department has to offer.

This is a great choice for the many students who come to Texas A&M University with credit by examination, dual credit, and community college credit. The additional year for this program gives these particular students who would otherwise graduate in just two or three years, the time to become involved in student organizations, to take on leadership positions in the university, to pursue career path-altering internships, to participate in our study abroad programs, to collaborate with faculty and graduate students in their research projects, and to compete for fellowships and admission into other Texas A&M programs that can expand their horizons. A master's degree is value-added, and this degree will offer both our students and our faculty opportunities to cultivate stronger mentoring relationships, which often broaden students' horizons and expand their career interests.

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 104	Composition and Rhetoric	3
Select one of the following:		3
MATH 140	Mathematics for Business and Social Sciences	
MATH 142	Business Calculus	
MATH 151	Engineering Mathematics I	
MATH 152	Engineering Mathematics II	
PHIL 240	Introduction to Logic	
STAT 201	Elementary Statistical Inference	
Telecommunication elective ^{1,2,3}		4
American history (p. 30)		3
Language, philosophy and culture (p.) ⁴		3
Semester Credit Hours		16

Spring

COMM 230/	Communication Technology Skills ²	3
JOUR 230		
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	

COMM 243	Argumentation and Debate		COMM 600-699 (https://catalog.tamu.edu/graduate/course-descriptions/comm/) ⁸	3
ENGL 103	Introduction to Rhetoric and Composition		Minor ⁶	3
ENGL 203	Writing about Literature ⁴		Minor ^{6,7}	3
ENGL 210	Technical and Professional Writing		Telecommunication Media Studies elective ^{2,3}	2
Select one of the following:		3	Semester Credit Hours	14
MATH 140	Mathematics for Business and Social Sciences		Spring	
MATH 142	Business Calculus		COMM 401-480 (p. 975) ^{2,8}	3
MATH 151	Engineering Mathematics I		COMM 600-699 (https://catalog.tamu.edu/graduate/course-descriptions/comm/) ⁸	3
MATH 152	Engineering Mathematics II		Minor ⁶	3
PHIL 240	Introduction to Logic		Minor ⁶	3
STAT 201	Elementary Statistical Inference		General elective ⁵	3
Life and physical sciences (p. 27)		3	Semester Credit Hours	15
Government/Political science (p. 31)		3	Fifth Year	
Semester Credit Hours	15		Fall	
Second Year			COMM 600-699 (https://catalog.tamu.edu/graduate/course-descriptions/comm/) ⁸	3
Fall			COMM 600-699 (https://catalog.tamu.edu/graduate/course-descriptions/comm/) ⁸	3
ECON 202	Principles of Economics	3	COMM 600-699 (https://catalog.tamu.edu/graduate/course-descriptions/comm/) ⁸	3
ENGL 100-499 (p. 1021)		3	COMM 600-699 (https://catalog.tamu.edu/graduate/course-descriptions/comm/) ^{8,9}	3
Creative arts (p. 30) ⁴		3	Semester Credit Hours	12
Telecommunication Media Studies elective ^{2,3}		3	Spring	
General elective ⁵		3	COMM 600-699 (https://catalog.tamu.edu/graduate/course-descriptions/comm/) ⁸	3
General elective ⁵		3	COMM 600-699 (https://catalog.tamu.edu/graduate/course-descriptions/comm/) ⁸	3
Semester Credit Hours	18		COMM 600-699 (https://catalog.tamu.edu/graduate/course-descriptions/comm/) ^{8,9}	3
Spring			Semester Credit Hours	12
ENGL 100-499 (p. 1021)		3	Total Semester Credit Hours	150
American history (p. 30)		3		
Life and physical sciences (p. 27)		3		
Government/Political science (p. 31)		3		
Telecommunication Media Studies elective ^{2,3}		3		
General elective ⁵		3		
Semester Credit Hours	18			
Third Year				
Fall				
COMM 308	Research Methods in Communication ²	3		
COMM 303/ JOUR 305	Communication Data Applications ²	3		
Language, philosophy and culture or creative arts (p.) ⁴		3		
Minor ⁶		3		
General elective ⁵		3		
Semester Credit Hours	15			
Spring				
COMM 350	Theories of Mediated Communication	3		
Life and physical sciences (p. 27)		3		
Telecommunication elective ^{2,3}		3		
Minor ⁶		3		
General elective ⁵		3		
Semester Credit Hours	15			
Fourth Year				
Fall				
COMM 401-480 (p. 975) ^{2,7}		3		

¹ First semester, first time in college students must take COMM 101 and COMM 291.

² Must earn a C or better.

³ Select from: COMM 101-499 (p. 975); CSCE 110, CSCE 206; ENGL 251/FILM 251; FILM 251/ENGL 251; ISTM 250, ISTM 310, ISTM 315, ISTM 325; ITSV 274; JOUR 102, JOUR 301/COMM 307; POLS 302, POLS 313; WGST 407/COMM 407.

⁴ COMM course may not be used to fulfill this requirement.

⁵ Select any 100-499 course not used elsewhere. Only 14 hours of KINE 199; AERS 100-499 (p.); MLSC 100-499 (p. 1151); NVSC 100-499 (p.); SOMS 100-499 (p. 1237) may be used towards general electives.

⁶ Minor to be selected from among approved university minors. Consult with advisor regarding how to declare desired minor. Courses fulfilling core curriculum requirements may apply to the minor and therefore some of these courses may become electives. Minors will range between 15 and 18 hours.

⁷ Course will count toward undergraduate degree and graduate degree.

⁸ Student will select coursework in consultation with Graduate Director.

⁹ With prior approval of Graduate Director, student may select out of department graduate course.

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

Students take 21 credit hours of the required undergraduate telecommunication media studies program core courses and 12 credit hours of telecommunication media studies elective courses for a total of 33 credit hours. At least 12 credits must be at the upper-division level. At least 12 credits must be taken in residence at Texas A&M University. A minimum grade of C in each undergraduate telecommunication course. No more than 3 credit hours of COMM 484; no more than 6 credit hours of COMM 485.

The program includes a total of 156 hours which up to 6 hours may be applied toward both the Bachelor of Science in Telecommunication Media Studies and the Master of Arts in Communication (Non-thesis).

Telecommunication Media Studies - BS

This program is designed to educate students for a productive future in an ever-changing world, preparing them for media-related positions in business, government, non-profit organizations, and higher education.

Students who are fascinated by media and media applications choose the Bachelor of Science in Telecommunication Media Studies (TCMS). The BS in TCMS features a specialized study of telecommunication, media and quantitative systems. Students select communication courses that address media industries, law and policy, technology and society, media audiences, processes, and effects. The practice of media and acquisition of media skills are included. Students may customize this degree by selecting additional coursework to round out their particular media interests. The degree is supported with the study of research methods and quantitative concepts in statistics and research design.

Coursework for incoming Freshmen begins with a dedicated first semester experience which introduces them to the breadth of the field of communication and of media while also involving them in small groups and acquainting them with Texas A&M University, our resources and our opportunities. We also welcome transfer students, meeting them where they are and integrating them into the Communication family.

A Bachelor of Science degree in Telecommunication Media Studies works well in a broad variety of careers. Our students may become media designers, data analysts, digital media experts, online administrators, digital storytellers, content producers, filmmakers, digital media specialists, industry leaders, government officials, politicians, writers, artists, and informed citizens.

TCMS BS students will select a minor. They have the option to also select a certificate in Health Communication, Leadership and Conflict Management, Social Media, or Strategic Communication.

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 104	Composition and Rhetoric	3
Select one of the following:		3
MATH 140	Mathematics for Business and Social Sciences	
MATH 142	Business Calculus	
MATH 151	Engineering Mathematics I	
MATH 152	Engineering Mathematics II	
PHIL 240	Introduction to Logic	
American history (p. 30)		3
Life and physical sciences (p. 27)		3
Telecommunication Media Studies elective ^{1,2,3}		4
Semester Credit Hours		16

Spring

COMM 230/ JOUR 230	Communication Technology Skills ²	3
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 103	Introduction to Rhetoric and Composition	
ENGL 203	Writing about Literature ⁴	
ENGL 210	Technical and Professional Writing	
Select one of the following:		3
MATH 140	Mathematics for Business and Social Sciences	
MATH 142	Business Calculus	
MATH 151	Engineering Mathematics I	
MATH 152	Engineering Mathematics II	
PHIL 240	Introduction to Logic	
Government/Political science (p. 31)		3
Language, philosophy and culture (p. 28) ⁴		3
Semester Credit Hours		15

Second Year

Fall

ECON 202	Principles of Economics	3
STAT 201 or STAT 303	Elementary Statistical Inference or Statistical Methods	3
Government/Political science (p. 31)		3
Life and physical sciences (p. 27)		3
Telecommunication Media Studies elective ^{2,3}		3
Semester Credit Hours		15

Spring

ISTM 210	Fundamentals of Information Systems	3
Creative arts (p. 30) ⁴		3
Life and physical sciences (p. 27)		3
Social and behavioral sciences (p. 31) ⁴		3

Telecommunication Media Studies elective ³	3
Semester Credit Hours	15
Third Year	
Fall	
COMM 330 Technology and Human Communication ²	3
COMM 375 Media Audiences ²	3
Select 3 hours from:	3
ISTM 250 Business Programming Logic and Design	
SOCI 220 Methods of Social Research	
STAT 307 Sample Survey Techniques	
American history (p. 30)	3
Minor ⁵	3
Semester Credit Hours	15
Spring	
COMM 308 Research Methods in Communication ²	3
COMM 345 Media Industries ²	3
COMM 350 Theories of Mediated Communication ²	3
Minor ⁵	3
General elective ⁶	3
Semester Credit Hours	15
Fourth Year	
Fall	
COMM 401-480 (p. 975) ²	3
Telecommunication Media Studies elective ^{2,3}	2
Minor ⁵	3
Minor ⁵	3
General elective ⁶	3
Semester Credit Hours	14
Spring	
COMM 401-480 (p. 975) ²	3
Minor ⁵	3
Minor ⁵	3
General elective ⁶	3
General elective ⁶	3
Semester Credit Hours	15
Total Semester Credit Hours	120

¹ First semester, first time in college students must take COMM 101 and COMM 291.

² Must earn a grade of C or better.

³ Select from: COMM 100 to 499 (p. 975) (except COMM 203, COMM 243), CSCE 110, CSCE 206; ISTM 250, ISTM 310, ISTM 315, ISTM 325; ITSV 274; JOUR 102, JOUR 301/COMM 307; MGMT 209, MGMT 309; WGST 407/COMM 407.

⁴ COMM course may not be used to fulfill this requirement.

⁵ Minor to be selected from among approved university minors. Consult with advisor regarding how to declare desired minor. Courses fulfilling core curriculum requirements may apply to the minor and therefore some of these courses may become electives. Minors will range between 15 and 18 hours.

⁶ Select any 100-499 course not used elsewhere. Only 14 hours of KINE 199; AERS 100-499 (p.); MLSC 100-499 (p. 1151); NVSC 100-499 (p.); SOMS 100-499 (p. 1237) may be used towards general electives.

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

Students take 24 credit hours of the required program core courses and 9-10 credit hours of telecommunication media studies elective courses for a total of 33 credit hours. At least 12 credits must be at the upper-division level. At least 12 credits must be taken in residence at Texas A&M University. Minimum grade of C in each course.

Telecommunication Media Studies - 5-Year Bachelor of Science and Master of Arts in Communication

This combination program provides a direct pathway for BS TCMS majors to transition seamlessly into the MA COMM program thereby earning both degrees in five years.

This program begins each fall semester. Interested students will apply for the combined program in the spring of the junior year and must have two full undergraduate terms remaining at the time of application. Accepted students will take one graduate course in each of the senior semesters while they complete the undergraduate coursework and will even be permitted to apply six hours of advanced undergraduate credit toward the master's program. These students will then complete the MA in two 12-hour semesters. Academic advisors at both the undergraduate and graduate levels will guide students through the process every step of the way. The combined option increases students' opportunities to learn and grow while they are here at Texas A&M University. By allowing students additional time to pursue more advanced classes, they have increased opportunities to take advantage of the rich options our department has to offer.

This is a great choice for the many students who come to Texas A&M University with credit by examination, dual credit, and community college credit. The additional year for this program gives these particular students who would otherwise graduate in just two or three years, the time to become involved in student organizations, to take on leadership positions in the university, to pursue career path-altering internships, to participate in our study abroad programs, to collaborate with faculty and graduate students in their research projects, and to compete for fellowships and admission into other Texas A&M programs that can expand their horizons. A master's degree is value-added, and this program will offer both our students and our faculty opportunities to cultivate stronger mentoring relationships, which often broaden students' career interests.

Program Requirements

First Year

		Semester Credit Hours
Fall		
ENGL 104	Composition and Rhetoric	3
Select one of the following:		3
MATH 140	Mathematics for Business and Social Sciences	

MATH 142	Business Calculus	
MATH 151	Engineering Mathematics I	
MATH 152	Engineering Mathematics II	
PHIL 240	Introduction to Logic	
American history (p. 30)		3
Life and physical sciences (p. 27)		3
Telecommunication elective ^{1,2,3}		4
Semester Credit Hours		16
Spring		
COMM 230/ JOUR 230	Communication Technology Skills ²	3
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 103	Introduction to Rhetoric and Composition	
ENGL 203	Writing about Literature ⁴	
ENGL 210	Technical and Professional Writing	
Select one of the following:		3
MATH 140	Mathematics for Business and Social Sciences	
MATH 142	Business Calculus	
MATH 151	Engineering Mathematics I	
MATH 152	Engineering Mathematics II	
PHIL 240	Introduction to Logic	
Government/Political science (p. 31)		3
Language, philosophy and culture (p.) ⁴		3
Semester Credit Hours		15
Second Year		
Fall		
ECON 202	Principles of Economics	3
STAT 201 or STAT 303	Elementary Statistical Inference or Statistical Methods	3
Government/Political science (p. 31)		3
Life and physical sciences (p. 27)		3
Telecommunication Media Studies elective ^{2,3}		3
General elective ⁵		3
Semester Credit Hours		18
Spring		
ISTM 210	Fundamentals of Information Systems	3
Creative arts (p. 30) ⁴		3
Life and physical sciences (p. 27)		3
Social and behavioral sciences (p.) ⁴		3
Telecommunication elective ³		3
General elective ⁵		3
Semester Credit Hours		18
Third Year		
Fall		
COMM 330	Technology and Human Communication ²	3
COMM 375	Media Audiences ²	3
Select one of the following:		3
ISTM 250	Business Programming Logic and Design	

SOCI 220	Methods of Social Research	
STAT 307	Sample Survey Techniques	
American history (p. 30)		3
Minor ⁶		3
Semester Credit Hours		15
Spring		
COMM 308	Research Methods in Communication ²	3
COMM 345	Media Industries ²	3
COMM 350	Theories of Mediated Communication ²	3
Minor ⁶		3
General elective ⁵		3
Semester Credit Hours		15
Fourth Year		
Fall		
COMM 401-480 (p. 975) ^{2,7}		3
COMM 600-699 (https://catalog.tamu.edu/graduate/course-descriptions/comm/) ⁸		3
Telecommunication elective ^{2,3}		2
Minor ⁶		3
Minor ⁶		3
Semester Credit Hours		14
Spring		
COMM 401-480 (p. 975) ^{2,7}		3
COMM 600-699 (https://catalog.tamu.edu/graduate/course-descriptions/comm/) ⁸		3
Minor ⁶		3
Minor ⁶		3
General elective ⁵		3
Semester Credit Hours		15
Fifth Year		
Fall		
COMM 600-699 (https://catalog.tamu.edu/graduate/course-descriptions/comm/) ⁸		3
COMM 600-699 (https://catalog.tamu.edu/graduate/course-descriptions/comm/) ⁸		3
COMM 600-699 (https://catalog.tamu.edu/graduate/course-descriptions/comm/) ⁸		3
COMM 600-699 (https://catalog.tamu.edu/graduate/course-descriptions/comm/) ^{8,9}		3
Semester Credit Hours		12
Spring		
COMM 600-699 (https://catalog.tamu.edu/graduate/course-descriptions/comm/) ⁸		3
COMM 600-699 (https://catalog.tamu.edu/graduate/course-descriptions/comm/) ⁸		3
COMM 600-699 (https://catalog.tamu.edu/graduate/course-descriptions/comm/) ⁸		3
COMM 600-699 (https://catalog.tamu.edu/graduate/course-descriptions/comm/) ^{8,9}		3
Semester Credit Hours		12
Total Semester Credit Hours		150

¹ First semester, first time in college students must take COMM 101 and COMM 291.

- ² Must earn a grade of C or better.
- ³ Select from: COMM 100 to 499 (p. 975) (except COMM 203, COMM 243), CSCE 110, CSCE 206; ISTM 250, ISTM 310, ISTM 315, ISTM 325; ITSV 274; JOUR 102, JOUR 301/COMM 307; MGMT 209, MGMT 309; WGST 407/COMM 407.
- ⁴ COMM course may not be used to fulfill this requirement.
- ⁵ Select any 100-499 course not used elsewhere. Only 14 hours of KINE 199; AERS 100-499 (p.); MLSC 100-499 (p. 1151); NVSC 100-499 (p.); SOMS 100-499 (p. 1237) may be used towards general electives.
- ⁶ Minor to be selected from among approved university minors. Consult with advisor regarding how to declare desired minor. Courses fulfilling core curriculum requirements may apply to the minor and therefore some of these courses may become electives. Minors will range between 15 and 18 hours.
- ⁷ Course will count toward undergraduate degree and graduate degree.
- ⁸ Courses will be selected in consultation with the Graduate Director.
- ⁹ With pre-approval by the Graduate Director, student may select out of department graduate course.

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

Students take 24 credit hours of the required undergraduate telecommunication media studies program core courses and 9-10 credit hours of telecommunication media studies elective courses for a total of 33 credit hours. At least 12 credits must be at the upper-division level. At least 12 credits must be taken in residence at Texas A&M University. A minimum grade of C in each undergraduate telecommunication media studies course. No more than 3 credit hours of COMM 484; no more than 6 credit hours of COMM 485.

The program includes a total of 156 hours which up to 6 hours may be applied toward both the Bachelor of Science in Telecommunication Media Studies and the Master of Arts in Communication (Non-thesis).

Communication - Minor

The minor in Communication is a wonderful complement to any major, as communication is central to the experience of human life.

Communication is fundamental to all human behavior, to all human endeavors. The minor in Communication includes a skills class, a choice of one of three courses vital to the study of communication plus a choice of three additional courses from among the rich array of COMM offerings. Skills courses range from public speaking, interviewing, argumentation and debate to difficult dialogues or group communication, to note only a few. Communication courses (p. 975) afford the opportunity to examine how human communication and media can be described, critiqued, interpreted, and employed to influence and persuade in business, commerce, political, religious, social and personal contexts.

This minor is open to all majors with the exception of Communication majors.

Program Requirements

Code	Title	Semester Credit Hours
COMM 200-250 (p. 975)		3
Select one of the following:		3
	COMM 301 Rhetoric in Western Thought	
	COMM 305 Theories of Communication	
	COMM 350 Theories of Mediated Communication	
COMM 200-499 (p. 975)		3
COMM 300-499 (p. 975)		6
Total Semester Credit Hours		15

Students must earn a grade of C or better in each course.

Journalism - Minor

The Department of Communication and Journalism offers a minor in Journalism, which complements any major and provides essential tools for students who aspire to share ethically sourced and fact-checked reports with the public.

The Journalism minor offers foundational skills in reporting, including interviewing techniques and online research, as well as writing skills for deadline news stories, longer analytical pieces, and feature articles. Students also explore multi-media journalism and have the opportunity to take specialized advanced writing courses in areas such as political reporting, business reporting, sports journalism, arts and entertainment journalism, magazine writing, and investigative reporting—subjects that are particularly popular among students.

The required journalism internship offers another valuable opportunity for students to gain hands-on writing and production experience, while also serving as an impressive addition to their resume. Additionally, students can gain in-depth experience in the field of new media.

Contact the Department of Communication and Journalism to declare the minor in Journalism (<https://artsci.tamu.edu/comm-journalism/academics/undergraduate/minors.html>).

Program Requirements

Code	Title	Semester Credit Hours
JOUR 200	Mass Media Information	3
JOUR 203	Media Writing I	3
JOUR 484	Internship	3
JOUR 490	Journalism as a Profession	3
JOUR 300-499 (p. 1106)		3
JOUR 100-499 (p. 1106)		3
Total Semester Credit Hours		18

Students must make a grade of C or better in all courses.

Communication Leadership and Conflict Management - Certificate

The Communication Leadership and Conflict Management Certificate (CLCM) is designed to enhance communication leadership skills in both

interpersonal and group collaborative settings, as well as in social and political arenas.

This certificate prepares individuals to effectively communicate in one-on-one interactions, across private and public boundaries, and to mediate conflict in groups, such as families, work teams, political and religious organizations, and those engaged in geopolitical conflicts.

CLCM certificate holders may opt to become certified in basic mediation by the State of Texas. All certificate recipients will also complete a capstone study focusing on the mediation process. The CLCM certificate provides students with a deep understanding of the growth and impact of communication leadership and conflict management, particularly within the context of communication. This certificate is beneficial for undergraduate students pursuing various career paths, including but not limited to public leadership, law, management, and religious leadership. For detailed certificate requirements, students should consult with an advisor.

Program Requirements

Code	Title	Semester Credit Hours
COMM 324	Communication Leadership and Conflict Management	3
COMM 443	Communication and Conflict	3
COMM 485	Directed Studies	3
Select two of the following:		6
COMM 315	Interpersonal Communication	
COMM 325	Persuasion	
COMM 335	Intercultural Communication	
COMM 420/Gender and Communication	WGST 420	
COMM 431	Rhetoric of Social Movements	
COMM 440	Political Communication	
COMM 447	Communication, Group Processes and Collaboration	
Other courses approved by CLCM committee for prescribed electives		
Total Semester Credit Hours		15

Students must earn a grade of B or better in each course used to meet the requirements. Students who pursue the CLCM must complete all requirements prior to graduation.

Health Communication - Certificate

This certificate provides a structured course of study and hands-on experience for students interested in health campaigns, mediated health communication, health policy and communication within healthcare organizations and provider-patient relationships.

Careers in health and communication are growing significantly faster than average, according to the Office of Occupational Outlook, Bureau of Labor Statistics. Health communication skills are becoming increasingly valuable in careers related to health and medicine, as well as in media, public relations, and strategic communication. These skills are applicable across a wide range of health and medical tasks, including provider-patient consultations, the formative research, design, implementation, and assessment of public health communication campaigns, the development of strategic communication initiatives for

health organizations, and leadership in public and private sector health agendas.

Health messaging is critical for reaching a variety of audiences and includes using advocacy to influence policy, as well as mediating and shaping public conversations on health issues—both face-to-face and through traditional and new media in local and global contexts. Health communication skills are essential in profit, nonprofit, and governmental organizations.

For specific certificate requirements, students should consult the Undergraduate Studies Office of the Department of Communication and Journalism.

Details are also available on the Department of Communication and Journalism (<http://communication.tamu.edu>) website.

Program Requirements

Code	Title	Semester Credit Hours
COMM 370	Health Communication	3
COMM 483	Health Communication Practicum	0
Select two of the following:		6
COMM 450	Media Campaigns	
COMM 470	Communication in Health Care Contexts	
COMM 471	Media, Health and Medicine	
Select one of the following:		3
COMM 315	Interpersonal Communication	
COMM 320	Organizational Communication	
COMM 325	Persuasion	
COMM 330	Technology and Human Communication	
COMM 335	Intercultural Communication	
COMM 342	The Rhetoric of Gender and Health	
COMM 375	Media Audiences	
ENGL 482/	Advanced Studies in Health	
HHUM 482	Humanities	
Total Semester Credit Hours		12

Students must earn a grade of B or better in each course used to meet the requirements. Students who pursue the HCC must complete all requirements prior to graduation.

Social Media - Certificate

The Department of Communication and Journalism's certificate in Social Media is designed to prepare Communication, Journalism and Telecommunication Media Studies majors for roles in the social media-literate workforce.

Social media was once a platform primarily used for entertainment and leisure activities. As commercial, non-profit, political, religious, and social entities began utilizing social media for profit and influence, digital natives were employed to manage these platforms. Today, social media is ubiquitous, with people from all walks of life using it. These commercial and social entities now hire well-qualified social media users to handle various aspects of social media production, curation, management,

influence, response, and analytics. Social media entrepreneurship is at the forefront of many forms of commerce.

Program Requirements

Code	Title	Semester Credit Hours
COMM 275/ JOUR 275	Introduction to Social Media	3
COMM 476	Advanced Social Media	3
Select three of the following:		9
COMM 230/ JOUR 230	Communication Technology Skills	
COMM 250/ JOUR 250	New Media and the Independent Voice	
COMM 260	Introduction to Communication and Sports	
COMM 307/ JOUR 301	Communication Law and Policy	
COMM 323	Strategic Communication	
COMM 330	Technology and Human Communication	
COMM 375	Media Audiences	
COMM 403	Media, Children and Adolescents	
COMM 407/ WGST 407	Gender, Race and Media	
COMM 438	Propaganda	
Total Semester Credit Hours		15

Students must earn a B or better in courses applied to this certificate.

Strategic Communication - Certificate

Strategic communication is the process that supports public relations, promotions, public information, marketing, corporate communication, public affairs and advertising.

Strategic communication is creation of the plan as well as the tools or tactics used to implement that plan effectively. The value of effective strategic communication is acknowledged by both profit and nonprofit corporations and by governmental agencies. The effect of strategic communication failures on the bottom line, on employee and stakeholder satisfaction, and on the efficient use of resources, is well documented.

Gathering and interpreting appropriate information, audience analysis, as well as harnessing the power of accurate language in crafting messages and telling stories, are further noted as key strategic communication functions. Tactics available for implementing strategic communication are expanding exponentially as digital communication and new media evolve. Mastery of the integration of these tactics in strategic plans augment the effectiveness of internal and public issues management while mitigating corporate frustration, offensive messages, and overspending.

Although effective strategic communication is critical to organizational success, many companies and agencies continue to need support and assistance in this arena. The U.S. Department of Labor Occupational Outlook Handbook notes that careers in various strategic communication areas are growing "faster than average" to "much faster than average."

The Certificate in Strategic Communication will prepare Communication majors, Telecommunication Media Studies majors, and University Studies-Journalism Studies majors to plan and execute communication strategically and to coordinate the integration of appropriate tactics to enhance commerce, government, and to further political, religious and social goals, as they lead us into the future. Specific certificate requirements are available in the Undergraduate Studies Office of the Department of Communication and Journalism. Details are also available on the Department of Communication and Journalism (<https://liberalarts.tamu.edu/communication/>) website.

The certificate in Strategic Communication is open to students majoring in Communication, Journalism, and Telecommunication Media Studies.

Program Requirements

Students must earn a grade of B or better in each course used to meet the requirements. Students who pursue the SCC must complete all requirements prior to graduation.

Code	Title	Semester Credit Hours
Required Courses		
COMM 321	Strategic Communication Case Studies	3
COMM 322	Communication Tactics	3
COMM 323	Strategic Communication	3
Prescribed Elective Courses		
Select two of the following:		6
COMM 320	Organizational Communication	
COMM 325	Persuasion	
COMM 375	Media Audiences	
COMM 438	Propaganda	
COMM 440	Political Communication	
COMM 446	Communication, Organizations and Society	
Total Semester Credit Hours		15

Department of Economics

The study of economics helps students develop a framework for understanding of how individuals, organizations and societies make choices and how those choices interact to determine the allocation of an economy's limited resources among alternative competing uses. Economists study how these choices are made in a variety of environments and consider how the outcomes vary under alternative forms of economic organization. Economists evaluate the outcomes of an economic system on a scorecard that includes several different criteria such as efficiency, equity, and stability.

The fundamental goal of our curriculum is to introduce students to the economic way of thinking—a particular way of asking questions and analyzing problems. We offer a core set of courses that teach the fundamental theoretical tools of economics, and a set of elective courses that demonstrate how economists apply these tools to study a wide variety of real-world economic issues. A key takeaway for students is a working knowledge of a useful and coherent structural approach to examining current public policy issues and an ability to identify the inherent tradeoffs involved in developing solutions to major social problems.

The economic style of thinking, when combined with training in the required tools of quantitative and qualitative analysis, provides students with a skill set that will serve them well in a wide array of post-graduate pursuits. The banking and financial sectors regularly hire undergraduate economics majors as do management consulting firms. A number of private corporations employ economists to prepare forecasts of future movements in firm costs and profits. Government agencies—local, state, national, international—hire economics majors for positions as budget analysts or government program evaluators. The study of economics also provides sound preparation for graduate school, either a Masters or PhD degree in economics or a professional degree in business, law, or public policy.

Faculty

An, Yonghong, Professor
Economics
PHD, John Hopkins University, 2011

Aybas, Yunus, Assistant Professor
Economics
MA, Stanford University, 2020

Barr, Andrew C, Professor
Economics
PHD, University of Virginia, 2015

Bento, Pedro, Associate Professor
Economics
PHD, University of Toronto, 2013

Brown, Alexander L, Professor
Economics
PHD, California Institute of Technology, 2008

Castillo, Marco, Professor
Economics
PHD, University of Wisconsin, Madison, 2001

Cook, Emily Elizabeth, Assistant Professor
Economics
PHD, University of Virginia, 2020

Denning, Jeffrey, Professor
Economics
PHD, The University of Texas, Austin, 2015

Eckel, Catherine C, Professor
Economics
PHD, University of Virginia, 1983

Estevez-Rios, Valentin, Lecturer
Economics
PHD, University of Chicago, 2005

GARCIA G MENENDEZ, JORGE LUIS, Associate Professor
Economics
PHD, University of Chicago, 2018

Gan, Li, Professor
Economics
PHD, University of California at Berkeley, 1998

Glass, Amy J, Associate Professor
Economics
PHD, University of Pennsylvania, 1993

Gronberg, Timothy J, Professor
Economics
PHD, Northwestern University, 1978

Guo, Huiyi, Associate Professor
Economics
PHD, University of Iowa, 2018

Jansen, Dennis W, Professor
Economics
PHD, University of North Carolina at Chapel Hill, 1983

Jo, Yoon, Assistant Professor
Economics
PHD, Columbia University, 2019

Klopach, Benjamin, Assistant Professor
Economics
PHD, Stanford University, 2019

Krasteva, Silvana S, Associate Professor
Economics
PHD, Duke University, 2009

Li, Qi, Professor
Economics
PHD, Texas A&M University, 1991

Luco Echeverria, Fernando A, Associate Professor
Economics
PHD, Northwestern University, 2014

Meer, Jonathan, Professor
Economics
PHD, Stanford University, 2009

Navjeevan, Manu, Assistant Professor
Economics
MA, University of California - Los Angeles, 2019

Pakhotina, Natalia, Instructional Associate Professor
Economics
PHD, University of Florida, 2010

Petrie, Ragan, Professor
Economics
PHD, University of Wisconsin, Madison, 2002

Puller, Steven L, Professor
Economics
PHD, University of California at Berkeley, 2001

Ray, Margaret, Instructional Associate Professor
Economics
PHD, University of Te, 1988

Schulman, Craig T, Professor of the Practice
Economics
PHD, Texas A&M University, 1990

Sekhposyan, Tatevik, Associate Professor
Economics
PHD, University of North Carolina Chapel Hill, 2010

Serra, Danila, Associate Professor
Economics
PHD, University of Oxford and Centre for the Study of African Economies, 2009

Strickland, Chelsea Evan, Instructional Assistant Professor
Economics
PHD, Texas A&M University, 2022

Tian, Guoqiang, Professor
Economics
PHD, University of Minnesota, Twin Cities, 1987

Varghese, Adel, Instructional Associate Professor
Economics
PHD, University of Pennsylvania, 1996

Zhang, Yuzhe, Professor
Economics
PHD, University of Minnesota, 2006

Ziff, Anna Laura, Assistant Professor
Economics
MA, Duke University, 2021

Zubairy, Sarah, Professor
Economics
PHD, Duke University, 2010

Majors

- Bachelor of Arts in Economics (p. 348)
- Bachelor of Arts in Economics and Master of International Affairs, 5-Year Degree Program (p. 349)
- Bachelor of Arts in Economics and Master of Public Service and Administration, 5-Year Degree Program (p. 350)
- Bachelor of Arts in Economics and Master of Science in Economics, 5-Year Degree Program (p. 352)
- Bachelor of Science in Economics (p. 353)
- Bachelor of Science in Economics and Master of International Affairs, 5-Year Degree Program (p. 354)
- Bachelor of Science in Economics and Master of Public Service and Administration, 5-Year Degree Program (p. 355)
- Bachelor of Science in Economics and Master of Science in Economics, 5-Year Degree Program (p. 356)

Minors

- Economics Minor (p. 358)

Economics - BA

The Bachelor of Arts degree program in Economics offers a strong liberal arts curriculum aimed at enhancing students' analytical skills and applications to better understand human behavior.

The degree plan is designed to allow opportunities for applied exploration of economic principles and theory through research, internship, and study abroad while focusing on quantitative skills and the development of rational thought and critical thinking. In addition to requiring four

semesters of a college-level foreign language, the Bachelor of Arts degree plan encompasses a broad spectrum of coursework from throughout the College of Arts and Sciences and Texas A&M University. By allowing for flexibility in courses that can be taken within the core curriculum, as well as for general electives, students can achieve a well-rounded education that can help with their future educational and professional goals.

To build a solid base of understanding, students take foundational courses in microeconomics, macroeconomics and mathematics, then refine those skills in statistics and intermediate economic theory classes. In upper-level courses these reasoning abilities are applied to specific situations, with a particular focus on understanding social problems from an economics perspective.

Students who graduate with a Bachelor of Arts degree in Economics have a wide spectrum of career fields to choose from. Many students pursue careers in business, law, government and public policy professions, non-profit organizations and more.

Program Requirements

First Year

Fall		Semester Credit Hours
ECON 202	Principles of Economics	3
ENGL 104 or ENGL 103	Composition and Rhetoric or Introduction to Rhetoric and Composition	3
MATH 140	Mathematics for Business and Social Sciences ^{1,2}	3
American history (p. 30)		3
Foreign language ³		4
Semester Credit Hours		16

Spring		
ECON 203	Principles of Economics	3
MATH 142	Business Calculus ^{2,4}	3
American history (p. 30)		3
Foreign language ³		4
Government/Political science (p. 31)		3
Semester Credit Hours		16

Second Year

Fall		
ACCT 209	Survey of Accounting Principles	3
ECON 323	Microeconomic Theory ⁵	3
ECMT 461	Economic Data Analysis	3
Foreign language ³		3
Government/Political science (p. 31)		3
Semester Credit Hours		15

Spring		
ECON 410	Macroeconomic Theory	3
Communication (p. 27)		3
Creative arts (p. 30)		3
Foreign language ³		3
Economics elective ⁶		3
Semester Credit Hours		15

Third Year**Fall**

Life and physical sciences (p. 27)	3
Social and behavioral sciences (p. 31)	3
Economics elective ⁶	3
General elective ⁷	3
General elective ⁷	3
Semester Credit Hours	15

Spring

Language, philosophy and culture (p. 28)	3
Life and physical sciences (p. 27)	3
Economics elective ⁶	3
Economics elective ⁶	3
General elective ⁷	3
Semester Credit Hours	15

Fourth Year**Fall**

Life and physical sciences (p. 27)	3
Social and behavioral sciences (p. 31)	3
Economics elective ⁶	3
Literature directed elective (p. 261)	3
General elective ⁷	3
Semester Credit Hours	15

Spring

Language, philosophy and culture or creative arts (p. 28)	3
Economics elective ⁶	3
Economics elective ⁶	3
Literature directed elective (p. 261)	3
General elective ⁷	1
Semester Credit Hours	13

Total Semester Credit Hours **120**

¹ MATH 148, MATH 152, or MATH 172 will be accepted in lieu of MATH 140.

² Students who wish to pursue a graduate degree in Economics (or other STEM Graduate Degree) are highly encouraged to take MATH 151 and MATH 152 in lieu of MATH 140 and MATH 142.

³ Complete 14 hours of a foreign language (p. 261) through the intermediate level. If you choose to enroll in a language you have studied previously without receiving college credit, you must first take a placement test. See academic advisor.

⁴ MATH 147, MATH 151, or MATH 171 will be accepted in lieu of MATH 142.

⁵ ECON 323 is a pre-requisite for most ECON electives.

⁶ Select from ECMT 463, ECMT 475; ECON 301-499 (p. 1016).

⁷ ECON 100-499 (p. 1016) and ECMT 100-499 (p. 1016) may not be used to fulfill this requirement.

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

No more than 36 credits in economics and econometrics can be applied to this degree. A grade of C or higher is required for all Economics and Econometrics coursework.

Economics - 5-Year Bachelor of Arts and Master of International Affairs

This program combines the teaching of analytical thinking skills and applications to better understand human behavior as it relates to international economic development along with skills in diplomacy, research, and development of a global perspective.

The combined program between the Department of Economics and The Bush School of Government and Public Service allows undergraduate Economics students to enter the Master of International Affairs Program, with a focus in International Economics and Development, at the beginning of their fourth year at Texas A&M University.

Program Requirements

First Year**Fall**

		Semester Credit Hours
ECON 202	Principles of Economics	3
ENGL 104 or ENGL 103	Composition and Rhetoric or Introduction to Rhetoric and Composition	3
MATH 140	Mathematics for Business and Social Sciences ¹	3
Foreign language ²		4
Life and physical sciences (p. 27)		3
Semester Credit Hours		16

Spring

ECON 203	Principles of Economics	3
MATH 142	Business Calculus ³	3
Foreign language ²		4
Government/Political science (p. 31)		3
Language, philosophy and culture (p. 28)		3
Semester Credit Hours		16

Second Year**Fall**

ECMT 461	Economic Data Analysis	3
ECON 323	Microeconomic Theory ⁴	3
Foreign language ²		3
Government/Political science (p. 31)		3
Social and behavioral sciences (p. 31)		3
Literature directed elective (p. 261)		3
Semester Credit Hours		18

Spring

ECON 410	Macroeconomic Theory	3
American history (p. 30)		3
Creative arts (p. 30)		3
Foreign language ²		3
Economics elective ⁵		3

General elective ⁶	1
Semester Credit Hours	16
Third Year	
Fall	
Communication (p. 27)	3
Life and physical sciences (p. 27)	3
Social and behavioral sciences (p. 31)	3
Economics elective ⁵	3
Economics elective ⁵	3
General elective ⁶	3
Semester Credit Hours	18
Spring	
ACCT 209 Survey of Accounting Principles	3
American history (p. 30)	3
Language, philosophy and culture or creative arts (p. 28)	3
Life and physical sciences (p. 27)	3
Economics elective ⁵	3
Literature directed elective (p. 261)	3
Semester Credit Hours	18
Fourth Year	
Fall	
BUSH 631 Quantitative Methods in Public Management I ⁷	3
INTA 608 Fundamentals of the Global Economy ⁷	3
International affairs elective ^{7,8}	3
International affairs elective ^{7,8}	3
Semester Credit Hours	12
Spring	
BUSH 635 Quantitative Methods in Public Management II: Policy Analysis Emphasis ⁷	3
INTA 606 International Politics in Theory and Practice ⁷	3
International affairs elective ⁸	3
International affairs elective ⁸	3
Semester Credit Hours	12
Fifth Year	
Fall	
International affairs elective ⁸	3
International affairs elective ⁸	3
International affairs elective ⁸	3
International affairs elective ⁸	3
Semester Credit Hours	12
Spring	
INTA 670 International Affairs Capstone Seminar	3
International affairs elective ⁸	3
International affairs elective ⁸	3
International affairs elective ⁸	3
Semester Credit Hours	12
Total Semester Credit Hours	150

studied previously without receiving college credit, you must first take a placement test. See academic advisor.

³ MATH 147, MATH 151, MATH 171 will be accepted in lieu of MATH 142.

⁴ ECON 323 is a pre-requisite for most ECON electives.

⁵ Select from ECMT 463, ECMT 475; ECON 301-499 (p. 1016).

⁶ Any 100-499 course not used elsewhere (except ECMT 100-499 (p. 1016); ECON 100-499 (p. 1016)).

⁷ Course applies toward both degrees.

⁸ International Affairs graduate advisor will assist with International Affairs course selection for chosen track in graduate program. Select from INTA 601-699 (<https://catalog.tamu.edu/graduate/course-descriptions/inta/>).

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

No more than 36 credits in economics and econometrics can be applied to this degree. A grade of C or higher is required for all Economics and Econometrics coursework.

The program includes a total of 168 hours which up to 18 hours may be applied toward both the Bachelor of Arts in Economics and the Master of International Affairs.

See the MIA program in the Graduate and Professional Catalog for the MIA requirements. Proficiency in a foreign language is a requirement to graduate with the MIA degree.

Economics - 5-Year Bachelor of Arts and Master of Public Service Administration

This program combines the teaching of analytical thinking skills and applications to better understand human behavior as it relates to public policy and management along with skills in leadership and research methods.

The combined program between the Department of Economics and The Bush School of Government and Public Service allows undergraduate Economics students to enter the Master of Public Service Program, with a focus in Public Policy Analysis, at the beginning of their fourth year at Texas A&M University.

Program Requirements

First Year

		Semester Credit Hours
Fall		
ECON 202	Principles of Economics	3
ENGL 104 or ENGL 103	Composition and Rhetoric or Introduction to Rhetoric and Composition	3
MATH 140	Mathematics for Business and Social Sciences ¹	3
Foreign language ²		4

¹ MATH 148, MATH 152, MATH 172 will be accepted in lieu of MATH 140.

² Complete 14 hours of a foreign language (p. 261) through the intermediate level. If you choose to enroll in a language you have

Life and physical sciences (p. 27)	3
Semester Credit Hours	16
Spring	
ECON 203 Principles of Economics	3
MATH 142 Business Calculus ³	3
Foreign language ²	4
Government/Political science (p. 31)	3
Language, philosophy and culture (p. 28)	3
Semester Credit Hours	16
Second Year	
Fall	
ECMT 461 Economic Data Analysis	3
ECON 323 Microeconomic Theory ⁴	3
Foreign language ²	3
Government/Political science (p. 31)	3
Social and behavioral sciences (p. 31)	3
Literature directed elective (p. 261)	3
Semester Credit Hours	18
Spring	
ECON 410 Macroeconomic Theory	3
American history (p. 30)	3
Creative arts (p. 30)	3
Foreign language ²	3
Economics elective ⁵	3
General elective ⁶	1
Semester Credit Hours	16
Third Year	
Fall	
Communication (p. 27)	3
Life and physical sciences (p. 27)	3
Social and behavioral sciences (p. 31)	3
Economics elective ⁵	3
Economics elective ⁵	3
General elective ⁶	3
Semester Credit Hours	18
Spring	
ACCT 209 Survey of Accounting Principles	3
American history (p. 30)	3
Language, philosophy and culture or creative arts (p. 28)	3
Life and physical sciences (p. 27)	3
Economics elective ⁵	3
Literature directed elective (p. 261)	3
Semester Credit Hours	18
Fourth Year	
Fall	
BUSH 631 Quantitative Methods in Public Management I ⁷	3
PSAA 601 Foundations of Public Service ⁷	3
PSAA 621 Economic Analysis ⁷	3
PSAA 643 Foundations of the Nonprofit Sector ⁷	3
Semester Credit Hours	12

Spring	
PSAA 611 Public Policy Formation ⁷	3
PSAA 622 Public Finance	3
BUSH 632 Quantitative Methods in Public Management II ⁷	3
or BUSH 635 or Quantitative Methods in Public Management II: Policy Analysis Emphasis	
Public Service Administration elective ⁸	3
Semester Credit Hours	12
Fifth Year	
Fall	
PSAA 615 Policy Analysis	3
PSAA 675 Public Service and Administration Capstone Seminar	3
Public Service Administration elective ⁸	3
Public Service Administration elective ⁸	3
Semester Credit Hours	12
Spring	
PSAA 676 Public Service and Administration Capstone Seminar II	3
Public Service Administration elective ⁸	3
Public Service Administration elective ⁸	3
Public Service Administration elective ⁸	3
Semester Credit Hours	12
Total Semester Credit Hours	150

¹ MATH 148, MATH 152, MATH 172 will be accepted in lieu of MATH 140.

² Complete 14 hours of a foreign language (p. 261) through the intermediate level. If you choose to enroll in a language you have studied previously without receiving college credit, you must first take a placement test. See academic advisor.

³ MATH 147, MATH 151, MATH 171 will be accepted in lieu of MATH 142.

⁴ ECON 323 is a pre-requisite for most ECON electives.

⁵ Select from ECMT 463, ECMT 475; ECON 301-499 (p. 1016).

⁶ Select from any 100-499 course not used elsewhere (except ECMT 100-499 (p. 1016); ECON 100-499 (p. 1016)).

⁷ Course applies toward both degrees.

⁸ Public Service Administration graduate advisor will assist with Public Service Administration course selection for chosen track in graduate program.

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/departments requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

No more than 36 credits in economics and econometrics can be applied to this degree. A grade of C or higher is required for all Economics and Econometrics coursework.

The program includes a total of 168 hours which up to 18 hours may be applied toward both the Bachelor of Arts in Economics and the Master of Public Service Administration.

See the MPSA program in the Graduate and Professional Catalog for the MPSA requirements.

Economics - 5-Year Bachelor of Arts and Master of Science in Economics

Within the curriculum of this program, a student will receive rigorous training in economics, econometrics, analytical and quantitative skills in order to prepare them for immediate careers in business or government, or further study in top economics and finance PhD programs.

The Department of Economics offers a 5-year combined degree program that provides the opportunity to earn a Bachelor of Arts in Economics and a Master of Science in Economics with a concentration in either Financial Economics or Financial Econometrics. This Master's degree program was created in response to the increasingly high demand from students seeking a professional master's degree in economics and employers looking for candidates with advanced training.

Program Requirements

First Year

		Semester Credit Hours
Fall		
ECON 202	Principles of Economics	3
ENGL 104 or ENGL 103	Composition and Rhetoric or Introduction to Rhetoric and Composition	3
MATH 140	Mathematics for Business and Social Sciences ^{1,2}	3
American history (p. 30)		3
Foreign language ³		4
Semester Credit Hours		16
Spring		
ECON 203	Principles of Economics	3
MATH 142	Business Calculus ^{2,4}	3
Foreign language ³		4
Government/Political science (p. 31)		3
General elective ⁵		3
Semester Credit Hours		16

Second Year

Fall		
ACCT 209	Survey of Accounting Principles	3
ECMT 461	Economic Data Analysis ⁶	3
ECON 323	Microeconomic Theory ⁷	3
Foreign language ³		3
Government/Political science (p. 31)		3
Semester Credit Hours		15
Spring		
ACCT 210	Survey of Managerial and Cost Accounting Principles	3
ECMT 463	Introduction to Econometrics ⁶	3
ECON 410	Macroeconomic Theory	3
Foreign language ³		3

Life and physical sciences (p. 27)		3
Semester Credit Hours		15
Third Year		
Fall		
Communication (p. 27)		3
Language, philosophy and culture (p. 28)		3
Life and physical sciences (p. 27)		3
Social and behavioral sciences (p. 31)		3
Economics elective ⁸		3
Semester Credit Hours		15
Spring		
Language, philosophy and culture or creative arts (p. 28)		3
Life and physical sciences (p. 27)		3
Economics elective ⁸		3
Economics elective ⁸		3
General elective ⁵		1
Semester Credit Hours		13
Fourth Year		
Fall		
American history (p. 30)		3
Social and behavioral sciences (p. 31)		3
Economics elective ⁸		3
Graduate economics elective ^{9,10}		3
Literature directed elective (p. 261)		3
Semester Credit Hours		15
Spring		
Creative arts (p. 30)		3
Economics elective ⁸		3
Graduate economics elective ^{9,10}		3
Literature directed elective (p. 261)		3
General elective ⁵		3
Semester Credit Hours		15
Summer		
ECON 684	Professional Internship	6
Semester Credit Hours		6
Fifth Year		
Fall		
ECON 675	Capstone for Financial Economics/ Financial Econometrics	3
Graduate economics elective ⁹		3
Graduate economics elective ⁹		3
Graduate economics elective ⁹		3
Semester Credit Hours		12
Spring		
Graduate economics elective ⁹		3
Graduate economics elective ⁹		3
Graduate economics elective ⁹		3
Graduate economics elective ⁹		3
Semester Credit Hours		12
Total Semester Credit Hours		150

- ¹ MATH 148, MATH 152, or MATH 172 will be accepted in lieu of MATH 140.
- ² Students who wish to pursue a graduate degree in Economics (or other STEM Graduate Degree) are highly encouraged to select MATH 151 and MATH 152 in lieu of MATH 140 and MATH 142.
- ³ Complete 14 hours of a foreign language through the intermediate level. If you choose to enroll in a language you have previously studied without receiving college credit, you must first take a placement test. See an Academic Advisor
- ⁴ MATH 147, MATH 151, or MATH 171 will be accepted in lieu of MATH 142.
- ⁵ ECON 100-499 (p. 1016) and ECMT 100-499 (p. 1016) may not be used to fulfill this requirement.
- ⁶ Student must complete ECMT 461 or equivalent STAT course (Pre-approved by an advisor) prior to ECMT 463.
- ⁷ ECON 323 is a pre-requisite for most ECON electives.
- ⁸ Select from ECMT 475, ECON 301-499 (p. 1016).
- ⁹ Graduate Economics advisor will assist with graduate elective course selection. Select from ECON 607, ECON 611, ECON 612, ECON 614, ECON 617, ECON 618, ECON 633, ECON 680, ECMT 660, ECMT 670, ECMT 673, ECMT 674, ECMT 680.
- ¹⁰ 6 hours will count toward bachelor degree and master degree.

The program includes a total of 156 hours which up to 6 hours may be applied toward both the Bachelor of Arts in Economics and the Master of Science in Economics (Non-Thesis Option).

No more than 39 credits in undergraduate Economics and Econometrics can be applied to this degree. A grade of C or higher is required for all undergraduate Economics and Econometrics courses.

Economics - BS

The Bachelor of Science degree in Economics offers a strong liberal arts curriculum aimed at enhancing students' analytical skills and applications to better understand human behavior.

The degree plan is designed to allow opportunities for applied exploration of economic principles and theory through research, internship, and study abroad while focusing on quantitative skills and the development of rational thought and critical thinking. In addition to building skills in social science research and data analysis, the Bachelor of Science degree plan encompasses a broad spectrum of coursework from throughout the College of Arts and Sciences and Texas A&M University. By allowing for flexibility in courses that can be taken within the core curriculum, as well as for general electives, students can achieve a well-rounded education that can help with their future educational and professional goals.

To build a solid base of understanding, students take foundational courses in microeconomics, macroeconomics and mathematics, then refine those skills in statistics and intermediate economic theory classes. In upper-level courses, these reasoning abilities are applied to specific situations with a particular focus on understanding social problems from an economics perspective.

Students who graduate with a Bachelor of Science degree in Economics have a wide spectrum of career fields to choose from. Many students will pursue careers in business, law, finance, the nonprofit sector, and government, public policy and political professions.

Program Requirements

First Year

Fall		Semester Credit Hours
ECON 202	Principles of Economics	3
ENGL 104 or ENGL 103	Composition and Rhetoric or Introduction to Rhetoric and Composition	3
MATH 140	Mathematics for Business and Social Sciences ^{1,2}	3
American history (p. 30)		3
Creative arts (p. 30)		3
Semester Credit Hours		15
Spring		
ECON 203	Principles of Economics	3
MATH 142	Business Calculus ^{2,3}	3
Communication (p. 27)		3
Government/Political science (p. 31)		3
Language, philosophy and culture (p. 28)		3
Semester Credit Hours		15

Second Year

Fall		
ACCT 209	Survey of Accounting Principles	3
ECMT 461	Economic Data Analysis ⁴	3
ECON 323	Microeconomic Theory ⁵	3
Life and physical sciences (p. 27)		3
Literature directed elective (p. 261)		3
Semester Credit Hours		15
Spring		
ACCT 210	Survey of Managerial and Cost Accounting Principles	3
ECMT 463	Introduction to Econometrics	3
ECON 410	Macroeconomic Theory	3
American history (p. 30)		3
Government/Political science (p. 31)		3
Semester Credit Hours		15

Third Year

Fall		
Language, philosophy and culture or creative arts (p. 28)		3
Life and physical sciences (p. 27)		3
Economics elective ⁶		3
Economics elective ⁶		3
General elective ⁷		3
Semester Credit Hours		15
Spring		
Life and physical sciences (p. 27)		3
Social and behavioral sciences (p. 31)		3
Economics elective ⁶		3
Economics elective ⁶		3
General elective ⁷		3
Semester Credit Hours		15

Fourth Year**Fall**

Economics elective ⁶	3
Economics elective ⁶	3
Literature directed elective (p. 261)	3
General elective ⁷	3
General elective ⁷	3
Semester Credit Hours	15

Spring

Social and behavioral sciences (p. 31)	3
Economics elective ⁶	3
General elective ⁷	3
General elective ⁷	3
General elective ⁷	3
Semester Credit Hours	15
Total Semester Credit Hours	120

¹ MATH 148, MATH 152, or MATH 172 will be accepted in lieu of MATH 140.

² Students who wish to pursue a graduate degree in Economics (or other STEM Graduate Degree) are highly encouraged to select MATH 151 and MATH 152 in lieu of MATH 140 and MATH 142.

³ MATH 147, MATH 151, or MATH 171 will be accepted in lieu of MATH 142.

⁴ Student must complete ECMT 461 prior to ECMT 463.

⁵ ECON 323 is a pre-requisite for most ECON electives.

⁶ Select from ECMT 475, ECON 301-499 (p. 1016).

⁷ Select any 100-499 course not used elsewhere. ECON 100-499 (p. 1016) and ECMT 100-499 (p. 1016) may not be used to fulfill this requirement.

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/departments requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

No more than 39 credits in economics and econometrics can be applied to this degree. A grade of C or higher is required for all Economics and Econometrics coursework.

Economics - 5-Year Bachelor of Science and Master of International Affairs

This program combines the teaching of analytical thinking skills and applications to better understand human behavior as it relates to international economic development along with skills in diplomacy, research, and development of a global perspective.

The combined program between the Department of Economics and The Bush School of Government and Public Service allows undergraduate Economics students to enter the Master of International Affairs Program, with a focus in International Economics and Development, at the beginning of their fourth year at Texas A&M University.

Program Requirements

First Year**Fall**

		Semester Credit Hours
ECON 202	Principles of Economics	3
ENGL 104 or ENGL 103	Composition and Rhetoric or Introduction to Rhetoric and Composition	3
MATH 140	Mathematics for Business and Social Sciences ¹	3
	American history (p. 30)	3
	Creative arts (p. 30)	3
Semester Credit Hours		15

Spring

ECON 203	Principles of Economics	3
MATH 142	Business Calculus ²	3
	Communication (p. 27)	3
	Government/Political science (p. 31)	3
	Language, philosophy and culture (p. 28)	3
Semester Credit Hours		15

Second Year**Fall**

ACCT 209	Survey of Accounting Principles	3
ECMT 461	Economic Data Analysis	3
ECON 323	Microeconomic Theory ³	3
	Language, philosophy and culture or creative arts (p. 28)	3
	Social and behavioral sciences (p. 31)	3
	Literature directed elective (p. 261)	3
Semester Credit Hours		18

Spring

ACCT 210	Survey of Managerial and Cost Accounting Principles	3
ECMT 463	Introduction to Econometrics ⁴	3
ECON 410	Macroeconomic Theory	3
	Government/Political science (p. 31)	3
	Life and physical sciences (p. 27)	3
	Literature directed elective (p. 261)	3
Semester Credit Hours		18

Third Year**Fall**

	American history (p. 30)	3
	Life and physical sciences (p. 27)	3
	Economics elective ⁵	3
	Economics elective ⁵	3
	General elective ⁶	3
	General elective ⁶	3
Semester Credit Hours		18

Spring

	Life and physical sciences (p. 27)	3
	Social and behavioral sciences (p. 31)	3
	Economics elective ⁵	3

Economics elective ⁵	3
General elective ⁶	3
General elective ⁶	3
Semester Credit Hours	18
Fourth Year	
Fall	
BUSH 631 Quantitative Methods in Public Management I ⁷	3
INTA 608 Fundamentals of the Global Economy ⁷	3
International affairs elective ^{7,8}	3
International affairs elective ^{7,8}	3
Semester Credit Hours	12
Spring	
BUSH 635 Quantitative Methods in Public Management II: Policy Analysis Emphasis ⁷	3
INTA 606 International Politics in Theory and Practice ⁷	3
International affairs elective ⁸	3
International affairs elective ⁸	3
Semester Credit Hours	12
Fifth Year	
Fall	
International affairs elective ⁸	3
International affairs elective ⁸	3
International affairs elective ⁸	3
International affairs elective ⁸	3
Semester Credit Hours	12
Spring	
INTA 670 International Affairs Capstone Seminar	3
International affairs elective ⁸	3
International affairs elective ⁸	3
International affairs elective ⁸	3
Semester Credit Hours	12
Total Semester Credit Hours	150

¹ MATH 148, MATH 152, MATH 172 will be accepted in lieu of MATH 140.

² MATH 147, MATH 151, MATH 171 will be accepted in lieu of MATH 142.

³ ECON 323 is a pre-requisite for most ECON electives.

⁴ Students must complete ECMT 461 prior to ECMT 463.

⁵ Select from ECMT 475, ECON 301-499 (p. 1016).

⁶ Select from any 100-499 course not used elsewhere (except ECMT 100-499 (p. 1016); ECON 100-499 (p. 1016)).

⁷ Course applies toward both degrees.

⁸ International affairs graduate advisor will assist with International affairs course selection for chosen track in graduate program. Select from INTA 601-699 (<https://catalog.tamu.edu/graduate/course-descriptions/inta/>).

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

No more than 39 credits in economics and econometrics can be applied to this degree. A grade of C or higher is required for all Economics and Econometrics coursework.

The program includes a total of 168 hours which up to 18 hours may be applied toward both the Bachelor of Science in Economics and the Master of International Affairs.

See the MIA program in the Graduate and Professional Catalog for the MIA requirements. Proficiency in a foreign language is a requirement to graduate with the MIA degree.

Economics - 5-Year Bachelor of Science and Master of Public Service Administration

This program combines the teaching of analytical thinking skills and applications to better understand human behavior as it relates to public policy and management along with skills in leadership and research methods.

The combined program between the Department of Economics and The Bush School of Government and Public Service allows undergraduate Economics students to enter the Master of Public Service Program, with a focus in Public Policy Analysis, at the beginning of their fourth year at Texas A&M University.

Program Requirements

First Year

Fall		Semester Credit Hours
ECON 202	Principles of Economics	3
ENGL 104 or ENGL 103	Composition and Rhetoric or Introduction to Rhetoric and Composition	3
MATH 140	Mathematics for Business and Social Sciences ¹	3
American history (p. 30)		3
Creative arts (p. 30)		3

Semester Credit Hours 15

Spring

ECON 203	Principles of Economics	3
MATH 142	Business Calculus ²	3
Communication (p. 27)		3
Government/Political science (p. 31)		3
Language, philosophy and culture (p. 28)		3

Semester Credit Hours 15

Second Year

Fall

ACCT 209	Survey of Accounting Principles	3
ECMT 461	Economic Data Analysis	3
ECON 323	Microeconomic Theory ³	3
Language, philosophy and culture or creative arts (p. 28)		3
Social and behavioral sciences (p. 31)		3

Literature directed elective (p. 261)	3
Semester Credit Hours	18
Spring	
ACCT 210 Survey of Managerial and Cost Accounting Principles	3
ECMT 463 Introduction to Econometrics ⁴	3
ECON 410 Macroeconomic Theory	3
Government/Political science (p. 31)	3
Life and physical sciences (p. 27)	3
Literature directed elective (p. 261)	3
Semester Credit Hours	18

Third Year**Fall**

American history (p. 30)	3
Life and physical sciences (p. 27)	3
Economics elective ⁵	3
Economics elective ⁵	3
General elective ⁶	3
General elective ⁶	3
Semester Credit Hours	18

Spring

Life and physical sciences (p. 27)	3
Social and behavioral sciences (p. 31)	3
Economics elective ⁵	3
Economics elective ⁵	3
General elective ⁶	3
General elective ⁶	3
Semester Credit Hours	18

Fourth Year**Fall**

BUSH 631 Quantitative Methods in Public Management I ⁷	3
PSAA 601 Foundations of Public Service ⁷	3
PSAA 621 Economic Analysis ⁷	3
PSAA 643 Foundations of the Nonprofit Sector ⁷	3
Semester Credit Hours	12

Spring

PSAA 611 Public Policy Formation ⁷	3
PSAA 622 Public Finance	3
BUSH 632 Quantitative Methods in Public Management II ⁷ or BUSH 635 or Quantitative Methods in Public Management II: Policy Analysis Emphasis	3
Public Service Administration elective ⁸	3
Semester Credit Hours	12

Fifth Year**Fall**

PSAA 615 Policy Analysis	3
PSAA 675 Public Service and Administration Capstone Seminar	3
Public Service Administration elective ⁸	3

Public Service Administration elective ⁸	3
Semester Credit Hours	12
Spring	
PSAA 676 Public Service and Administration Capstone Seminar II	3
Public Service Administration elective ⁸	3
Public Service Administration elective ⁸	3
Public Service Administration elective ⁸	3
Semester Credit Hours	12
Total Semester Credit Hours	150

¹ MATH 148, MATH 152, MATH 172 will be accepted in lieu of MATH 140.

² MATH 147, MATH 151, MATH 171 will be accepted in lieu of MATH 142.

³ ECON 323 is a pre-requisite for most ECON electives.

⁴ Student must complete ECMT 461 prior to ECMT 463.

⁵ Select from ECMT 475; ECON 301-499 (p. 1016)

⁶ Select any 100-499 course not used elsewhere (except ECMT 100-499 (p. 1016); ECON 100-499 (p. 1016)).

⁷ Course applies toward both degrees.

⁸ Public Service Administration graduate advisor will assist with Public Service Administration course selection for chosen track in graduate program.

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

No more than 39 credits in economics and econometrics can be applied to this degree. A grade of C or higher is required for all Economics and Econometrics courses.

The program includes a total of 168 hours which up to 18 hours may be applied toward both the Bachelor of Science in Economics and the Master of Public Service Administration.

See the MPSA program in the Graduate and Professional catalog for the MPSA requirements.

Economics - 5-Year Bachelor of Science and Master of Science in Economics

Within the curriculum of this program, a student will receive rigorous training in economics, econometrics, analytical and quantitative skills in order to prepare them for immediate careers in business or government, or further study in top economics and finance PhD programs.

The Department of Economics offers a 5-year combined degree program that provides the opportunity to earn a Bachelor of Science in Economics and a Master of Science in Economics with a concentration in either Financial Economics or Financial Econometrics. This Master's degree program was created in response to the increasingly high demand from students seeking a professional master's degree in economics and employers looking for candidates with advanced training.

Program Requirements

First Year

Fall		Semester Credit Hours
ECON 202	Principles of Economics	3
ENGL 104 or ENGL 103	Composition and Rhetoric or Introduction to Rhetoric and Composition	3
MATH 140	Mathematics for Business and Social Sciences ^{1,2}	3
American history (p. 30)		3
Creative arts (p. 30)		3
Semester Credit Hours		15

Spring

ECON 203	Principles of Economics	3
MATH 142	Business Calculus ^{2,3}	3
Communication (p. 27)		3
Government/Political science (p. 31)		3
Language, philosophy and culture (p. 28)		3
Semester Credit Hours		15

Second Year

Fall		Semester Credit Hours
ACCT 209	Survey of Accounting Principles	3
ECMT 461	Economic Data Analysis ⁴	3
ECON 323	Microeconomic Theory ⁵	3
Language, philosophy and culture or creative arts (p. 28)		3
Literature directed elective (p. 261)		3
Semester Credit Hours		15

Spring

ACCT 210	Survey of Managerial and Cost Accounting Principles	3
ECMT 463	Introduction to Econometrics ⁴	3
ECON 410	Macroeconomic Theory	3
Government/Political science (p. 31)		3
Life and physical sciences (p. 27)		3
Semester Credit Hours		15

Third Year

Fall		Semester Credit Hours
American history (p. 30)		3
Life and physical sciences (p. 27)		3
Economics elective ⁶		3
Economics elective ⁶		3
Literature directed elective (p. 261)		3
Semester Credit Hours		15

Spring

Life and physical sciences (p. 27)		3
Social and behavioral sciences (p. 31)		3
Economics elective ⁶		3
Economics elective ⁶		3
General elective ⁷		3
Semester Credit Hours		15

Fourth Year

Fall

Social and behavioral sciences (p. 31)		3
Economics elective ⁶		3
Graduate economics elective ^{8,9}		3
General elective ⁷		3
General elective ⁷		3
Semester Credit Hours		15

Spring

Graduate economics elective ^{8,9}		3
General elective ⁷		3
General elective ⁷		3
General elective ⁷		3
General elective ⁷		3
Semester Credit Hours		15

Summer

ECON 684	Professional Internship	6
Semester Credit Hours		6

Fifth Year

Fall

ECON 675	Capstone for Financial Economics/ Financial Econometrics	3
Graduate economics elective ⁸		3
Graduate economics elective ⁸		3
Graduate economics elective ⁸		3
Semester Credit Hours		12

Spring

Graduate economics elective ⁸		3
Graduate economics elective ⁸		3
Graduate economics elective ⁸		3
Graduate economics elective ⁸		3
Semester Credit Hours		12
Total Semester Credit Hours		150

¹ MATH 148, MATH 152, or MATH 172 will be accepted in lieu of MATH 140.

² Students who wish to pursue a graduate degree in Economics (or other STEM Graduate Degree) are highly encouraged to select MATH 151 and MATH 152 in lieu of MATH 140 and MATH 142.

³ MATH 147, MATH 151, or MATH 171 will be accepted in lieu of MATH 142.

⁴ Student must complete ECMT 461 or equivalent STAT course (Pre-approved by an advisor) prior to ECMT 463.

⁵ ECON 323 is a pre-requisite for most ECON electives.

⁶ Select from ECMT 475, ECON 301-499 (p. 1016).

⁷ ECON 100-499 (p. 1016) and ECMT 100-499 (p. 1016) may not be used to fulfill this requirement.

⁸ ECON graduate advisor will assist with graduate elective course selection. Select from ECON 607, ECON 611, ECON 612, ECON 614, ECON 617, ECON 618, ECON 633, ECON 680, ECMT 660, ECMT 670, ECMT 673, ECMT 674, ECMT 680.

⁹ 6 hours will count toward bachelor degree and masters degree.

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48)

courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

The program includes a total of 156 hours which up to 6 hours may be applied toward both the Bachelor of Science in Economics and the Master of Science in Economics (Non-Thesis Option).

No more than 39 credits in undergraduate Economics and Econometrics can be applied to this degree. A grade of C or higher is required for all undergraduate Economics and Econometrics courses.

Economics - Minor

A minor in economics provides knowledge and information that will make a student a better-informed consumer and participant in the world economy. It also provides a basis for a better understanding of world events.

The study of economics provides a rigorous structure for decision-making, whether on academic topics or day-to-day activities such as how to divide roommate expenses or how to allocate time between study and recreation. Economics teaches students how to think rationally about problems, a skill that is essential in any profession.

Program Requirements

Code	Title	Semester Credit Hours
ECON 202	Principles of Economics	3
ECON 203	Principles of Economics	3
ECON 323	Microeconomic Theory	3
Economics elective ¹		6
Total Semester Credit Hours		15

¹ Select from ECMT 300-499 (p. 1016); ECON 300-499 (p. 1016).

Must make a grade of C or better in all courses.

Department of English

Contemporary English studies – like the English language itself – has a global reach. Our curriculum is shaped by the flow of English-speaking people and cultural production in English across both time and space, combining historical, linguistic and cultural analysis with creative work in literature, film, and emerging media. The varied interests of our faculty and students include creative writing, rhetoric and discourse studies, gender and women's studies, film studies, digital humanities, health humanities, science fiction, and the full range of literatures and varieties of English, including African American, the African Diaspora, Latinx, Asian American, Native American, and South Asian studies.

Through these wide and rich areas of inquiry, we impart key skills – thinking critically, analyzing complex texts and contexts, communicating persuasively, and appreciating the aesthetic and cultural value of literary and multimedia texts – that prepare our students for success in the workplace and in life.

The English major and minors offer flexibility by enabling students to pursue their own interests while acquiring important analytic and writing skills and discovering the riches of literature. The education English

students receive prepares them for careers in technical writing, editing and publishing, government services, public relations, teaching, and many other professions.

We encourage English students to pursue research opportunities, to perform and publish their creative work, and to seek internships to build on what they are learning and to prepare for their future careers. We make a positive impact at home and abroad through our internationally recognized faculty and through the success of our students in academia, industry, and the professions.

Teacher Certification Programs in English

Teacher Certification in English Language Arts/Reading - OPTION II (Secondary)

Students desiring certification by Option II to teach English language arts and reading in the secondary schools of Texas should consult an undergraduate English advisor as early as possible. Requirements include 27 semester hours in literature, language, reading, and rhetoric and composition (an optional 24-30 hours in a second teaching field is possible); and professional education courses.

Degree and Certification Program for Middle School in English Language Arts/Reading

The Department of English offers a degree and certification program in English language arts/reading for prospective middle-school teachers. This program requires 36 hours of literature, linguistics, composition and rhetoric and 15 hours of reading along with an 18-hour professional education component.

All students seeking certification should consult an undergraduate English advisor for additional information.

Faculty

Adkison, Katie, Assistant Professor
English
PHD, University of California, Santa Barbara, 2020

Alonzo, Juan J, Associate Professor
English
PHD, The University of Texas at Austin, 2003

Anders, Katherine C, Associate Professor
English
PHD, University of Nevada, 2014

Baca, Michaela R, Lecturer
English
PHD, Texas A&M University, 2022

Bankston, Sarah K, Assistant Professor
English
MFA, North Carolina State University, 2007

Barron, Stephanie, Lecturer
English
PHD, Texas A&M University, 2000

Bhattacharya, Nandini, Professor
English
PHD, University of Rochester, 1992

Carly-Miles, Claire I, Instructional Associate Professor
English
PHD, Texas A&M University, 2008

Chavarria, Isaac, Visiting Lecturer
English
MFA, University of Texas - Pan-American, 2010

Collins, Michael S, Professor
English
PHD, Columbia University, 1999

Cooper, Rich P, Instructional Associate Professor
English
PHD, Louisiana State University, 2011

Crider, Jason, Assistant Professor
English
PHD, University of Florida, 2021

Dicaglio, Joshua M, Associate Professor
English
PHD, Pennsylvania State University, 2016

Dicaglio, Sara, Assistant Professor
English
PHD, Pennsylvania State University, 2016

Dworkin, Ira M, Associate Professor
English
PHD, City University of New York, 2003

Earhart, Amy E, Associate Professor
English
PHD, Texas A&M University, 1999

Egenolf, Susan B, Associate Professor
English
PHD, Texas A&M University, 1995

Eide, Marian, Professor
English
PHD, University of Pennsylvania, 1994

Ezell, Margaret, Distinguished Professor
English
PHD, Cambridge University, 1981

Francis, James, Instructional Associate Professor
English
PHD, Middle Tennessee State University, 2010

Hagstrom Schmidt, Nicole E, Senior Lecturer
English
PHD, Texas A&M University, 2019

Harris, Jason M, Instructional Professor
English
PHD, University of Washington, 2001

Heneks, Grace L, Lecturer
English
PHD, Texas A&M University, 2021

Howell, Jessica M, Professor
English
PHD, University of California at Davis, 2008

Ives, Maura C, Professor
English
PHD, University of Virginia, 1990

Johansen, Emily J, Professor
English
PHD, McMaster University, 2008

Kennedy, Curry William, Assistant Professor
English
PHD, Penn State University, 2021

LeMire, Sarah, Professor
English
MLS, University of Michigan, 2012

Leonard, Raymond, Assistant Professor
English
PHD, Rutgers University, 2024

Lightweis-Goff, Jennifer Dorothy, Lecturer
English
PHD, University of Rochester, 2010

Mandell, Laura C, Professor
English
PHD, Cornell University, 1992

Manes, Christopher, Lecturer
English
PHD, University of Texas, Dallas, 2011

McCoul, Melissa D, Lecturer
English
PHD, University of Notre Dame, 2017

McKinney, Matt, Instructional Associate Professor
English
PHD, University of Nevada at Reno, 2017

Mills, Regina, Associate Professor
English
PHD, The University of Texas at Austin, 2018

Mize, Britt A, Professor
English
PHD, The University of North Carolina at Chapel Hill, 2003

Nair, Dimple, Senior Lecturer
English
MA, University of Mysore (India), 1997

O'Farrell, Mary Ann, Associate Professor
English
PHD, University of California at Berkeley, 1991

O'Sullivan, Kevin M, Associate Professor
English
MLS, The University of Texas at Austin, 2009

Owusu, Portia, Assistant Professor
English
PHD, University of London, 2016

Ozkul, Altay, Lecturer
English
PHD, Iowa State University, 2024

Pantuso, Terri B, Instructional Associate Professor
English
PHD, The University of Texas at San Antonio, 2009

Pattison, Kalani K, Instructional Associate Professor
English
PHD, Baylor University, 2016

Peterson, Noah G, Senior Lecturer
English
PHD, Texas A&M University, 2017

Pilsch, Andrew T, Associate Professor
English
PHD, The Pennsylvania State University, 2011

Potvin, Sarah E, Associate Professor
English
MLS, The University of Texas at Austin, 2009

Reddy, Vanita D, Associate Professor
English
PHD, University of California at Davis, 2009

Robinson, Elizabeth K, Instructional Professor
English
PHD, Texas A&M University, 1995

Robinson, Sally A, Professor
English
PHD, University of Washington, 1989

Ross, Shawna M, Associate Professor
English
PHD, The Pennsylvania State University, 2011

Sadler, Landon J, Lecturer
English
PHD, Texas A&M University, 2022

Shoemaker, Tyler, Assistant Professor
English
PHD, University of California, Santa Barbara, 2020

Sperrazza, Whitney, Assistant Professor
English
PHD, Indiana University, Bloomington, 2017

Stabile, Susan M, Associate Professor
English
PHD, University of Delaware, 1997

Stagg, Robert, Assistant Professor
English
PHD, University of Southampton/ University of London, 2018

Thielman, Frances M, Lecturer
English
PHD, Texas A&M University, 2021

Todd, Dorothy R, Instructional Assistant Professor
English
PHD, University of Georgia, 2017

Torabi, Katayoun, Instructional Associate Professor
English
PHD, Texas A&M University, 2018

Tuhkanen, Mikko J, Professor
English
PHD, University at Buffalo, 2005

Utku, Buran, Lecturer
English
PHD, Ataturk University, 2014

Vasilakis, Apostolos, Instructional Professor
English
PHD, Emory University, 2004

Warren, Nancy B, Professor
English
PHD, Indiana University, 1997

White, Lowell M, Instructional Associate Professor
English
PHD, Texas A&M University, 2010

Majors

- Bachelor of Arts in English (p. 360)
- Bachelor of Arts in English, Middle School Teacher Certification (p. 362)
- Bachelor of Arts in English and Master of Arts in English, 5-Year Degree Program (p. 364)

Minors

- English Minor (p. 366)
- Health Humanities Minor (p. 366)
- Professional Writing Minor (p. 367)
- Science Fiction and Fantasy Studies Minor (p. 368)

English - BA

The BA in English allows students to develop their own areas of expertise through concentrations in areas such as literature, composition and rhetoric, creative writing, science fiction and fantasy studies, and film.

The Department of English is dedicated to the study of literatures and cultures of those parts of the world in which English is a primary language. Our curriculum is shaped by the flow of English-speaking people and cultural production in English across both time and space, combining historical, linguistic and cultural analysis with creative work in literature, film, and emerging media. The varied interests of our faculty and students include creative writing, rhetoric and discourse studies, gender and women's studies, film studies, digital humanities, health humanities, science fiction, and the full range of literatures and varieties

of English, including African American, the African Diaspora, Latinx, Asian American, Native American, and South Asian studies.

Students who major in English learn how to communicate effectively and persuasively; develop writing skills (including in technical and business writing, and/or creative writing); learn textual analysis and effective research methods; and strengthen their critical thinking skills. This degree prepares students for a variety of careers including education, law, technical writing, publishing, entertainment, management, marketing and advertising, counseling and medicine.

Program Requirements

First Year

		Semester Credit Hours
Fall		
ENGL 303	Approaches to English Studies	3
Select one of the following: ¹		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 104	Composition and Rhetoric	
ENGL 210	Technical and Professional Writing	
American history (p. 30)		3
Foreign language ²		4
Social and behavioral sciences (p. 31) ³		3
Semester Credit Hours		16
Spring		
ENGL 203	Writing about Literature ¹	3
Foreign language ²		4
Life and physical sciences (p. 27)		3
Mathematics (p. 27) ⁴		3
English elective ⁵		3
Semester Credit Hours		16

Second Year

Fall		
Select one of the following:		3
ENGL 221/ MODL 221	World Literature	
ENGL 227	American Literature: The Beginnings to Civil War	
ENGL 231	Survey of English Literature I	
ENGL 313	Medieval English Literature	
ENGL 314	The English Renaissance	
ENGL 315	Seventeenth-Century Literature	
ENGL 317	Early British Drama	
ENGL 353	History of Rhetoric	
ENGL 412	Studies in Shakespeare	
ENGL 414	Milton	
ENGL 431	Chaucer	
Foreign language ²		3
Government/Political science (p. 31)		3
English elective ⁵		3

General elective ^{3,6}		3
Semester Credit Hours		15
Spring		
Select one of the following:		3
ENGL 222/ MODL 222	World Literature	
ENGL 232	Survey of English Literature II	
ENGL 316	Eighteenth-Century Literature and Culture	
ENGL 321	Nineteenth-Century Literature (Romantic)	
ENGL 322	Nineteenth-Century Literature (Victorian)	
ENGL 323	The American Renaissance	
ENGL 373	American Realism and Naturalism	
ENGL 375	Nineteenth-Century American Novel	
ENGL 377	The British Novel to 1870.	
Foreign language ²		3
Government/Political science (p. 31)		3
Life and physical sciences (p. 27)		3
General elective ^{3,6}		3
Semester Credit Hours		15

Third Year

Fall		
Select one of the following:		3
ENGL 228	American Literature: Civil War to Present	
ENGL 305	Texas Literature	
ENGL 336	Life and Literature of the Southwest	
ENGL 337	Life and Literature of the American South	
ENGL 340	Modern and Contemporary Drama	
ENGL 350	Twentieth-Century Literature to World War II	
ENGL 352	Literature, World War II to Present.	
ENGL 356/ FILM 356	Literature and Film	
ENGL 372	American Poetry	
ENGL 376	The American Novel Since 1900	
ENGL 378	The British Novel, 1870 to Present.	
ENGL 379/ AFST 379	Postcolonial Literatures	
ENGL 401	Contemporary Literary Theory	
Language, philosophy and culture (p. 28)		3
Mathematics (p. 27) ⁴		3
English elective ⁵		3
General elective ^{3,6}		3
Semester Credit Hours		15

Spring

Select one of the following:		3
ENGL 204/ AFST 204	Introduction to African-American Literature	
ENGL 205/ AFST 205	Introduction to Africana Literature	
ENGL 229/ ASIA 229	Asian American Literature and Culture	
ENGL 306	Transnational Literature and Culture	

ENGL 329/ AFST 329	African-American Literature Pre-1930	
ENGL 333/ WGST 333	Lesbian, Gay, Bisexual, Transgender and Queer Literatures	
ENGL 338	American Ethnic Literature	
ENGL 339/ AFST 339	African-American Literature Post-1930	
ENGL 357	Native American Rhetorics and Literatures	
ENGL 362/ HISP 362	Latino/a Literature	
ENGL 369/ WGST 369	Lesbian, Gay, Bisexual, Transgender, and Queer Authorship	
ENGL 374/ WGST 374	Women Writers	
ENGL 391	Folklore, Literature, and World Cultures	
ENGL 393/ AFST 393	Studies in Africana Literature and Culture	
ENGL 474/ WGST 474	Studies in Women Writers	
Creative arts (p. 30)		3
English elective ⁵		3
General elective ^{3,6}		3
General elective ^{3,6}		3
Semester Credit Hours		15
Fourth Year		
Fall		
American history (p. 30)		3
Language, philosophy and culture or creative arts (p. 28)		3
English elective ⁵		3
General elective ^{3,6}		3
General elective ^{3,6}		3
Semester Credit Hours		15
Spring		
ENGL 481	Senior Seminar	3
Life and physical sciences (p. 27)		3
Social and behavioral sciences (p. 31) ³		3
General elective ^{3,6}		3
General elective ^{3,6}		1
Semester Credit Hours		13
Total Semester Credit Hours		120

¹ Must make grade of C or better.

² Complete 14 hours of a foreign language (<https://catalog.tamu.edu/undergraduate/liberal-arts/>) through the intermediate level. If you choose to enroll in a language you have studied previously without receiving college credit, you must first take a placement test. See academic advisor.

³ Middle School Certificate seekers should consult an undergraduate English advisor for required courses.

⁴ At least 3 hours must be in MATH. Three hours may be PHIL 240.

⁵ Select from ENGL 100-499 (p. 1021) and LING 200-499 (p. 1115). (except ENGL 103, ENGL 104, and ENGL 203).

⁶ Select from any 100-499 course not used elsewhere (except ENGL 100-299 (p. 1021)). Up to 18 hours of ENGL 300-499 (p. 1021) courses may be used. Only 14 hours of KINE 199; AERS 100-499 (p. 900),

MLSC 100-499 (p. 1151); NVSC 100-499 (p. 1178); SOMS 100-499 (p. 1237) may be used towards general electives.

Up to 51 credits in English can be applied to the degree; at least 21 credits must be in literature. A grade of C or higher is required for a course to be counted in the major. For residency, a student must have at least 12 hours in 300- or 400-level English classes from Texas A&M University.

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

Other courses may qualify for the following categories. All courses are to be selected with the approval of the student's academic advisor. The courses incorporate University Core Curriculum (p. 26) requirements. No course can be counted in more than one category, except as allowed in the minor field of study and the International and Cultural Diversity (p. 49) and Cultural Discourse (p. 48) graduation requirements. A minimum of 36 hours of 300- or 400-level coursework must be completed at Texas A&M University, with at least 12 of those hours being in the major.

English majors are advised, but not required, to select a minor field of study. Students who elect to complete a minor should contact the department or program that offers the minor to determine the requirements for that minor.

English - BA, Middle School Teacher Certification

Students in this degree program specialize in teaching-specific subjects, cultivate excellent communication skills, and develop an understanding of the social and intellectual development of children.

The Department of English offers a degree and certification program in English language arts/reading for prospective middle-school teachers. This program requires hours of major coursework in English, and hours of supporting specialized coursework in specific areas of educational planning and teaching. This certification is a field-based program that requires students spend extensive time in middle schools.

All students seeking certification should consult an undergraduate English advisor for additional information.

Program Requirements

First Year

		Semester Credit Hours
Fall		
ENGL 303	Approaches to English Studies	3
INST 210	Understanding Special Populations	3
Select one of the following: ¹		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 104	Composition and Rhetoric	

ENGL 210	Technical and Professional Writing	
American history (p. 30)		3
Foreign language ²		4
Semester Credit Hours		16
Spring		
ENGL 203	Writing about Literature ¹	3
Foreign language ²		4
Life and physical sciences (p. 27)		3
Mathematics (p. 27) ³		3
English elective ⁴		3
General elective ⁵		1
Semester Credit Hours		17
Second Year		
Fall		
INST 222	Foundations of Education in a Multicultural Society	3
Select one of the following:		3
ENGL 221/ MODL 221	World Literature	
ENGL 227	American Literature: The Beginnings to Civil War	
ENGL 231	Survey of English Literature I	
ENGL 313	Medieval English Literature	
ENGL 314	The English Renaissance	
ENGL 315	Seventeenth-Century Literature	
ENGL 317	Early British Drama	
ENGL 353	History of Rhetoric	
ENGL 412	Studies in Shakespeare	
ENGL 414	Milton	
ENGL 431	Chaucer	
Foreign language ²		3
Government/Political science (p. 31)		3
Life and physical sciences (p. 27)		3
English elective ⁴		3
Semester Credit Hours		18
Spring		
RDNG 371	Multicultural and Interdisciplinary Literature for Middle Grades	3
Select one of the following:		3
ENGL 222/ MODL 222	World Literature	
ENGL 232	Survey of English Literature II	
ENGL 316	Eighteenth-Century Literature and Culture	
ENGL 321	Nineteenth-Century Literature (Romantic)	
ENGL 322	Nineteenth-Century Literature (Victorian)	
ENGL 323	The American Renaissance	
ENGL 373	American Realism and Naturalism	
ENGL 375	Nineteenth-Century American Novel	
ENGL 377	The British Novel to 1870.	
Select one of the following:		3
ENGL 228	American Literature: Civil War to Present	
ENGL 305	Texas Literature	
ENGL 336	Life and Literature of the Southwest	

ENGL 337	Life and Literature of the American South	
ENGL 340	Modern and Contemporary Drama	
ENGL 350	Twentieth-Century Literature to World War II	
ENGL 352	Literature, World War II to Present.	
ENGL 356/ FILM 356	Literature and Film	
ENGL 372	American Poetry	
ENGL 376	The American Novel Since 1900	
ENGL 378	The British Novel, 1870 to Present.	
ENGL 379/ AFST 379	Postcolonial Literatures	
ENGL 401	Contemporary Literary Theory	
Foreign language ²		3
Government/Political science (p. 31)		3
Mathematics (p. 27) ³		3
Semester Credit Hours		18
Third Year		
Fall		
RDNG 372	Reading and Writing across the Middle Grades Curriculum	3
American history (p. 30)		3
Language, philosophy and culture or creative arts (p. 28)		3
Life and physical sciences (p. 27)		3
English elective ⁴		3
English elective ⁴		3
Semester Credit Hours		18
Spring		
ENGL 481	Senior Seminar	3
TEFB 371	Dynamics and Management in Multicultural/Inclusionary Learning Environments ¹	3
RDNG 468	Essential Foundations of Language and Literacy for All Learners	3
Select one of the following:		3
ENGL 204/ AFST 204	Introduction to African-American Literature	
ENGL 205/ AFST 205	Introduction to Africana Literature	
ENGL 229/ ASIA 229	Asian American Literature and Culture	
ENGL 306	Transnational Literature and Culture	
ENGL 329/ AFST 329	African-American Literature Pre-1930	
ENGL 333/ WGST 333	Lesbian, Gay, Bisexual, Transgender and Queer Literatures	
ENGL 338	American Ethnic Literature	
ENGL 339/ AFST 339	African-American Literature Post-1930	
ENGL 357	Native American Rhetorics and Literatures	
ENGL 362/ HISP 362	Latino/a Literature	
ENGL 369/ WGST 369	Lesbian, Gay, Bisexual, Transgender, and Queer Authorship	

ENGL 374/ WGST 374	Women Writers	
ENGL 391	Folklore, Literature, and World Cultures	
ENGL 393/ AFST 393	Studies in Africana Literature and Culture	
ENGL 474/ WGST 474	Studies in Women Writers	
Language, philosophy and culture (p. 28)		3
Semester Credit Hours		15
Fourth Year		
Fall		
INST 362	English as a Second Language Methods I ¹	3
RDNG 470	Reading/Language Arts Methods in Middle Grades Education	3
RDNG 490	Assessment in Reading Instruction in Middle Grades	3
Creative arts (p. 30)		3
Semester Credit Hours		12
Spring		
MEFB 497	Supervised Clinical Teaching ¹	6
Semester Credit Hours		6
Total Semester Credit Hours		120

¹ Minimum grade of C required.

² Complete 14 hours of a foreign language (p. 261) through the intermediate level. If you choose to enroll in a language you have studied previously without receiving college credit, you must first take a placement test. See academic advisor.

³ At least 3 hours must be in MATH. Three hours may be PHIL 240.

⁴ Select from ENGL 100-499 (p. 1021) and LING 200-499 (p. 1115). (except ENGL 103, ENGL 104, and ENGL 203).

⁵ Select from any 100-499 course not used elsewhere (except ENGL 100-299 (p. 1021)).

Up to 36 credits in English can be applied to the degree; at least 21 credits must be in literature. A grade of C or higher is required for a course to be counted in the major. For residency, a student must have at least 12 hours in 300- or 400-level English classes from Texas A&M University.

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

Other courses may qualify for the following categories. All courses are to be selected with the approval of the student's academic advisor. The following lists incorporate University Core Curriculum requirements. No course can be counted in more than one category, except as allowed in the minor field of study and the International and Cultural Diversity (p. 49) and Cultural Discourse (p. 48) graduation requirements. A minimum of 36 hours of 300- or 400-level coursework must be completed at Texas A&M University, with at least 12 of those hours being in the major.

English - 5-Year Bachelor of Arts and Master of Arts in English

This program offers a five-year path to a BA and MA in English, providing advanced training for teaching, writing-centered careers, or preparation for doctoral studies.

The Department of English offers a five-year combined degree program that provides the opportunity to earn a Bachelor of Arts in English and a Master of Arts in English.

In this program, the undergraduate degree requirements are slightly modified to require more theory and methods courses in an effort to prepare students for the more rigorous masters-level coursework.

At the completion of the degree, students are well-prepared to apply for doctoral programs in English and related humanities, positions teaching composition, and editorial and other writing-centered employment.

Students interested in this program will apply during the fall of their junior year and, if admitted, begin taking masters-level courses in the fall of their senior year with an undergraduate classification.

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 303	Approaches to English Studies	3
Select one of the following: ¹		3
ENGL 104	Composition and Rhetoric	
ENGL 210	Technical and Professional Writing	
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
American history (p. 30)		3
Foreign language ²		4
Social and behavioral sciences (p. 31)		3
Semester Credit Hours		16
Spring		
ENGL 203	Writing about Literature ¹	3
Foreign language ²		4
Life and physical sciences (p. 27)		3
Mathematics (p. 27) ³		3
General elective ⁴		3
Semester Credit Hours		16

Second Year

Fall		
Select one of the following:		3
ENGL 221/ MODL 221	World Literature	
ENGL 227	American Literature: The Beginnings to Civil War	
ENGL 231	Survey of English Literature I	
ENGL 313	Medieval English Literature	
ENGL 314	The English Renaissance	

ENGL 315	Seventeenth-Century Literature	
ENGL 317	Early British Drama	
ENGL 353	History of Rhetoric	
ENGL 412	Studies in Shakespeare	
ENGL 414	Milton	
ENGL 431	Chaucer	
Foreign language ²		3
Government/Political science (p. 31)		3
English elective ⁵		3
General elective ⁴		3
General elective ⁴		3

Semester Credit Hours 18

Spring

Select one of the following:		3
ENGL 222/ MODL 222	World Literature	
ENGL 232	Survey of English Literature II	
ENGL 316	Eighteenth-Century Literature and Culture	
ENGL 321	Nineteenth-Century Literature (Romantic)	
ENGL 322	Nineteenth-Century Literature (Victorian)	
ENGL 323	The American Renaissance	
ENGL 373	American Realism and Naturalism	
ENGL 375	Nineteenth-Century American Novel	
ENGL 377	The British Novel to 1870.	
Foreign language ²		3
Government/Political science (p. 31)		3
Life and physical sciences (p. 27)		3
General elective ⁴		3
General elective ⁴		3

Semester Credit Hours 18

Third Year

Fall

ENGL 308	History of Literary Criticism	3
Select one of the following:		3
ENGL 228	American Literature: Civil War to Present	
ENGL 305	Texas Literature	
ENGL 336	Life and Literature of the Southwest	
ENGL 337	Life and Literature of the American South	
ENGL 340	Modern and Contemporary Drama	
ENGL 350	Twentieth-Century Literature to World War II	
ENGL 352	Literature, World War II to Present.	
ENGL 356/ FILM 356	Literature and Film	
ENGL 372	American Poetry	
ENGL 376	The American Novel Since 1900	
ENGL 378	The British Novel, 1870 to Present.	
ENGL 379/ AFST 379	Postcolonial Literatures	
ENGL 401	Contemporary Literary Theory	
Language, philosophy and culture (p. 28)		3
Mathematics (p. 27) ³		3

General elective ⁴ 3

Semester Credit Hours 15

Spring

ENGL 354	Modern Rhetorical Theory	3
or ENGL 401	or Contemporary Literary Theory	
ENGL 481	Senior Seminar	3
Select one of the following:		3
ENGL 204/ AFST 204	Introduction to African-American Literature	
ENGL 205/ AFST 205	Introduction to Africana Literature	
ENGL 229/ ASIA 229	Asian American Literature and Culture	
ENGL 306	Transnational Literature and Culture	
ENGL 329/ AFST 329	African-American Literature Pre-1930	
ENGL 333/ WGST 333	Lesbian, Gay, Bisexual, Transgender and Queer Literatures	
ENGL 338	American Ethnic Literature	
ENGL 339/ AFST 339	African-American Literature Post-1930	
ENGL 357	Native American Rhetorics and Literatures	
ENGL 362/ HISP 362	Latino/a Literature	
ENGL 369/ WGST 369	Lesbian, Gay, Bisexual, Transgender, and Queer Authorship	
ENGL 374/ WGST 374	Women Writers	
ENGL 391	Folklore, Literature, and World Cultures	
ENGL 393/ AFST 393	Studies in Africana Literature and Culture	
ENGL 474/ WGST 474	Studies in Women Writers	
Creative arts (p. 30)		3
General elective ⁴		3

Semester Credit Hours 15

Summer

General elective ⁴	3
General elective ⁴	3

Semester Credit Hours 6

Fourth Year

Fall

ENGL 603	Bibliography and Literary Research	3
American history (p. 30)		3
Language, philosophy and culture or creative arts (p. 28)		3
Graduate coursework elective ⁶		3
General elective ⁴		3

Semester Credit Hours 15

Spring

Life and physical sciences (p. 27)	3
Social and behavioral sciences (p. 31)	3
Graduate coursework elective ⁶	3
Graduate coursework elective ⁶	3

General elective ⁴	1
Semester Credit Hours	13
Fifth Year	
Fall	
ENGL 691 Research	3
Graduate coursework elective ⁷	3
Graduate coursework elective ⁷	3
Semester Credit Hours	9
Spring	
ENGL 691 Research	3
Graduate coursework elective ⁷	3
Graduate coursework elective ⁷	3
Semester Credit Hours	9
Total Semester Credit Hours	150

¹ Must make grade of C or better.

² Complete 14 hours of a foreign language (<https://catalog.tamu.edu/undergraduate/liberal-arts/>) through the intermediate level. If you choose to enroll in a language you have studies previously without receiving college credit, you must first take a placement test. See academic advisor.

³ At least 3 hours must be in MATH. Three hours may be PHIL 240.

⁴ Select from any 100-499 course not used elsewhere (except ENGL 100-299 (p. 1021)). Up to 18 hours of ENGL 300-499 (p. 1021) courses may be used. Only 14 hours of KINE 199; AERS 100-499 (p. 900), MLSC 100-499 (p. 1151); NVSC 100-499 (p. 1178); SOMS 100-499 (p. 1237) may be used towards general electives.

⁵ Select from ENGL 100-499 (p. 1021) and LING 200-499 (p. 1115). (except ENGL 103, ENGL 104, and ENGL 203).

⁶ Select from ENGL 608, ENGL 610/LING 610, ENGL 613, ENGL 618, ENGL 634, ENGL 650, ENGL 654/COMM 654, ENGL 655/COMM 655, and ENGL 671. Each course can only be taken once for credit.

⁷ Select from ENGL 600-699 (<https://catalog.tamu.edu/graduate/course-descriptions/engl/>) (excluding ENGL 691), LING 600-699 (<https://catalog.tamu.edu/graduate/course-descriptions/ling/>). See graduate advisor.

A grade of C or higher is required for a course to be counted in the major. For residency, a student must have at least 12 hours in 300- or 400-level English classes from Texas A&M University.

The program includes a total of 150 hours, of which up to 0 hours of graduate-level coursework may be applied toward both the Bachelor of Arts in English and the Master of Arts in English (Thesis).

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

Other courses may qualify for the following categories. All courses are to be selected with the approval of the student's academic advisor. The courses incorporate University Core Curriculum (p. 26) requirements. No course can be counted in more than one category, except as allowed in the minor field of study and the International and Cultural Diversity (p. 49) and Cultural Discourse (p. 48) graduation requirements. A

minimum of 36 hours of 300- or 400-level coursework must be completed at Texas A&M University, with at least 12 of those hours being in the major.

English - Minor

An English minor teaches students to communicate clearly and effectively, learn how to critically read and examine complex texts, build effective arguments, and recognize other points of view.

The minor in English is offered by the Department of English and is open to all students. Students with a minor in English cultivate expertise in different literary forms, traditions, and approaches. Students have the opportunity to take courses in creative writing, rhetoric, science fiction and fantasy, African-American and Latinx literature, gender and sexuality studies, and digital humanities. The broadly applicable skills gained with this minor support and enhance the academic development of students who want to attend law or medical school, work in marketing or advertising, teach at a variety of levels, or work in STEM fields. Whatever their post-graduation plans, the written communication and analytical skills of English minors are essential for thriving in all endeavors.

Program Requirements

Code	Title	Semester Credit Hours
ENGL 100-499 (p. 1021)		9
ENGL 300-499 (p. 1021)		6
ENGL 400-499 (p. 1021)		3
Total Semester Credit Hours		18

A grade of C or higher is required for a course to be counted in the minor field of study.

Health Humanities - Minor

The minor in health humanities provides a critically-engaged, humanities-led approach to understanding health and illness.

The cross-disciplinary field of Health Humanities is growing in popularity at the baccalaureate level as more and more students realize the importance of having a critically-engaged, humanities-led approach to understanding health and illness. This minor fills the growing need by offering students a strong grounding in the humanistic study of health issues. Required courses develop skills of cross-disciplinary health studies in English, with students completing nine hours in courses such as narrative medicine and graphic medicine, literature and medicine, and health rhetoric. Students take an additional nine hours of electives, including courses that engage the ethics and philosophy of care, gender and race-based disparities in health, cross-cultural health communication, as well as social science and science electives. Students finish the minor with a required senior capstone course, which requires them to develop a unique Health Humanities research project related to their ongoing professional and educational goals. This minor is conceptualized with a critical framework: the coursework encourages students not only to take an interdisciplinary approach to understanding current and historical issues related to health, but also to critically reflect upon the methods of study they employ, and the future of Health Humanities as a field.

Program Requirements

Code	Title	Semester Credit Hours
ENGL 107	Introduction to the Health Humanities	3
or ENGL 292	or Introduction To Literature And Medicine	
ENGL 342	The Rhetoric of Gender and Health	3
or ENGL 391	or Topics in Literature and Medicine	
Select four of the following: ¹		12
AFST 317/	Racial and Ethnic Relations	
SOCI 317		
ANTH 409	Science, Pseudoscience and Critical Thinking in Anthropology	
ANTH 426	Anthropology of Food and Nutrition	
ANTH 435	Medical Anthropology	
COMM 315	Interpersonal Communication	
COMM 335	Intercultural Communication	
COMM 370	Health Communication	
COMM 420/Gender and Communication		
WGST 420		
COMM 470	Communication in Health Care Contexts	
COMM 471	Media, Health and Medicine	
ENGL 482/	Advanced Studies in Health	
HHUM 482	Humanities	
EPSY 430	Creativity Theories and Research	
GEOG 202	Geography of the Global Village	
GEOG 311	Cultural Geography	
GLST 407	Migration, Indigeneity, and Diaspora	
HLTH 236	Introduction to Health Disparities and Diversity	
HLTH 334	Women's Health	
HIST 362	History of Science	
HIST 363	History of Science in America	
HIST 364	From Axes to iPads - History of Innovation and Technology in America	
HIST 366/	Religion in Modern America	
RELS 366		
HIST 376	Great Scientists in History	
HIST 476/	Sex and Sexuality in History	
WGST 476		
PBSI 208	Stereotypes, Prejudice, and Minority Experience	
PBSI 320	Sensation-Perception	
PBSI 350	Cognitive Neuroscience	
PBSI 360	Health Psychology and Behavioral Medicine	
PHIL 251	Introduction to Philosophy	
PHIL 305	Philosophy of the Natural Sciences	
PHIL 480	Medical Ethics	
SOCI 205	Introduction to Sociology	

SOCI 408	Death and Dying	
SOCI 425	Medical Sociology	
VIBS 413	Introduction to Epidemiology	
VTPB 212	Genetics in the News	
VTPB 221	Great Diseases of the World	
WGST 401	Feminist Theory	
Total Semester Credit Hours		18

¹ At least three credit hours must be taken at the 300-level or above.

² Topic must be related to Health Humanities. Consult with minor advisor.

³ If enrolled in a one credit hour class, student will have to select more than three courses from the list to meet the 9 hour elective requirement to complete the minor.

Professional Writing - Minor

Improve your job opportunities by developing technical and professional writing skills. Through this minor, you will learn how to effectively communicate complex information.

The cross-disciplinary field of Professional Writing is growing in popularity as the variety of genres and forms of communication increase, and as it becomes increasingly necessary for professionals and content creators to possess interdisciplinary backgrounds and skill sets. This minor fills a growing need by offering students a strong grounding in technical and professional writing with consideration of new media and technologies, which will improve their job opportunities. Required English courses focus on writing for professional and rhetorical situations, with students completing nine hours in courses such as technical and professional writing, technical editing, and modern rhetorical theory. The required coursework across disciplines encourages students to take a multifaceted approach to understanding professional and technical writing and its practical applications. Students take an additional nine hours of electives, including courses that incorporate interdisciplinary approaches to fundamental concepts of technical and professional communication through writing. This approach will allow them not only to effectively communicate complex information, but also to critically reflect upon the methods of study they employ, and the future of technical and professional writing as a field.

Program Requirements

Code	Title	Semester Credit Hours
ENGL 210	Technical and Professional Writing	3
ENGL 320	Technical and Professional Editing	3
ENGL 355	The Rhetoric of Style	3
Select three of the following: ¹		9
COMM 205	Communication for Technical Professions	
COMM 230/Communication Technology Skills		
JOUR 230		
COMM 250/New Media and the Independent		
JOUR 250	Voice	
COMM 307/Communication Law and Policy		
JOUR 301		
COMM 323	Strategic Communication	

COMM 330	Technology and Human Communication	
COMM 365/International Communication		
JOUR 365		
COMM 437	Visual Communication	
ENGL 235	Elements of Creative Writing	
ENGL 241	Advanced Composition	
ENGL 304	Topics in Digital Research	
ENGL 353	History of Rhetoric	
ENGL 354	Modern Rhetorical Theory	
ENGL 403	Language and Gender	
ENGL 460	Digital Authoring Practices	
ENGL 461	Advanced Syntax and Rhetoric	
ENGL 462	Rhetoric in Cultural Context	
JOUR 455	Literary Nonfiction	
LING 307	Language and Culture	
Total Semester Credit Hours		18

¹ At least three credit hours must be taken at the 300-level or above.

Science Fiction and Fantasy Studies-Minor

This minor offers critical explorations of these two genres and the different ways that they have contributed to our understanding of humanity, our relationship to technology and science, our desire to explore other worlds and to imagine utopian societies.

The Science Fiction and Fantasy Studies minor is offered by the Department of English and is open to all undergraduate majors. Because these genres are rooted in visions of alterity, different futures and different worlds, these genres create templates for the new human experiences made possible by encounters with the different, unique, and strange.

The Science Fiction and Fantasy Studies interdisciplinary minor teaches students to communicate clearly and effectively, to read critically and examine complex texts and artifacts, to build effective arguments, and to recognize other points of view. These broadly applicable skills will not only enhance the academic development of liberal arts students, but they are also crucial for graduate school and for those who pursue a career in engineering and other STEM fields.

Program Requirements

Code	Title	Semester Credit Hours
ENGL 334	Science Fiction Present and Past	3
Select four of the following:		12
ENGL 220	Graphic Novel	
ENGL 234	Introduction to Speculative and Marvelous Literatures	
ENGL 318	Utopian Literature in the English Tradition	
ENGL 324/ FILM 324	Science Fiction and Film	
ENGL 331	Fantasy Literature	

ENGL 343	Fairy Tales in the English Tradition
ENGL 360	Literature for Children
ENGL 361	Young Adult Literature
GERM 336	German Fairy Tales
HIST 361	From Gutenberg to Google - International History of Technology and Innovation
HIST 362	History of Science
PHIL 376/ FILM 376	Philosophy, Film and Evil

Total Semester Credit Hours **15**

Department of Geography

Geography is the study of the relationships between people and their environment, relationships that vary from place to place across the Earth. Geography students assess those factors responsible for the variable and changing character of Earth's systems, which over time have been transformed into human habitat. Geography integrates physical science, social science, and the humanities. The department requires that students understand both the physical and human components, and develop the spatial analytical skills to study these systems.

Physical geography emphasizes a systematic and interdisciplinary approach to the study of landforms, climate, soils, and vegetation. Human geography seeks to describe and explain the spatial patterns of human activities on Earth. These range from economic activities such as the distribution of retail sales and industrial production to cultural landscapes, which often have strong historical roots. Geographic Information Systems (GIS), quantitative methods, and remote sensing provide geographers with the analytical techniques to study spatial phenomena.

Faculty

Bishop, Michael P, Professor
Geography
PHD, Indiana State University, 1987

Brannstrom, Christian, Professor
Geography
PHD, University of Wisconsin, Madison, 1998

Breyer, Betsy, Instructional Assistant Professor
Geography
PHD, University of Illinois at Urbana-Champaign, 2019

Brysch, Carmen, Instructional Associate Professor
Geography
PHD, Texas State University, 2014

Cai, Heng, Assistant Professor
Geography
PHD, Louisiana State University, 2017

Cairns, David M, Professor
Geography
PHD, University of Iowa, 1995

Casellas Connors, John Patrick, Associate Professor
Geography
PHD, Arizona State University, 2015

Filippi, Anthony M, Associate Professor
Geography
PHD, University of South Carolina, 2003

Frauenfeld, Oliver, Professor
Geography
PHD, University of Virginia, 2003

Goldberg, Daniel W, Associate Professor
Geography
PHD, University of Southern California, 2010

Gunalp, Burak, Associate Professor
Geography
PHD, University of Illinois at Urbana-Champaign, 2006

Gunalp, Inci, Professor
Geography
PHD, University of Illinois at Urbana-Champaign, 2007

Jean, Christy Roberts, Instructional Assistant Professor
Geography
PHD, Kansas State University, 2023

Jepson, Wendy, Professor
Geography
PHD, University of California at Los Angeles, 2003

Klein, Andrew G, Professor
Geography
PHD, Cornell University, 1997

Lafon, Charles W, Professor
Geography
PHD, University of Tennessee, Knoxville, 2000

Lee, Hwang, Instructional Assistant Professor
Geography
MS, University of Western Ontario, 2020

Moodie, Andrew, Assistant Professor
Geography
PHD, Rice University, 2020

Morakinyo, Tobi, Assistant Professor
Geography
PHD, City University of Hong Kong, HKSAR, 2016

O'Brien, Douglas M., Lecturer
Geography
MAG, Texas State University, 1994

O'Reilly, Kathleen M, Professor
Geography
PHD, University of Iowa, 2002

Prout, Erik, Instructional Associate Professor
Geography
PHD, Louisiana State University, 2001

Roark, Erin B, Professor
Geography
PHD, University of California at Berkeley, 2005

Torbenson, Max, Assistant Professor
Geography
PHD, University of Arkansas, Fayetteville, 2019

Winata, Fikriyah, Assistant Professor
Geography
PHD, University of Illinois Urbana-Champaign, 2022

Yadav, Shobha, Visiting Assistant Professor
Geography
PHD, West Virginia University, 2023

Zhang, Zhe, Associate Professor
Geography
PHD, Aalto University, 2016

Zou, Lei, Associate Professor
Geography
PHD, Louisiana State University, 2017

Majors

- Bachelor of Science in Geographic Information Science and Technology (p. 369)
- Bachelor of Science in Geographic Information Science and Technology and Master of Science in Geography, 5-Year Degree Program (p. 371)
- Bachelor of Science in Geography (p. 372)
- Bachelor of Science in Geography and Master of Geoscience in Geoscience, 5-Year Degree Program (p. 373)
- Bachelor of Science in Geography and Master of Science in Geography, 5-Year Degree Program (p. 375)

Minors

- Geographic Information Science and Technology Minor (p. 376)
- Geography Minor (p. 377)

Geographic Information Science and Technology - BS

The BS degree in Geographic Information Science and Technology (GIST) provides students a rigorous and modern-day education and training in GIST with applications in physical and human geography.

Employers require problem solvers not button pushers, to address problems in various application domains. The degree requires 53 hours of coursework, which is designed to:

- Provide modern-day exposure to the rapidly changing field of GIST.
- Balance education and training with a focus on competency.
- Provide application and problem-solving experiences.
- Support student activities and research.
- Provide students with professional experience.
- Produce high-quality geographers with strong GIST knowledge and skills.

Geospatial technology graduates are in extremely high demand and, according to the U.S. Department of Labor, are one of the highest growth areas in the federal government, particularly in homeland security activities, as well as in energy, software and engineering firms, biomedical and biohazard research, among many others. A 35% annual rate of

growth in geospatial technology-related degrees are projected by the U.S. Department of Labor. Students have employment opportunities with the following corporate and government entities:

- Government agencies (federal, state, county, and city): management and planning of urban infrastructure, inventory and assessment of natural resources including agriculture, forestry, and water resources.
- Energy industry: assessing biofuel production and identifying locations suitable for renewable energy resources and mineral exploration.
- Health science industry: determine hotspots of health events and explore causes.
- Military and intelligence community: numerous opportunities exist in military branches and agencies such as the Central Intelligence Agency, National Security Agency, and other intelligence organizations.
- Commercial industries: business analytics and marketing, as spatial information can be used to target marketing campaigns, and suitable site assessment to locate companies.
- Geospatial industries: software development, geotechnical engineering, and technology development.

Program Requirements

First Year

Fall		Semester Credit Hours
GEOG 203 & GEOG 213	Planet Earth and Planet Earth Lab	4
GEOG 215	Geospatial Cornerstone	1
MATH 140	Mathematics for Business and Social Sciences	3
Life and physical sciences		
Select from the following: ¹		4
ATMO 201 & ATMO 202	Weather and Climate and Weather and Climate Laboratory	
BIOL 101	Botany	
BIOL 111	Introductory Biology I	
CHEM 119	Fundamentals of Chemistry I	
GEOL 101 & GEOL 102	Principles of Geology and Principles of Geology Laboratory	
PHYS 201	College Physics	
Communication (p. 27)		3
Semester Credit Hours		15

Spring

GEOG 201	Introduction to Human Geography	3
MATH 142	Business Calculus	3
POLS 206	American National Government	3
Life and physical sciences		
Select from the following: ¹		4
BIOL 107	Zoology	
BIOL 112	Introductory Biology II	
CHEM 120	Fundamentals of Chemistry II	
GEOL 106	Historical Geology	
PHYS 202	College Physics	

OCNG 251 & OCNG 252	The Blue Planet - Our Oceans and The Blue Planet - Our Oceans Laboratory	
Communication (p. 27)		3

Semester Credit Hours 16

Second Year

Fall

CSCE 110 or CSCE 111	Programming I or Introduction to Computer Science Concepts and Programming	4
POLS 207	State and Local Government	3
American history (p. 30)		3
Social and behavioral sciences (p. 31)		3
Human or physical geography elective ²		3
Semester Credit Hours		16

Spring

GEOG 352/ GEOL 352	GNSS in the Geosciences	3
STAT 303	Statistical Methods	3
American history (p. 30)		3
Language, philosophy and culture (p. 28)		3
General elective ³		3
Semester Credit Hours		15

Third Year

Fall

GEOG 361	Remote Sensing in Geosciences	4
GEOG 390	Principles of Geographic Information Systems	4
Creative arts (p. 30)		3
General elective ³		4
Semester Credit Hours		15

Spring

GEOG 312	Data Analysis in Geography	3
GEOG 395	Cartography and Geovisualization	4
GIST techniques elective ⁴		4
General electives ³		3
Semester Credit Hours		14

Fourth Year

Fall

GEOG 450	Field Geography	3
GIST techniques elective ⁴		4
General electives ³		7
Semester Credit Hours		14

Spring

GEOG 476	GIS Practicum	3
Advanced GIST elective ⁵		4
General electives ³		8
Semester Credit Hours		15
Total Semester Credit Hours		120

¹ 8 hours required. Department requires that you take two in the same discipline to meet this requirement.

² Select from GEOG 301, GEOG 303, GEOG 304, GEOG 305, GEOG 306, GEOG 309, GEOG 311, GEOG 320, GEOG 323, GEOG 324,

GEOG 325, GEOG 330, GEOG 331, GEOG 335, GEOG 360, GEOG 370/
MARS 370, GEOG 380, GEOG 400, GEOG 401, GEOG 406, GEOG 420,
GEOG 430, GEOG 434, GEOG 435, GEOG 440, GEOG 442/GEOG 442,
GEOG 467.

³ Select any course from 100-499 not used elsewhere. (Except AERS 100-499 (p. 900); ASCC 100-499 (p. 937); ENGL 103; KINE 199; MATH 102; MATH 142, MATH 150, MATH 151, MATH 168, MATH 171; MLSC 100-499 (p. 1151); NVSC 100-499 (p. 1178); SOMS 100-499 (p. 1237); STAT 211, STAT 302, STAT 303).

⁴ Select from GEOG 391, GEOG 392, GEOG 398, GEOG 461, GEOG 475, GEOG 477, GEOG 478, GEOG 479.

⁵ Select from GEOG 461, GEOG 475, GEOG 479. A course used to fulfill this requirement cannot also be counted as fulfilling a GIST techniques elective.

Two courses in the degree plan must be Writing Intensive courses designated by the department in the schedule of classes. Also, 3 hours of International and Cultural Diversity (p. 49) and 3 hours of Cultural Discourse (p. 48) must be incorporated into the degree.

Geographic Information Science and Technology - 5-Year Bachelor of Science and Master of Science in Geography

Intended for the highly motivated, exceptional students with an interest in research, this accelerated program provides students with rigorous and modern-day skills in GIST, combined with specialized expertise in human geography, physical geography, and human-environment interactions.

This 5-year program combines our bachelor of science in Geographic Information Science and Technology (GIST) with our thesis-based master of science in geography, providing a fast track to an advanced degree. In addition to preparing students to succeed in private industry, the public sector, education, and many other opportunities available to geographers, the thesis-based master of science degree also provides for career options in research, including doctoral programs in geography and many other related disciplines.

Application and Eligibility

- Applications to the combined program will be submitted by June 15 after the completion of the student's junior year, after 90 hours of coursework are completed. Applications submitted after that time will be evaluated on a case-by-case basis.
- Students must identify a faculty member from Geography who is willing to serve as the advisor and chair of the thesis committee.
- The bachelor's and master's degrees will be conferred concurrently after completion of 150 hours, and satisfying their master's requirements which include successfully defending their thesis.
- Students not admitted to or wishing to discontinue the graduate portion of the 5-year program will earn their bachelor of science degree in GIST after successfully completing 120 hours of coursework.

Program Requirements

First Year

Fall

		Semester Credit Hours
GEOG 203	Planet Earth	3
GEOG 213	Planet Earth Lab	1
GEOG 215	Geospatial Cornerstone	1
MATH 140	Mathematics for Business and Social Sciences	3
Life and physical sciences		
Select from the following: ¹		4
ATMO 201 & ATMO 202	Weather and Climate and Weather and Climate Laboratory	
BIOL 101	Botany	
BIOL 111	Introductory Biology I	
CHEM 119	Fundamentals of Chemistry I	
GEOL 101 & GEOL 102	Principles of Geology and Principles of Geology Laboratory	
PHYS 201	College Physics	
Communication (p. 27)		3
Semester Credit Hours		15

Spring

GEOG 201	Introduction to Human Geography	3
MATH 142	Business Calculus	3
POLS 206	American National Government	3
Life and physical sciences		
Select from the following: ¹		4
BIOL 107	Zoology	
BIOL 112	Introductory Biology II	
CHEM 120	Fundamentals of Chemistry II	
GEOL 106	Historical Geology	
PHYS 202	College Physics	
OCNG 251 & OCNG 252	The Blue Planet - Our Oceans and The Blue Planet - Our Oceans Laboratory	
Communication (p. 27)		3
Semester Credit Hours		16

Second Year

Fall

CSCE 110 or CSCE 111	Programming I or Introduction to Computer Science Concepts and Programming	4
POLS 207	State and Local Government	3
American history (p. 30)		3
Social and behavioral sciences (p. 31)		3
Human or physical geography elective ²		3
Semester Credit Hours		16

Spring

GEOG 352/ GEOL 352	GNSS in the Geosciences	3
STAT 303	Statistical Methods	3
American history (p. 30)		3

Language, philosophy and culture (p. 28)	3
Human or physical geography elective ²	3
General elective ³	3
Semester Credit Hours	18
Third Year	
Fall	
GEOG 361 Remote Sensing in Geosciences	4
GEOG 390 Principles of Geographic Information Systems	4
Creative arts (p. 30)	3
GIST techniques elective ⁴	4
General elective ³	3
Semester Credit Hours	18
Spring	
GEOG 312 Data Analysis in Geography	3
GEOG 395 Cartography and Geovisualization	4
GEOG 450 Field Geography	3
GIST techniques elective ⁴	4
General elective ³	2
Semester Credit Hours	16
Fourth Year	
Fall	
GEOG 610 Geographical Methods and Theory	3
Advanced GIST elective ⁵	4
Graduate elective ⁶	3
General elective ³	6
Semester Credit Hours	16
Spring	
GEOG 476 GIS Practicum	3
GEOG 611 Geographical Research Design	3
Graduate elective ⁶	5
General elective ³	6
Semester Credit Hours	17
Fifth Year	
Fall	
Graduate elective ⁶	9
Semester Credit Hours	9
Spring	
Graduate elective ⁶	9
Semester Credit Hours	9
Total Semester Credit Hours	150

¹ 8 hours required. Department requires that you take two in the same discipline to meet this requirement.

² Select from GEOG 301, GEOG 303, GEOG 304, GEOG 305, GEOG 306, GEOG 309, GEOG 311, GEOG 320, GEOG 323, GEOG 324, GEOG 325, GEOG 330, GEOG 331, GEOG 335, GEOG 360, GEOG 370/MARS 370, GEOG 380, GEOG 400, GEOG 401, GEOG 406, GEOG 420, GEOG 430, GEOG 434, GEOG 435, GEOG 440, GEOG 442/GEOG 442, GEOG 467.

³ Select from any 100-499 course not used elsewhere. (Except AERS 100-499 (p. 900); ASCC 100-499 (p. 937); ENGL 103; KINE 199; MATH 102; MATH 142, MATH 150, MATH 151, MATH 168, MATH 171;

MLSC 100-499 (p. 1151); NVSC 100-499 (p. 1178); SOMS 100-499 (p. 1237); STAT 211, STAT 302, STAT 303).

⁴ Select from GEOG 391, GEOG 392, GEOG 398, GEOG 461, GEOG 475, GEOG 477, GEOG 478, GEOG 479.

⁵ Select from GEOG 461, GEOG 475, GEOG 479. A course used to fulfill this requirement cannot also be counted as fulfilling a GIST techniques elective.

⁶ The MS degree non-thesis option is 36 total hours, with 6 hours double-counting with undergraduate general electives. The MS thesis option is 32 hours, with 2 hours double-counting with general electives. Graduate courses may be any 600-level geography course (except GEOG 651, GEOG 659, GEOG 660, GEOG 676, or GEOG 678,) or from a supporting area, chosen with approval of the student's advisory committee. Students in the thesis option may include up to 8 hours of GEOG 691 Research.

Two courses in the degree plan must be Writing Intensive courses designated by the department in the schedule of classes. Also, 3 hours of International and Cultural Diversity (p. 49) and 3 hours of Cultural Discourse (p. 48) must be incorporated into the degree.

The program includes a total of 152 (thesis option) or 156 (non-thesis option) hours, of which up to 2 (thesis option) or 6 (non-thesis option) hours may be applied toward both the Bachelor of Science in Geographic Information Science and Technology and the Master of Science in Geography.

Geography - BS

Explore the physical and human environment with the interdisciplinary Bachelor of Science in Geography.

The Department of Geography offers exciting opportunities to explore the physical and human environment in the field, laboratory, and classroom. Students engage with faculty to examine the physical, environmental, cultural, economic, political, and social processes that drive our world.

This Bachelor of Science degree requires coursework taken in Geography, including a set of foundational courses followed by upper-level courses in Human Geography, Geography of the Natural Environment, Human-Environment Interactions, or Geographic Information Science and Technology. The degree offers the flexibility to explore double majors and minors in complementary fields.

Using geospatial methods, geography graduates are uniquely skilled to draw connections between human and physical processes, providing them career options in government agencies, industries, and businesses aimed at social services, research, natural resources, and spatial analysis. Geographers also often work in education, development, and private consulting.

Program Requirements

First Year

Fall		Semester Credit Hours
GEOG 201	Introduction to Human Geography	3
GEOG 215	Geospatial Cornerstone	1
Life and physical sciences		
Select one of the following: ¹		4
BIOL 111	Introductory Biology I	

CHEM 119	Fundamentals of Chemistry I	
GEOL 101 & GEOL 102	Principles of Geology and Principles of Geology Laboratory	
OCNG 251 & OCNG 252	The Blue Planet - Our Oceans and The Blue Planet - Our Oceans Laboratory	
PHYS 201	College Physics	
American history (p. 30)		3
Communication (p. 27)		3
Semester Credit Hours		14
Spring		
GEOG 203	Planet Earth	3
GEOG 213	Planet Earth Lab	1
MATH 140	Mathematics for Business and Social Sciences	3
Life and physical sciences		
Select one of the following: ¹		4
ATMO 201 & ATMO 202	Weather and Climate and Weather and Climate Laboratory	
BIOL 112	Introductory Biology II	
CHEM 120	Fundamentals of Chemistry II	
GEOL 106	Historical Geology	
PHYS 202	College Physics	
Human geography elective ²		3
Semester Credit Hours		14
Second Year		
Fall		
MATH 142	Business Calculus	3
POLS 206	American National Government	3
STAT 303	Statistical Methods	3
Physical geography elective ³		3
Geography elective ⁴		3
Semester Credit Hours		15
Spring		
POLS 207	State and Local Government	3
Creative arts (p. 30)		3
Human geography elective ²		3
Physical geography elective ³		3
General elective ⁵		4
Semester Credit Hours		16
Third Year		
Fall		
GEOG 390	Principles of Geographic Information Systems	4
American history (p. 30)		3
Language, philosophy and culture (p. 28)		3
Geography elective ⁴		3
General elective ⁵		3
Semester Credit Hours		16
Spring		
Communication (p. 27)		3
Geography elective ⁴		6

General elective ⁵		6
Semester Credit Hours		15
Fourth Year		
Fall		
GEOG 450	Field Geography	3
General elective ⁵		12
Semester Credit Hours		15
Spring		
GEOG 440	History and Nature of Geography	3
General elective ⁵		12
Semester Credit Hours		15
Total Semester Credit Hours		120

¹ 8 hours required. Department requires that you take two in the same discipline to meet this requirement.

² Select from GEOG 301, GEOG 303, GEOG 304, GEOG 305, GEOG 306, GEOG 309, GEOG 311, GEOG 320, GEOG 323, GEOG 325, GEOG 330, GEOG 401, GEOG 406, GEOG 420, GEOG 430.

³ Select from GEOG 324, GEOG 331, GEOG 335, GEOG 360, GEOG 370/ MARS 370, GEOG 400, GEOG 434, GEOG 435, GEOG 442/GEOL 442.

⁴ Select from any 300 or 400-level geography course.

⁵ To be selected in consultation with advisor. Select any course from 100-499 not used elsewhere. (Except AERS 100-499 (p. 900); ASCC 100-499 (p. 937); ENGL 103; KINE 199; MATH 102-104, 131, 141-142, 150-151, 166, 171 (p. 1135); MLSC 100-499 (p. 1151); NVSC 100-499 (p. 1178); SOMS 100-499 (p. 1237); STAT 211, STAT 302, STAT 303;).

Two courses in the degree plan must be Writing Intensive courses designated by the department in the schedule of classes. Also, International and Cultural Diversity Elective (3 hours) and Cultural Discourse (3 hours) must be incorporated into the degree.

Geography - 5-Year Bachelor of Science and Master of Geoscience in Geoscience

Intended for the highly motivated, exceptional individuals, this accelerated program prepares students in human geography, physical geography, and human-environment interactions, while also providing specialized geospatial skills.

This 5-year program combines our bachelor of science in Geography with our non-thesis master of geoscience, providing a fast track to an advanced, professional degree. Designed to emulate the Geographic Information Science and Technology track of our professional MGSc degree, the graduate portion of this 5-year program also includes some online (distance education) courses and prepares graduates to drive innovation and apply modern technologies to careers in nonprofit, government, or business sectors.

Application and Eligibility

- Applications to the combined program will be submitted by June 15, after the completion of the student's junior year, after 90 hours of coursework are completed. Applications submitted after that time will be evaluated on a case-by-case basis.

- A faculty advisor will be assigned to each student. Students may seek additional mentors, but a formal committee is not required.
- The bachelor's and master's degrees will be conferred concurrently after completion of 150 hours, and successful completion of the final project and final exam.
- Students not admitted to or wishing to discontinue the graduate portion of the 5-year program will earn their bachelor of science degree in Geography after successfully completing 120 hours of coursework.

Program Requirements

First Year

Fall		Semester Credit Hours
GEOG 201	Introduction to Human Geography	3
GEOG 215	Geospatial Cornerstone	1
Life and physical sciences ¹		4
Select one of the following:		
OCNG 251 & OCNG 252	The Blue Planet - Our Oceans and The Blue Planet - Our Oceans Laboratory	
GEOL 101 & GEOL 102	Principles of Geology and Principles of Geology Laboratory	
BIOL 111	Introductory Biology I	
CHEM 119	Fundamentals of Chemistry I	
PHYS 201	College Physics	
American history (p. 30)		3
Communication (p. 27)		3
Human geography elective ²		3
Semester Credit Hours		17
Spring		
GEOG 203	Planet Earth	3
GEOG 213	Planet Earth Lab	1
MATH 140	Mathematics for Business and Social Sciences	3
Life and physical sciences ¹		4
Select one of the following:		
ATMO 201 & ATMO 202	Weather and Climate and Weather and Climate Laboratory	
GEOL 106	Historical Geology	
BIOL 112	Introductory Biology II	
CHEM 120	Fundamentals of Chemistry II	
PHYS 202	College Physics	
Human geography elective ²		3
General elective ⁴		3
Semester Credit Hours		17

Second Year

Fall		
GEOG 232	Cartography and Visualization	3
MATH 142	Business Calculus	3
POLS 206	American National Government	3
STAT 303	Statistical Methods	3

General elective ⁴		4
Semester Credit Hours		16
Spring		
GEOG 390	Principles of Geographic Information Systems	4
POLS 207	State and Local Government	3
Creative arts (p. 30)		3
Physical geography elective ³		6
Semester Credit Hours		16
Third Year		
Fall		
American history (p. 30)		3
Language, philosophy and culture (p. 28)		3
Geography elective ⁵		9
Semester Credit Hours		15
Spring		
Communication (p. 27)		3
General elective ⁴		13
Semester Credit Hours		16
Fourth Year		
Fall		
GEOG 450	Field Geography	3
GEOG 651	Remote Sensing for Geographical Analysis	3
GEOG 659	Geodatabases	3
GEOG 669 or OCNG 669	Introduction to Processing Geoscience Data with R or Python for Geosciences	3
General elective ⁴		4
Semester Credit Hours		16
Spring		
GEOG 440	History and Nature of Geography	3
Graduate theme elective ⁶		6
General elective ⁴		7
Semester Credit Hours		16
Fifth Year		
Fall		
GEOG 665	GIS-Based Spatial Analysis and Modeling	3
GEOG 676	GIS Programming	3
Graduate theme elective ⁶		6
Semester Credit Hours		12
Spring		
GEOG 678	WebGIS	3
GEOG 676	Capstone Experience	6
Semester Credit Hours		9
Total Semester Credit Hours		150

¹ 8 hours required. Department requires that you take two in the same discipline to meet this requirement.

² Select from GEOG 301, GEOG 304, GEOG 305, GEOG 306, GEOG 309, GEOG 311, GEOG 320, GEOG 323, GEOG 325, GEOG 327, GEOG 330, GEOG 401, GEOG 406, GEOG 420, GEOG 430.

³ Select from GEOG 324, GEOG 331, GEOG 335, GEOG 360, GEOG 370/ MARS 370, GEOG 400, GEOG 434, GEOG 435, GEOG 442/GEOL 442.

⁴ Courses to be selected in consultation with advisor. Select any courses from 100-499 not used elsewhere. (Except AERS 100-499 (p. 900); ASCC 100-499 (p. 937); ENGL 103; KINE 198, KINE 199; MATH 102-104, 131, 141-142, 150-151, 166, 171 (p. 1135); MLSC 100-499 (p. 1151); NVSC 100-499 (p. 1178); SOMS 100-499 (p. 1237); STAT 211, STAT 302, STAT 303).

⁵ Choose from any 300 or 400-level geography course except GEOG 361, GEOG 391, GEOG 392, GEOG 461, GEOG 477, GEOG 478.

⁶ Select from GEOG 661, GEOG 662, GEOG 663, GEOG 677, GEOG 695; GEOL 617, GEOP 635. Up to 6 hours of graduate electives may be used towards the undergraduate degree's general elective.

Two courses in the bachelor of science degree plan must be Writing Intensive courses designated by the department in the schedule of classes. Also, International and Cultural Diversity (3 hours) and Cultural Discourse (3 hours) must be incorporated into the degree.

A maximum of 15 hours of graduate courses can be taken online, which is less than 50% of the required graduate degree hours.

The program includes a total of 156 hours, which up to 6 hours may be applied toward both the Bachelor of Science in Geography and the Master of Geoscience in Geoscience face-to-face program.

Geography - 5-Year Bachelor of Science and Master of Science in Geography

Intended for the highly motivated, exceptional students with an interest in research, this accelerated program prepares students in human geography, physical geography, and human-environment interactions.

This 5-year program combines our bachelor of science in Geography with our thesis-based master of science in Geography, providing a fast track to an advanced degree. This program provides a foundation in the geospatial skills needed to succeed in private industry, the public sector, education, and many other opportunities available to geographers. With the thesis-based master of science degree, students are also ideally prepared for careers in research, including doctoral programs in geography and many other related disciplines.

Application and Eligibility

- Applications to the combined program will be submitted by June 15 after the completion of the student's junior year, once 90 hours of coursework are completed. Applications submitted after that time will be evaluated on a case-by-case basis.
- Students must identify a faculty member from Geography who is willing to serve as the advisor and chair of the thesis committee.
- The bachelor's and master's degrees will be conferred concurrently after completion of 150 hours, and satisfying their master's requirements which include successfully defending their thesis.
- Students not admitted to or wishing to discontinue the graduate portion of the 5-year program will earn their bachelor of science degree in Geography after successfully completing 120 hours of coursework.

Program Requirements

First Year

Fall

		Semester Credit Hours
GEOG 201	Introduction to Human Geography	3
GEOG 215	Geospatial Cornerstone	1
Life and physical sciences		
Select one of the following: ¹		4
BIOL 111	Introductory Biology I	
GEOL 101 & GEOL 102	Principles of Geology and Principles of Geology Laboratory	
CHEM 119	Fundamentals of Chemistry I	
OCNG 251 & OCNG 252	The Blue Planet - Our Oceans and The Blue Planet - Our Oceans Laboratory	
PHYS 201	College Physics	
American history (p. 30)		3
Communication (p. 27)		3
Human geography elective ²		3
Semester Credit Hours		17

Spring

GEOG 203	Planet Earth	3
GEOG 213	Planet Earth Lab	1
MATH 140	Mathematics for Business and Social Sciences	3
Life and physical sciences		
Select one of the following: ¹		4
ATMO 201 & ATMO 202	Weather and Climate and Weather and Climate Laboratory	
GEOL 106	Historical Geology	
BIOL 112	Introductory Biology II	
CHEM 120	Fundamentals of Chemistry II	
PHYS 202	College Physics	
Human geography elective ²		3
General elective ³		3
Semester Credit Hours		17

Second Year

Fall

MATH 142	Business Calculus	3
POLS 206	American National Government	3
STAT 303	Statistical Methods	3
Geography elective ⁴		3
General elective ³		4
Semester Credit Hours		16

Spring

GEOG 390	Principles of Geographic Information Systems	4
POLS 207	State and Local Government	3
Creative arts (p. 30)		3
Physical geography elective ⁵		6
Semester Credit Hours		16

Third Year**Fall**

American history (p. 30)	3
Language, philosophy and culture (p. 28)	3
Geography elective ⁴	9
General elective ³	3
Semester Credit Hours	18

Spring

Communication (p. 27)	3
General elective ³	13
Semester Credit Hours	16

Fourth Year**Fall**

GEOG 450	Field Geography	3
GEOG 610	Geographical Methods and Theory	3
Graduate elective ⁶		3
General elective ³		6
Semester Credit Hours		15

Spring

GEOG 440	History and Nature of Geography	3
GEOG 611	Geographical Research Design	3
Graduate elective ⁶		5
General elective ³		6
Semester Credit Hours		17

Fifth Year**Fall**

Graduate elective ⁶	9
Semester Credit Hours	9

Spring

Graduate elective ⁶	9
Semester Credit Hours	9
Total Semester Credit Hours	150

¹ 8 hours required. Department requires that you take two in the same discipline to meet this requirement.

² Select from GEOG 301, GEOG 303, GEOG 304, GEOG 305, GEOG 306, GEOG 309, GEOG 311, GEOG 320, GEOG 323, GEOG 325, GEOG 330, GEOG 401, GEOG 406, GEOG 420, GEOG 430.

³ To be selected in consultation with advisor. Select any course from 100-499 not used elsewhere. (Except AERS 100-499 (p. 900); ASCC 100-499 (p. 937); ENGL 103; KINE 199; MATH 102-104, 131, 141-142, 150-151, 166, 171 (p. 1135); MLSC 100-499 (p. 1151); NVSC 100-499 (p. 1178); SOMS 100-499 (p. 1237); STAT 211, STAT 302, STAT 303).

⁴ Select from any 300 or 400-level geography course.

⁵ Select from GEOG 324, GEOG 331, GEOG 335, GEOG 360, GEOG 370/ MARS 370, GEOG 400, GEOG 434, GEOG 435, GEOG 442/GEOL 442.

⁶ The MS degree Non-Thesis Option is 36 total hours, with 6 hours double-counting with undergraduate General Electives. The MS with Thesis Option is 32 hours, with 2 hours double-counting with General Electives. Graduate courses may be any 600-level geography course (except GEOG 660) or from a supporting area, chosen with approval of the student's advisory committee. Students in the Thesis Option may include up to 8 hours of GEOG 691 Research.

Two courses in the bachelor of science degree plan must be Writing Intensive courses designated by the department in the schedule of classes. Also, International and Cultural Diversity elective (3 hours) and Cultural Discourse (3 hours) must be incorporated into the degree.

The program includes a total of 152 (thesis option) or 156 (non-thesis option) hours, of which up to 2 (thesis option) or 6 (non-thesis option) hours may be applied toward both the Bachelor of Science in Geography and the Master of Science in Geography.

Geographic Information Science and Technology - Minor

Geographic Information Science and Technology (GIST) is used to solve geospatial problems associated with, for example, land administration, environment and natural resource management, planning and population studies, as well as traditional surveying and mapping applications. GIST applies geographic information science (GIS), remote sensing, and global positioning mapping to collect, analyze, and display spatial information.

Program Requirements

Code	Title	Semester Credit Hours
GEOG 352/ GEOL 352	GNSS in the Geosciences	3
GEOG 361	Remote Sensing in Geosciences ¹	4
GEOG 390	Principles of Geographic Information Systems	4
Select one of the following:		4
GEOG 392	GIS Programming	
GEOG 461	Digital Image Processing in the Geosciences	
GEOG 475	Advanced Topics in GIS (Geographic Information Systems) ²	
GEOG 477	Terrain Analysis and Mapping	
GEOG 478	WebGIS	
GEOG 479	Principles of Geocomputation	
Total Semester Credit Hours		15

¹ Fall semester course

² Spring semester course

General Requirements

1. Geographic Information Science and Technology (GIST): minimum of 15 credits in the discipline at 300-400 level.
2. Minimum of 6 credits must be taken in residence at either Texas A&M University or Texas A&M at Galveston.
3. Students must meet with the department's advisor for minor programs for approval of courses selected (any substitutions must be approved by the department head).
4. Minimum cumulative GPR of 2.0 must be achieved for all courses in the minor.

Geography - Minor

Geography coursework for this minor integrates physical sciences, social sciences, and the humanities.

Geography explores the relationships between people and their environment, which vary from place to place across the Earth. Geographers compare and quantify the drivers of the variable and changing characteristics of Earth's systems, which have been transformed into human habitat and are thus undergoing change.

Program Requirements

Code	Title	Semester Credit Hours
GEOG 201	Introduction to Human Geography	3
GEOG 203 & GEOG 213	Planet Earth and Planet Earth Lab	4
Select one of the following:		3
400-level GEOG course (p. 1055)		
Electives		6
Select from the following:		
GEOG 202	Geography of the Global Village	
GEOG 301	Geography of the United States	
GEOG 304	Economic Geography	
GEOG 305	Geography of Texas	
GEOG 306	Introduction to Urban Geography	
GEOG 309	Geography of Energy	
GEOG 311	Cultural Geography	
GEOG 320	The Middle East	
GEOG 323	Geography of Latin America	
GEOG 324	Global Climatic Regions	
GEOG 330	Resources and the Environment	
GEOG 331	Geomorphology	
GEOG 360	Natural Hazards	
GEOG 361	Remote Sensing in Geosciences	
GEOG 370/ MARS 370	Coastal Processes	
GEOG 380	Workshop in Environmental Studies	
GEOG 390	Principles of Geographic Information Systems	
GEOG 398	Interpretation of Aerial Photographs	
GEOG 400	Arid Lands Geomorphology	
GEOG 401	Political Geography	
GEOG 405	Field Trips	
GEOG 420	Geography of Terrorism	
GEOG 435	Principles of Plant Geography	
GEOG 440	History and Nature of Geography	
GEOG 450	Field Geography	
GEOG 489	Special Topics in...	
Total Semester Credit Hours		16

The selection of courses must be made in agreement with the geography department advisor for minor programs.

Minimum GPA of 2.000 must be maintained in the minor coursework. 6 hours must be upper division courses, 3 of which must be at the 400-level.

General Requirements

1. Geography Minor: minimum of 16 credits in the discipline with at least 6 hours in upper-division courses, 3 hours of which must be at the 400 level.
2. Minimum of 6 credits must be taken in residence at either Texas A&M University or Texas A&M at Galveston.
3. Students must meet with the department's advisor for minor programs for approval of courses selected (any substitutions must be approved by the department head).
4. Minimum cumulative GPR of 2.0 must be achieved for all courses in the minor.

Department of Geology and Geophysics

Geology

The field of geology includes the scientific study of all aspects of the solid Earth and the fluids within it, including the fundamental processes that shape it and the stewardship of its resources that benefits society. The undergraduate curricula in geology foster critical thinking, and the application of scientific skills to the study of Earth materials (rocks, minerals, fossils, structures, landforms and subsurface fluids) and geologic processes. Courses provide a broad background in geology, emphasize knowledge transfer from other sciences to geologic problems and emphasize hands-on application of knowledge through laboratories and field trips and promote application to practical problems in environmental management and energy science and transition.

The Department of Geology and Geophysics offers two undergraduate programs in geology, the Bachelor of Arts and the Bachelor of Science. The BS program is appropriate for students seeking careers as geologists or preparing for graduate school in geology, whereas the BA program is designed for students wishing to combine geology with other disciplines.

To remain in satisfactory academic standing, students must maintain a 2.0 or better GPA in all technical courses (geology, geophysics, chemistry, math and physics).

Geophysics

Geophysics includes all areas of scientific inquiry that deal with the physical state of Earth and other planets and the dynamic processes that act on and within planetary bodies. The Bachelor of Science in Geophysics is for students who wish to combine a proficiency in mathematics with an interest in Earth. The objective of this program is to develop a physically-motivated approach to the study of Earth phenomena, with an emphasis on collection and analysis of geophysical data for probing and imaging the Earth's interior. Graduates will be well-prepared for careers in the energy and environmental industries, and for advanced study at top-ranked graduate programs.

To remain in satisfactory academic standing, students must maintain a 2.0 or better GPA in all technical courses (geology, geophysics, chemistry, math and physics).

Minor in Geology

The Department of Geology and Geophysics offers a minor in Geology. The minor provides opportunities for broadening a student's background and tailoring the curriculum to specific career goals. A minor in Geology may be especially beneficial to students majoring in fields that deal directly or indirectly with geological processes, such as agriculture, anthropology, archaeology, architecture, business, education, engineering, and soil science.

Faculty

Bapst, David William, Instructional Assistant Professor
Geology & Geophysics
PHD, University of Chicago, 2013

Becker, Mauro R, Professor of the Practice
Geology & Geophysics
PHD, The University of Texas at Austin, 1996

Belanger, Christina L, Associate Professor
Geology & Geophysics
PHD, University of Chicago, IL, 2011

Benavides Iglesias, Alfonso, Lecturer
Geology & Geophysics
PHD, Texas A&M University, 2007

Chen, Xiaowei, Associate Professor
Geology & Geophysics
PHD, University of California, San Diego, 2013

Chester, Frederick M, Professor
Geology & Geophysics
PHD, Texas A&M University, 1988

Chester, Judith S, Professor
Geology & Geophysics
PHD, Texas A&M University, 1992

Creel, Roger, Assistant Professor
Geology & Geophysics
PHD, Columbia University, 2024

Donovan, Arthur D, Professor of the Practice
Geology & Geophysics
PHD, Colorado School of Mines, 1985

Duan, Benchun, Professor
Geology & Geophysics
PHD, University of California at Riverside, 2006

Everett, Mark E, Professor
Geology & Geophysics
PHD, University of Toronto, 1991

Griffith, Christine, Visiting Lecturer
Geology & Geophysics
PHD, Texas A&M University, 2023

Grossman, Ethan L, Professor
Geology & Geophysics
PHD, University of Southern California, 1982

Kitajima, Hiroko, Associate Professor
Geology & Geophysics
PHD, Texas A&M University, 2010

Knappett, Peter S, Associate Professor
Geology & Geophysics
PHD, University of Tennessee at Knoxville, 2010

Kronenberg, Andreas K, Professor
Geology & Geophysics
PHD, Brown University, 1983

Lamb, Will M, Professor
Geology & Geophysics
PHD, University of Wisconsin, Madison, 1987

Laya, Juan Carlos, Associate Professor
Geology & Geophysics
PHD, Durham University, United Kingdom, 2012

Lenz, Brandi, Instructional Assistant Professor
Geology & Geophysics
PHD, Ohio State University, 2021

Marcantonio, Franco, Professor
Geology & Geophysics
PHD, Columbia University, 1994

Miller, Brent V, Professor
Geology & Geophysics
PHD, Dalhousie University, Canada, 1997

Nana Yobo, Lucien, Assistant Professor
Geology & Geophysics
PHD, University of Houston, 2021

Newman, Julie, Professor
Geology & Geophysics
PHD, University of Rochester, 1993

Perez, Nicholas D, Associate Professor
Geology & Geophysics
PHD, The University of Texas at Austin, 2015

Raymond, Anne, Professor
Geology & Geophysics
PHD, University of Chicago, 1983

Reece, Julia S, Associate Professor
Geology & Geophysics
PHD, The University of Texas at Austin, 2011

Sun, Yuefeng, Professor
Geology & Geophysics
PHD, Columbia University, 1994

Williams-Stroud, Sherilyn Coretta, Professor of the Practice
Geology & Geophysics
PHD, The Johns Hopkins University, 1988

Zhan, Hongbin, Professor
Geology & Geophysics
PHD, University of Nevada, Reno, 1996

Zhang, Jin, Associate Professor
Geology & Geophysics
PHD, University of Illinois at Urbana-Champaign, 2014

Majors

- Bachelor of Arts in Geology (p. 379)
- Bachelor of Science in Geology (p. 382)
- Bachelor of Science in Geology and Master of Ocean Science and Technology, 5-Year Degree Program (p. 383)
- Bachelor of Science in Geology and Master of Science in Geology, 5-Year Degree Program (p. 385)
- Bachelor of Science in Geophysics (p. 386)
- Bachelor of Science in Geophysics and Master of Science in Geophysics, 5-Year Degree Program (p. 387)

Minors

- Geology Minor (p. 388)

Geology - BA

The Bachelor of Arts in Geology provides students the skills to understand Earth systems and the interactions between human societies and Earth processes.

The BA degree is designed for students who will apply a foundation in geologic knowledge to careers such as environmental law, science journalism, non-profit organizations, business, K-12 science education, resource management, sustainability, environmental monitoring, conservation, public health, public policy, and public service. The B.A. in Geology also allows students to build an interdisciplinary degree combining geology with other disciplines, such as biological, anthropological and social disciplines in preparation for interdisciplinary graduate work.

Students will supplement their geology coursework with courses from a disciplinary theme that aligns with their career goals. Disciplinary themes are elective courses designed to prepare students for professional programs and employment in careers that would benefit from a solid geological and STEM foundation. Theme courses may be combined with additional electives to form a minor in other programs, however, completion of theme courses does not in itself confer a minor. Application to most minor programs is made through the department that houses the minor. The BA degree requires a minimum of 18 credit hours in a disciplinary theme. Themes not listed can be approved in consultation with a Department of Geology and Geophysics Faculty Program Coordinator.

Program Requirements

First Year

Fall		Semester Credit Hours
CHEM 119	Fundamentals of Chemistry I	4
ENGL 104	Composition and Rhetoric	3
GEOL 150	Introduction to the Solid Earth	4
GEOL 180	Introduction to Geology and Geophysics	1

MATH 140	Mathematics for Business and Social Sciences	3

Semester Credit Hours 15

Spring

CHEM 120	Fundamentals of Chemistry II	4
GEOL 152	History of the Earth	4
MATH 142	Business Calculus	3
Communication (p. 27)		3

Semester Credit Hours 14

Second Year

Fall

GEOL 203	Mineralogy	4
GEOL 210	Geological Communication	3
PHYS 201	College Physics	4
Language, philosophy and culture (p. 28) ²		3
Theme course ¹		3

Semester Credit Hours 17

Spring

GEOL 250	Geological Field Methods	4
GEOL 304	Igneous and Metamorphic Petrology	4
PHYS 202	College Physics	4
Theme course ¹		3

Semester Credit Hours 15

Third Year

Fall

GEOL 306	Sedimentology and Stratigraphy	4
GEOL 330	Geologic Field Trips	1
American history (p. 30)		3
Social and behavioral science (p. 31) ²		3
Theme course ¹		3

Semester Credit Hours 14

Spring

STAT 201	Elementary Statistical Inference	3
Government/Political science (p. 31)		3
Geology elective ³		3
Geosciences elective ⁴		3
Theme course ¹		3

Semester Credit Hours 15

Fourth Year

Fall

GEOL 420 or GEOL 450	Environmental Geology or Geology Senior Project	3
American history (p. 30)		3
Geology elective ³		3
Theme course ¹		3
General elective ⁵		3

Semester Credit Hours 15

Spring

Government/Political science (p. 31)		3
Creative arts (p. 30) ²		3
Geology elective ³		3
Theme course ¹		3

General elective ⁵	3
Semester Credit Hours	15
Total Semester Credit Hours	120

¹ See theme descriptions and lists of approved theme courses below.

² Three hours must be selected from courses that also satisfy the International and Cultural Diversity requirement and three hours must be selected from courses that also satisfy the Cultural Discourse requirement.

³ Select from GEOL 207 or GEOL 208, GEOL 300-499 (p. 1059) (except GEOL 481, GEOL 485), GEOP 300-499 (p. 1062) (except GEOP 485). No more than 3 hours of GEOL 491 or GEOP 491 may apply toward this requirement.

⁴ Select from: ATMO 444; ENSS 430, ENSS 431, GEOG 205, GEOG 304, GEOG 309, GEOG 330, GEOG 331, GEOG 352/GEOL 352, GEOG 360, GEOG 361, GEOG 401, GEOG 410/OCNG 412, GEOG 430, GEOL 442/ GEOG 442, OCNG 251, OCNG 252, OCNG 320, OCNG 330, OCNG 340, OCNG 350, OCNG 469.

⁵ General electives may not include AERS 100-499 (p. 900); ENGL 103; GEOL 101-104 (p. 1059); KINE 199; MATH 102, MATH 142, MATH 150, MATH 151, MATH 168, MATH 171; MLSC 100-499 (p. 1151); NVSC 100-499 (p. 1178); SOMS 100-499 (p. 1237).

Approved Theme Courses

Theme courses can be combined with electives to form a minor in other programs. Themes not listed can be approved in consultation with a Department of Geology and Geophysics Faculty Program Coordinator.

Business and Finance Theme

This theme is available to students who have also declared a minor in Business (p. 504) from the Mays Business School and prepares them for careers in non-profit organizations, resource management, sustainability, public service, and marketing.

Code	Title	Semester Credit Hours
Select 18 hours from:		18
ACCT 209	Survey of Accounting Principles	
ACCT 210	Survey of Managerial and Cost Accounting Principles	
ISTM 209	Business Information Systems Concepts	
FINC 409	Survey of Finance Principles	
MGMT 209	Principles of Business Regulations and Law	
MGMT 309	Survey of Management	
MKTG 409	Principles of Marketing	
Total Semester Credit Hours		18

Paleontology and Paleoecology Theme

This theme is designed for students interested in paleontology, who want to take advantage of the broad spectrum of evolution and ecology courses available in the College of Arts and Sciences and College of Agriculture and Life Sciences. It prepares students for careers in science journalism, resource management, and conservation paleobiology. Students should take BIOL 111, BIOL 112, and BIOL 214 early because they are prerequisites for many of the upper-level courses.

Code	Title	Semester Credit Hours
Select 18 hours from:		18
BIOL 111	Introductory Biology I	
BIOL 112	Introductory Biology II	
BIOL 214	Genes, Ecology and Evolution	
BIOL 318	Chordate Anatomy	
BIOL 335	Invertebrate Zoology	
or ECCB 205	or Diversity and Evolution of Invertebrates	
BIOL 357	Ecology	
or ECCB 205	or Fundamentals of Ecology	
BIOL 440	Marine Biology	
ECCB 303	Fire Ecology and Biogeochemistry	
ECCB 315	Herpetology	
ECCB 320	Ecosystem Restoration and Management	
ECCB 401	General Mammalogy	
ECCB 402	General Ornithology	
RWFM 316	Range Ecology	
RWFM 404	Aquatic Ecosystems	
Total Semester Credit Hours		18

Geospatial Theme

This theme is designed for students who want to combine geology and Geographic Information Systems. It prepares students for careers in resource management, sustainability, environmental conservation, and public service. Students completing appropriate course work in this theme may be eligible for a GIST minor (<https://catalog.tamu.edu/undergraduate/geosciences/geography/geographic-information-science-and-technology-minor/>).

Code	Title	Semester Credit Hours
Select 18 hours from:		18
GEOG 352/ GEOL 352	GNSS in the Geosciences	
GEOG 361	Remote Sensing in Geosciences	
GEOG 390	Principles of Geographic Information Systems	
GEOG 392	GIS Programming	
GEOG 461	Digital Image Processing in the Geosciences	
GEOG 475	Advanced Topics in GIS (Geographic Information Systems)	
GEOG 477	Terrain Analysis and Mapping	
GEOG 478	WebGIS	
GEOG 479	Principles of Geocomputation	
Total Semester Credit Hours		18

Geology of the Human Past Theme

This theme is designed for students interested in geology, anthropology, and human evolution. It prepares students for careers in science journalism, government agencies, state and national parks, biomedical technology and research, and forensic science. In this theme, ANTH 225

and ANTH 226 are prerequisites for some of the upper-level anthropology courses, and BIOL 111 and BIOL 112 are prerequisites for BIOL 214.

Code	Title	Semester Credit Hours
Select 18 hours from:		18
ANTH 204	The Prehistoric World	
ANTH 225	Introduction to Biological Anthropology	
ANTH 226	Introduction to Biological Anthropology Laboratory	
ANTH 312	Fossil Evidence of Human Evolution	
ANTH 401	Ice Age Humans in North America	
ANTH 405	Introduction to the Primates	
ANTH 423	Bioarchaeology	
ANTH 425	Human Osteology	
ANTH 427	Human Biological Variation	
ANTH 461	Environmental Archaeology	
BIOL 111	Introductory Biology I	
BIOL 112	Introductory Biology II	
BIOL 214	Genes, Ecology and Evolution	
Total Semester Credit Hours		18

Pre-Law Theme

This theme is designed for students interested in environmental, land use, and water law. It prepares students for law school and for careers in science journalism, environmental conservation, and public service.

Code	Title	Semester Credit Hours
Select 18 hours from:		18
COMM 203	Public Speaking	
COMM 243	Argumentation and Debate	
COMM 325	Persuasion	
FIVS 205	Introduction to Forensic and Investigative Sciences	
HIST 359	American Environmental History	
HIST 360	History of Energy in America	
HIST 362	History of Science	
HIST 447	Law and Society in the United States through Reconstruction	
PHIL 314	Environmental Ethics	
PHIL 332	Social and Political Philosophy	
PHIL 334	Philosophy of Law	
POLS 233	Politics and Policy in the United States	
POLS 340/ PSAA 340	Public Administration	
POLS 350	Modern Political Thought	
POLS 359	American Political Thought	
Total Semester Credit Hours		18

Life Sciences Theme

This theme is designed for students interested in geology who wish to pursue medical, physiological, and related life-science careers.

The courses listed may lead to a Pre-Medicine minor (<https://catalog.tamu.edu/undergraduate/science/biology/pre-medicine-minor/>) if additional requirements are met. Students interested in a Pre-Medicine minor should fulfill their Communications elective with a second ENGL course and take 6 hours of upper-level biology as their two general elective courses. Students in this theme should plan to take BIOL 111, BIOL 112 and BIOL 213 in this sequence, early in their degree program.

Code	Title	Semester Credit Hours
Select 18 hours from:		18
BICH 409	Principles of Biochemistry	
BIOL 111	Introductory Biology I	
BIOL 112	Introductory Biology II	
BIOL 213	Molecular Cell Biology	
BIOL 319	Integrated Human Anatomy and Physiology I	
BIOL 320	Integrated Human Anatomy and Physiology II	
CHEM 227	Organic Chemistry I	
& CHEM 237 and Organic Chemistry Laboratory		
CHEM 228	Organic Chemistry II	
& CHEM 238 and Organic Chemistry Laboratory		
STAT 312	Statistics for Biology	
Total Semester Credit Hours		18

Public Policy and Economics Theme

This theme is designed for students interested in geology, public policy and economics and prepares them for careers in science journalism, non-profit organizations, resource management, sustainability, environmental conservation, public service, and marketing. Due to prerequisites, students should plan to take ECON 202, ECON 323, and ECON 433 in this sequence.

Code	Title	Semester Credit Hours
Select 18 hours from:		18
COMM 323	Strategic Communication	
COMM 440	Political Communication	
COMM 446	Communication, Organizations and Society	
ECON 202	Principles of Economics	
ECON 203	Principles of Economics	
ECON 323	Microeconomic Theory	
ECON 433	Energy Markets and Policy	
ECON 436	Environmental Economics	
HIST 359	American Environmental History	
HIST 360	History of Energy in America	
JOUR 301/ COMM 307	Communication Law and Policy	
JOUR 450	Political Reporting	
PHIL 314	Environmental Ethics	
PHLT 302	Foundations of Public Health	
PHLT 330	The Environment and Public Health	
PHLT 313	Health Care and Public Health System	

POLS 233	Politics and Policy in the United States	
POLS 327	Congressional Politics	
POLS 340/ PSAA 340	Public Administration	
MGMT 209	Principles of Business Regulations and Law	
Total Semester Credit Hours		18

Secondary Education Theme

This theme helps to prepare students for pre-college teaching. Most of the courses in this theme require Junior or Senior classification and must be taken in the order listed below. However, completion of these courses does not in itself confer a teacher certification. Students entering this theme wishing to earn teacher certification should consult with a teaching certification advisor.

Code	Title	Semester Credit Hours
INST 210	Understanding Special Populations	3
INST 222	Foundations of Education in a Multicultural Society	3
or TEFB 273	or Introduction to Culture, Community, Society and Schools	
RDNG 465	Reading in the Middle and Secondary Grades	3
or RDNG 372	or Reading and Writing across the Middle Grades Curriculum	
TEFB 322	Teaching and Schooling in Modern Society	3
TEFB 324	Teaching Skills II	3
TEFB 406	Science in the Middle and Secondary School	3
or TEFB 407	or Mathematics in the Middle and Senior School	
Total Semester Credit Hours		18

Geology - BS

This program provides students with a strong foundation in geology as well as a background in other sciences and math, preparing students for careers in the environmental and energy industries, federal and state agencies, and private sector and nonprofit organizations.

The Bachelor of Science (BS) in Geology also prepares students for advanced study in graduate programs. The first two years of the BS program in Geology provide students with the basics of geology and the supporting fields of chemistry, physics and mathematics. The junior and senior years involve more advanced study in the subfields of geology and provide the opportunity for concentrated study in specific disciplines through the selection of technical electives. The Geology and Geophysics Department offers summer field camp (GEOL 350) in the Western US, in which students apply their geologic knowledge to collecting data and solving real problems. Seniors will participate in a group research capstone course (GEOL 450), in which they work in teams with a faculty advisor to solve a current problem and communicate their findings and experience. Students also have opportunities to become involved in

individual research projects with faculty members and can receive course credit for this activity through GEOL 291 and GEOL 491.

The BS in Geology is the appropriate degree for students intending to pursue graduate study in geology and for those seeking starting positions in the energy industry, environmental consulting, and as professional geologists in government and non-profit sectors. The required courses are supplemented by electives that prepare students for chosen career paths and graduate study within particular subfields.

Some of society's most pressing problems, including groundwater contamination and remediation, water resources, and geologic hazards such as landslides, flooding and subsidence are addressed in the field of environmental geology. Environmental geologists typically find careers with environmental and engineering consulting companies and other industrial corporations, governmental agencies or academia. Students are well-prepared for the Association of State Boards of Geology (ASBOG) Fundamentals of Geology professional licensing exam. Specific elective classes recommended include GEOL 351, GEOL 410, GEOL 412, GEOL 420, GEOL 440, GEOG 410/OCNG 412 and approved classes in other departments including Soil Science, Chemistry, Physics and Civil Engineering. Geologists may also be employed in the energy industry; recommended classes include GEOL 301, GEOL 404, GEOL 416, GEOP 313. Qualified students (GPA of 3.0 or higher with dean's permission) may also take related graduate courses during the senior year.

To remain in satisfactory academic standing, students must maintain a 2.0 or better GPA in all technical courses (geology, geophysics, chemistry, math and physics). Some courses require field trips.

Program Requirements

First Year

Fall		Semester Credit Hours
CHEM 119	Fundamentals of Chemistry I	4
ENGL 104	Composition and Rhetoric	3
GEOL 150	Introduction to the Solid Earth	4
GEOL 180	Introduction to Geology and Geophysics	1
MATH 151	Engineering Mathematics I	4
Semester Credit Hours		16

Spring

CHEM 120	Fundamentals of Chemistry II	4
GEOL 152	History of the Earth	4
MATH 152	Engineering Mathematics II	4
Communication (p. 27)		3
Semester Credit Hours		15

Second Year

Fall		
GEOL 203	Mineralogy	4
GEOL 210	Geological Communication	3
MATH 251	Engineering Mathematics III	3
PHYS 206	Newtonian Mechanics for Engineering and Science	3
PHYS 226	Physics of Motion Laboratory for the Sciences	1
Semester Credit Hours		14

Spring

GEOL 250	Geological Field Methods	4
GEOL 304	Igneous and Metamorphic Petrology	4
MATH 308	Differential Equations	3
PHYS 207	Electricity and Magnetism for Engineering and Science	3
PHYS 227	Electricity and Magnetism Laboratory for the Sciences	1

Semester Credit Hours 15

Third Year**Fall**

GEOL 306	Sedimentology and Stratigraphy	4
GEOP 341	Fundamentals of Geophysics	3
Select one of the following:		3
American history (p. 30)		
Government/Political science (p. 31)		
Language, philosophy and culture (p. 28) ¹		3

Semester Credit Hours 13

Spring

GEOL 312	Structural Geology and Tectonics	4
GEOL 314	Paleontology and Geobiology	4
Select one of the following:		3
American history (p. 30)		
Government/Political science (p. 31)		
Technical elective ²		3

Semester Credit Hours 14

Summer

GEOL 350	Summer Field Geology	3

Semester Credit Hours 3

Fourth Year**Fall**

GEOL 450	Geology Senior Project	3
Select one of the following:		3
American history (p. 30)		
Government/Political science (p. 31)		
Technical elective ²		9

Semester Credit Hours 15

Spring

Select one of the following:		3
American history (p. 30)		
Government/Political science (p. 31)		
Creative arts (p. 30) ¹		3
Social and behavioral science (p. 31) ¹		3
Technical elective ²		6

Semester Credit Hours 15

Total Semester Credit Hours 120

² Any science, math or engineering course that augments the degree with the approval of the advisor.

Geology - 5-Year Bachelor of Science and Master of Ocean Science and Technology

This program offers qualified students the opportunity to complete the Bachelor of Science (BS) degree in the Department of Geology and Geophysics and the non-thesis Master of Ocean Science and Technology in the Department of Oceanography in five years.

The concurrent degree program will enable motivated students to coordinate the required BS coursework and Master of Ocean Science and Technology coursework to complete the required credit hours for each degree without diminishing scope or quality of work.

Application and Eligibility:

- Applications to the combined program will be submitted by June 15 after the completion of the student's junior year. Applications submitted after that time will be evaluated on a case by case basis. Once admitted to the program, students must maintain a minimum 3.0 GPA on all graduate coursework.
- Applicants must have a minimum undergraduate GPA of 3.25. Applicants should also earn a C or better in all Chemistry, Calculus and Physics courses. Once admitted to the program, students must maintain a minimum 3.0 GPA on all graduate coursework.
- Students admitted into the combined program must finish the entire 150 credit hours to obtain both the Bachelor's and Master's degrees. Students will graduate at the completion of the 5th year in the combined program coursework (150 credit hours) with both Bachelor's and Master's degrees.
- Students admitted to the program will change from U4 to G7 status when they are admitted having completed at least 90 hours (end of spring semester, year 3).
- Students not accepted or not allowed to continue with the combined program will complete the 120-hour Bachelor's degree under the standard 4 year curriculum. These students may still apply to the traditional graduate program.

For additional information, please visit the Master of Ocean Science and Technology (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/oceanography/most/>) catalog page.

Program Requirements

First Year**Fall**

**Semester
Credit
Hours**

CHEM 119	Fundamentals of Chemistry I	4
ENGL 104	Composition and Rhetoric	3
GEOL 150	Introduction to the Solid Earth	4
GEOL 180	Introduction to Geology and Geophysics	1
MATH 151	Engineering Mathematics I	4

Semester Credit Hours 16

¹ The Graduation requirements include a requirement for three hours of International and Cultural Diversity (p. 49) courses and three hours of Cultural Discourse (p. 49) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. See academic advisor.

Spring

CHEM 120	Fundamentals of Chemistry II	4
GEOL 152	History of the Earth	4
MATH 152	Engineering Mathematics II	4
Communication (p. 27)		3

Semester Credit Hours 15

Second Year**Fall**

GEOL 203	Mineralogy	4
GEOL 210	Geological Communication	3
MATH 251	Engineering Mathematics III	3
PHYS 206	Newtonian Mechanics for Engineering and Science	3
PHYS 226	Physics of Motion Laboratory for the Sciences	1
Government/Political science (p. 31)		3

Semester Credit Hours 17

Spring

GEOL 250	Geological Field Methods	4
GEOL 304	Igneous and Metamorphic Petrology	4
MATH 308	Differential Equations	3
PHYS 207	Electricity and Magnetism for Engineering and Science	3
PHYS 227	Electricity and Magnetism Laboratory for the Sciences	1

Semester Credit Hours 15

Third Year**Fall**

GEOL 306	Sedimentology and Stratigraphy	4
GEOP 341	Fundamentals of Geophysics	3
American history (p. 30)		3
Government/Political science (p. 31)		3
Language, philosophy and culture (p. 28) ¹		3

Semester Credit Hours 16

Spring

GEOL 312	Structural Geology and Tectonics	4
GEOL 314	Paleontology and Geobiology	4
GEOL 350	Summer Field Geology	3
Technical elective ²		6

Semester Credit Hours 17

Summer

American history (p. 30)		3

Semester Credit Hours 3

Fourth Year**Fall**

GEOL 450	Geology Senior Project	3
OCNG 655	Experimental Design and Analysis in Oceanography ⁴	3
OCNG 656 or OCNG 669	MATLAB Programming for Ocean Sciences or Python for Geosciences	3
Social and behavioral sciences (p. 31) ¹		3
Creative arts (p. 30) ¹		3

Semester Credit Hours 15

Spring

OCNG 657	Data Methods and Graphical Representation in Oceanography	3
Select one of the following: ³		3
OCNG 620	Biological Oceanography	
OCNG 630	Geological Oceanography	
OCNG 640	Chemical Oceanography	
Technical electives ²		6

Semester Credit Hours 12

Fifth Year**Fall**

OCNG 604	Ocean Observing Systems ⁴	3
OCNG 608	Physical Oceanography ⁵	3
Advanced specialized OCNG graduate course		3
Advanced specialized OCNG graduate course		3

Semester Credit Hours 12

Spring

OCNG 603	Communicating Ocean Science	3
OCNG 661	Advanced Oceanographic Data Analysis and Communication ⁵	3
Advanced specialized OCNG graduate courses		3
Advanced specialized OCNG graduate course		3

Semester Credit Hours 12

Total Semester Credit Hours 150

¹ The Graduation requirements include a requirement for three hours of International and Cultural Diversity courses and three hours of Cultural Discourse courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. See academic advisor.

² Any science, math or engineering course that augments the degree with the approval of the advisor.

³ Graduate courses may be in Geology, Geophysics or a supporting math or science area, chosen with approval of the student's advisory committee. Students in the Thesis Option may include up to 8 hours of Research courses.

⁴ Students will not be permitted to receive credit for both the 400- and 600-level versions of certain courses because the content and learning outcomes are too similar (OCNG 404/OCNG 604; OCNG 470/OCNG 655)

⁵ The MS degree Non-Thesis Option is 36 total hours, with 6 hours double-counting with the undergraduate Technical Electives. OCNG 608 and OCNG 661 hours are applied toward both the Bachelor of Science in Geology and the Master of Ocean Science and Technology.

Any of the required courses may be taken during the Summer Sessions to diminish the heavy semester loads during Years 2 and 3.

The program includes a total of 156 hours which up to 6 hours may be applied toward both the Bachelor of Science in Geology and the Master of Ocean Science and Technology.

Geology - 5-Year Bachelor of Science and Master of Science in Geology

This program is designed to quickly prepare exceptional students who would like to either enter into the job market with an advanced degree or apply to PhD programs.

The combined program in Geology is a 5-year path leading to a Bachelor of Science (BS) and a Master of Science (MS) in Geology. Because the MS degree requires a thesis, it is highly recommended that interested students become involved in research project early in the undergraduate career. Areas of opportunity for research at both the undergraduate and MS levels include groundwater flow and use, paleontology and paleoecology, stratigraphy, structural geology, tectonophysics, petrology, geomorphology, environmental geology and geochemistry.

Application and Eligibility

- Students may apply for entrance to the graduate program when they reach 90 hours applied to their degree program, normally in the spring of their junior year.
- Applicants to this program are not required to submit GRE, but they must submit two letters of advocacy from faculty members, one of whom is willing to serve as the MS thesis advisor.
- Students admitted into the combined program must finish the entire 150 credit hours to obtain both the Bachelor's and Master's degrees. These students will be conferred with two degrees once they complete all requirements.
- Students not accepted into the combined program will complete the 120 hour Bachelor's degree under the standard 4 year curriculum. These students may still apply to the traditional graduate program.

Program Requirements

First Year

Fall		Semester Credit Hours
CHEM 119	Fundamentals of Chemistry I	4
ENGL 104	Composition and Rhetoric	3
GEOL 150	Introduction to the Solid Earth	4
GEOL 180	Introduction to Geology and Geophysics	1
MATH 151	Engineering Mathematics I	4
Semester Credit Hours		16
Spring		
CHEM 120	Fundamentals of Chemistry II	4
GEOL 152	History of the Earth	4
MATH 152	Engineering Mathematics II	4
Communication (p. 27)		3
Semester Credit Hours		15

Second Year

Fall		
GEOL 203	Mineralogy	4
GEOL 210	Geological Communication	3
MATH 251	Engineering Mathematics III	3
PHYS 206	Newtonian Mechanics for Engineering and Science	3

PHYS 226	Physics of Motion Laboratory for the Sciences	1
Government/Political science (p. 31)		3

Semester Credit Hours 17

Spring

GEOL 250	Geological Field Methods	4
GEOL 304	Igneous and Metamorphic Petrology	4
MATH 308	Differential Equations	3
PHYS 207	Electricity and Magnetism for Engineering and Science	3
PHYS 227	Electricity and Magnetism Laboratory for the Sciences (Technical Electives) ²	1
Technical electives ²		1

Semester Credit Hours 16

Summer

Technical electives ²		3

Semester Credit Hours 3

Third Year

Fall

GEOL 306	Sedimentology and Stratigraphy	4
GEOP 341	Fundamentals of Geophysics	3
American history (p. 30)		3
Government/Political science (p. 31)		3
Language, philosophy and culture (p. 28) ¹		3

Semester Credit Hours 16

Spring

GEOL 312	Structural Geology and Tectonics	4
GEOL 314	Paleontology and Geobiology	4
GEOL 350	Summer Field Geology	3
Technical electives ²		8

Semester Credit Hours 19

Summer

American history (p. 30)		3

Semester Credit Hours 3

Fourth Year

Fall

GEOL 450	Geology Senior Project	3
Creative arts (p. 30) ¹		3
Social and behavioral sciences (p. 31) ¹		3
Technical electives ²		6

Semester Credit Hours 15

Spring

Graduate electives ³		12

Semester Credit Hours 12

Fifth Year

Fall

Graduate electives ³		9

Semester Credit Hours 9

Spring

Graduate electives ³	9
Semester Credit Hours	9
Total Semester Credit Hours	150

¹ The Graduation requirements include a requirement for three hours of International and Cultural Diversity courses and three hours of Cultural Discourse courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. See academic advisor.

² Any science, math or engineering course that augments the degree with the approval of the advisor. At least four credits should be GEOL 491 Research.

³ The MS degree Non-Thesis Option is 36 total hours, with 6 hours double-counting with the undergraduate Technical Electives. The MS with Thesis Option is 32 hours, with 2 hours double-counting with Technical Electives. Graduate courses may be in Geology, Geophysics or a supporting math or science area, chosen with approval of the student's advisory committee. Students in the Thesis Option may include up to 8 hours of Research courses.

The program includes a total of 152 or 156 hours which up to 2 or 6 hours may be applied toward both the Bachelor of Science in Geology and the Master of Science in Geology.

Geophysics - BS

The Bachelor of Science in Geophysics prepares students for employment opportunities in industrial, environmental, governmental, education, non-profit and related careers, but the rigor of this degree is also designed to prepare students for advanced study.

The first two years are similar to the BS in Geology, providing students with the fundamentals of geology, chemistry, physics, and mathematics. Courses during the junior and senior years emphasize knowledge transfer from the fields of math and physics to techniques and problems in both theoretical and applied geophysics. Technical electives allow students to focus on specific career objectives. Seniors will participate in a group research capstone course (GEOL 450), in which they work in teams with a faculty advisor to solve a current problem and communicate their findings. Students are also encouraged to become involved in research projects with faculty members and can receive course credit for this activity through GEOP 291 (<https://catalog.tamu.edu/search/?P=GEOP%20291>) and GEOP 491 (<https://catalog.tamu.edu/search/?P=GEOP%20491>). Some courses in geophysics require field trips.

Geophysicists contribute to the field of environmental science by working on traditional and emerging methods used for hydrogeological, structural, and stratigraphic characterization of the uppermost 100 meters of the Earth, with applications to shallow resource and groundwater assessment and solutions to environmental and engineering problems. Environmental geophysicists typically work as environmental consultants or with industrial corporations or government agencies.

Geophysicists may find employment in the energy industry, in which reflection seismology is the primary subsurface exploration tool. Students aiming for this field will supplement their background in seismic theory with electives that focus on subsurface structures and processes and industry techniques. These students will be prepared for graduate study, as well as industry jobs.

To remain in satisfactory academic standing, students must maintain a 2.0 or better GPA in all technical courses (geology, geophysics, chemistry, math and physics).

Program Requirements

First Year

Fall		Semester Credit Hours
GEOL 150	Introduction to the Solid Earth	4
GEOL 180	Introduction to Geology and Geophysics	1
CHEM 107 & CHEM 117	General Chemistry for Engineering Students and General Chemistry for Engineering Students Laboratory	4
ENGL 104	Composition and Rhetoric	3
MATH 151	Engineering Mathematics I	4
Semester Credit Hours		16
Spring		
GEOL 152	History of the Earth	4
MATH 152	Engineering Mathematics II	4
Select one of the following:		3
American history (p. 30)		
Government/Political science (p. 31)		
Communication elective (p. 27)		3
Semester Credit Hours		14

Second Year

Fall		
GEOL 203	Mineralogy	4
GEOL 210	Geological Communication	3
MATH 251	Engineering Mathematics III	3
PHYS 206	Newtonian Mechanics for Engineering and Science	3
PHYS 226	Physics of Motion Laboratory for the Sciences	1
Semester Credit Hours		14

Spring

GEOL 304	Igneous and Metamorphic Petrology	4
GEOL 250	Geological Field Methods	4
MATH 308	Differential Equations	3
PHYS 207	Electricity and Magnetism for Engineering and Science	3
PHYS 227	Electricity and Magnetism Laboratory for the Sciences	1
Semester Credit Hours		15

Third Year

Fall		
GEOP 341	Fundamentals of Geophysics	3
GEOL 306	Sedimentology and Stratigraphy	4
MATH 311	Topics in Applied Mathematics I	3
PHYS 221	Optics and Thermal Physics	3
Select one of the following:		3
American history (p. 30)		

Government/Political science (p. 31)		
Semester Credit Hours		16
Spring		
GEOL 312	Structural Geology and Tectonics	4
GEOP 313	Geophysical Field Methods	4
GEOP 361	Geophysical Signal Processing	3
Select one of the following:		3
American history (p. 30)		
Government/Political science (p. 31)		
Technical elective ¹		3
Semester Credit Hours		17
Fourth Year		
Fall		
GEOP 421	Seismology	4
GEOP 413	Near-surface Geophysics	3
GEOL 450	Geology Senior Project	3
Language, philosophy and culture elective (p. 28) ²		3
Semester Credit Hours		13
Spring		
Select one of the following:		3
American history (p. 30)		
Government/Political science (p. 31)		
Creative arts elective (p. 30) ²		3
Social and behavioral science elective (p. 31) ²		3
Geophysics elective ³		3
Technical electives ¹		3
Semester Credit Hours		15
Total Semester Credit Hours		120

¹ Any science, math or engineering course that augments the degree with the approval of the advisor.

² The Graduation requirements include a requirement for three hours of international and cultural diversity courses and three hours of cultural discourse courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. See academic advisor.

³ Any approved 400-level geophysics course not already required.

Geophysics - 5-Year Bachelor of Science and Master of Science in Geophysics

This program is designed to quickly prepare exceptional students who would like to either enter into the job market with an advanced degree or apply to PhD programs.

The combined program in Geophysics is a 5-year path leading to a Bachelor of Science (BS) and a Master of Science (MS) in Geophysics. Because the MS degree requires a thesis, it is highly recommended that interested students become involved in a research project early in the undergraduate career. Areas of opportunity for research at both the undergraduate and MS levels include earthquake mechanisms and seismic wave propagation, theoretical and experimental studies of deformation of rocks and soft sediment, petrophysics and reservoir

physics, marine studies of the structure of the oceanic crust and continental margins, near surface applied geophysics and archaeological geophysics.

Application and Eligibility

- Students may apply for entrance to the graduate program when they reach 90 hours applied to their degree program, normally in the spring of their junior year.
- Applicants to this program are not required to submit GRE, but they must submit two letters of advocacy from faculty members, one of whom is willing to serve as the MS thesis advisor.
- Students admitted into the combined program must finish all of the credit hours to obtain both the Bachelor's and Master's degrees. These students will be conferred with two degrees once they complete all requirements.
- Students not accepted into the combined program will complete the Bachelor's degree under the standard 4 year curriculum. These students may still apply to the traditional graduate program.

Program Requirements

First Year		Semester Credit Hours
Fall		
CHEM 107	General Chemistry for Engineering Students	3
CHEM 117	General Chemistry for Engineering Students Laboratory	1
ENGL 104	Composition and Rhetoric	3
GEOL 150	Introduction to the Solid Earth	4
GEOL 180	Introduction to Geology and Geophysics	1
MATH 151	Engineering Mathematics I	4
Semester Credit Hours		16
Spring		
GEOL 152	History of the Earth	4
MATH 152	Engineering Mathematics II	4
Communication (p. 27)		3
Government/Political science (p. 31)		3
Semester Credit Hours		14
Second Year		
Fall		
GEOL 203	Mineralogy	4
GEOL 210	Geological Communication	3
MATH 251	Engineering Mathematics III	3
PHYS 206	Newtonian Mechanics for Engineering and Science	3
PHYS 226	Physics of Motion Laboratory for the Sciences	1
American history (p. 30)		3
Semester Credit Hours		17
Spring		
GEOL 250	Geological Field Methods	4
GEOL 304	Igneous and Metamorphic Petrology	4
MATH 308	Differential Equations	3

PHYS 207	Electricity and Magnetism for Engineering and Science	3
PHYS 227	Electricity and Magnetism Laboratory for the Sciences (Technical Electives) ²	1
Technical electives ²		1
Semester Credit Hours		16
Summer		
American history (p. 30)		3
Semester Credit Hours		3
Third Year		
Fall		
GEOL 306	Sedimentology and Stratigraphy	4
GEOP 341	Fundamentals of Geophysics	3
MATH 311	Topics in Applied Mathematics I	3
PHYS 221	Optics and Thermal Physics	3
Government/Political science (p. 31)		3
Semester Credit Hours		16
Spring		
GEOL 312	Structural Geology and Tectonics	4
GEOP 313	Geophysical Field Methods	4
GEOP 361	Geophysical Signal Processing	3
Language, philosophy and culture (p. 28) ¹		3
Social and behavioral science (p.) ¹		3
Semester Credit Hours		17
Summer		
Technical elective ²		3
Semester Credit Hours		3
Fourth Year		
Fall		
GEOL 450	Geology Senior Project	3
GEOP 421	Seismology	4
GEOP 413	Near-surface Geophysics	3
Creative arts (p. 30) ¹		3
Geophysics elective ³		3
Technical elective		2
Semester Credit Hours		18
Spring		
Graduate electives ⁴		12
Semester Credit Hours		12
Fifth Year		
Fall		
Graduate electives ⁴		9
Semester Credit Hours		9
Spring		
Graduate electives ⁴		9
Semester Credit Hours		9
Total Semester Credit Hours		150

¹ The Graduation requirements include a requirement for three hours of International and Cultural Diversity courses and three hours of Cultural Discourse courses. A course satisfying a Core category, a college/departmental requirement, or a free elective can be used to satisfy this requirement. See academic advisor.

² Any science, math or engineering course that augments the degree with the approval of the advisor. At least four credits should be GEOL 491 Research.

³ Any Geophysics course.

⁴ The MS degree is either Non-Thesis Option (36 total hours, with 6 hours double-counting with the undergraduate Technical Electives) or Thesis Option (32 hours, with 2 hours double-counting with Technical Electives). Graduate courses may be in Geology, Geophysics or a supporting math or science area, chosen with approval of the student's advisory committee. Students in the Thesis Option may include up to 8 hours of Research courses.

The program includes a total of 152 or 156 hours which up to 2 or 6 hours may be applied toward both the Bachelor of Science in Geophysics and the Master of Science in Geophysics.

Geology - Minor

The minor in Geology provides students with a solid foundation in the fundamental principles of Geology, with an option to concentrate in Geophysics through elective courses.

This minor is especially suited to complement majors in science, policy, humanities, education, and business. Students will develop skills in scientific inquiry and critical thinking centered on Earth's evolution, processes, and history. Graduates with a Geology Minor will be better prepared for advanced academic degrees and careers in environmental public practice, energy industry business and policy, conservation, government, oversight, and regulation compliance.

Program Requirements

Code	Title	Semester Credit Hours
Select one of the following:		4
GEOL 101	Principles of Geology & GEOL 102 and Principles of Geology Laboratory	
GEOL 104	Physical Geology	
GEOL 150	Introduction to the Solid Earth	
Technical electives ¹		11
Select from the following:		
GEOL 200-499 (p. 1059) ^{2,3}		
GEOP 313	Geophysical Field Methods	
GEOP 341	Fundamentals of Geophysics	
GEOP 489	Special Topics In... ³	
GEOP 491	Research ³	
Total Semester Credit Hours		15

¹ Students must meet with the department academic advisor for approval of technical elective courses.

² No more than 2 credit hours of GEOL 330 may be applied to minor

³ No more than 3 credit hours of any combination from GEOL 489, GEOL 491, GEOP 489, GEOP 491 may be applied to minor.

Minimum of 6 credits must be taken in residence at Texas A&M University.

Minimum of 8 credits at the 300-400 level required.

Minimum of 2.5 cumulative GPA for all courses in the minor.

Department of Global Languages and Cultures

<https://artsci.tamu.edu/global-lang-cultures/>

Head: Stefanie Harris

Research in Hispanic Studies embraces cultural studies, digital humanities, film and performance, gender and diaspora studies, Hispanic literatures, historical and comparative linguistics, history and presence of Spanish in the U.S., iconography, language acquisition and pedagogy, language variation and change, photography, post-hegemonic and infrapolitical thought, and sociolinguistics. Among the Hispanic Studies faculty are skilled translators and accomplished creative essayists, narrators and poets.

Graduate work in Hispanic Studies prepares the student for academic careers concerned with Spanish and bilingualism, for teaching positions, and for government, diplomatic, non-profit and private sector jobs. A high competence in the Spanish language is required.

An interdisciplinary certificate is offered by the Africana Studies program in the College of Arts and Sciences. It offers interested masters or doctoral students an opportunity to develop an interdisciplinary graduate concentration in Africana Studies while they are also earning a degree in a disciplinary field. In addition to gaining knowledge of peoples and of issues with particular significance to the Africana world, students pursuing this certificate will also benefit from the interdisciplinary training that is the hallmark of Africana Studies. They will be exposed to the scholarship, methods, and theories of the multiple disciplines that contribute to the critical analysis and understanding of the Africana world. Awarding of the Africana Studies Certificate requires that the certificate candidate complete of Africana Studies approved coursework.

Faculty

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PHD, University of Michigan Ann Arbor, 1982

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PHD, Purdue University, 2017

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PHD, University of Tennessee, Knoxville, 2008

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PHD, University of Minnesota, Twin Cities, 1995

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MLS, Louisiana State University, 2000

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Global Languages & Cultures
PHD, University of Michigan Ann Arbor, 1987

Hemmig, Christopher, Instructional Assistant Professor
Global Languages & Cultures
PHD, The Ohio State University, 2015

Howell, James Ford, Instructional Associate Professor
Global Languages & Cultures
PHD, University of Arizona, 2017

Karathanasis, Constantine, Assistant Professor
Global Languages & Cultures
PHD, Washington University in St. Louis, 2022

Konrad, Christoph F, Professor
Global Languages & Cultures
PHD, University of North Carolina at Chapel Hill, 1985

Kölzow, Arthur Edward, Lecturer
Global Languages & Cultures
PHD, University of California, Santa Barbara, 2011

Lake, Justin, Associate Professor
Global Languages & Cultures
PHD, Harvard University, 2008

Larson, Ruth E, Associate Professor
Global Languages & Cultures
PHD, Yale University, 1991

Lawo-Sukam, Alain, Professor
Global Languages & Cultures
PHD, University of Illinois at Urbana-Champaign, 2005

Lei, Jun, Associate Professor
Global Languages & Cultures
PHD, University of California at San Diego, 2015

Liu, Bo, Lecturer
Global Languages & Cultures
PHD, University of Oklahoma, 2023

Marchesini, Manuela, Associate Professor
Global Languages & Cultures
PHD, Stanford University, 2000

McKinnon, Sean, Assistant Professor
Global Languages & Cultures
PHD, Indiana University, Bloomington, 2020

Miller, Stephen J, Professor
Global Languages & Cultures
PHD, The University of Chicago, 1976

Minjarez, Solem, Instructional Assistant Professor
Global Languages & Cultures
PHD, Arizona State University, 2018

Moreiras, Alberto, Professor
Global Languages & Cultures
PHD, University of Georgia, 1987

Moyna, Maria I, Professor
Global Languages & Cultures
PHD, University of Florida, 2000

Ortega, Bertin, Instructional Associate Professor
Global Languages & Cultures
PHD, Stanford University, 1986

Passmore, Ashley A, Instructional Assistant Professor
Global Languages & Cultures
PHD, University of Chicago, 2007

Perret, Meg, Assistant Professor
Global Languages & Cultures
PHD, Harvard University, 2022

Quintana, Maria E, Associate Professor
Global Languages & Cultures
PHD, University of California at Berkeley, 1998

Rich, Elisabeth, Associate Professor
Global Languages & Cultures
PHD, University of Michigan Ann Arbor, 1985

Rosenthal, Adam R, Associate Professor
Global Languages & Cultures
PHD, Emory University, 2014

Runnels, Daniel, Assistant Professor
Global Languages & Cultures
PHD, Indiana University, Bloomington, 2022

Veldman, Robin Globus, Associate Professor
Global Languages & Cultures
PHD, University of Florida, 2018

Vilaros, Teresa M, Professor
Global Languages & Cultures
PHD, University of Georgia, 1989

Waugh, Yuki, Instructional Associate Professor
Global Languages & Cultures
PHD, University of Nebraska, 2006

Masters

- Master of Arts in Hispanic Studies (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/global-languages-cultures/hispanic-studies-ma/>)

Doctoral

- Doctor of Philosophy in Hispanic Studies (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/global-languages-cultures/hispanic-studies-phd/>)

Certificates

- Africana Studies Certificate (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/global-languages-cultures/africana-studies-certificate/>)

Classics - BA, Classical Civilization Track

The BA in Classics is designed to give students a thorough grounding in the culture, history, literature, and intellectual accomplishments of Ancient Greece and Rome from the Bronze Age to the dawn of the Middle Ages.

Studying the history and literature of these civilizations will not only help students to develop skills in close reading, writing, and critical thinking, but will also help them to see how fundamental concepts of Western

Civilization such as rationalism and democracy first arose in Classical Antiquity.

The Classical Civilization track focuses on the history, beliefs, and material culture of ancient Greek and Roman civilization. Students can fulfill the foreign language requirement by studying a classical or modern language.

A major in Classics signals a commitment to serious intellectual inquiry and is an excellent basis for careers in law, business, consulting, public service, and teaching. Those intending to pursue careers in medicine or finance will also find that a major in Classics can be easily combined with undergraduate courses required for those fields.

Program Requirements

First Year

		Semester Credit Hours
Fall		
ENGL 104	Composition and Rhetoric	3
Foreign Language ¹		4
Mathematics (p. 27) ²		3
Classics directed elective ³		3
General elective ⁴		3
Semester Credit Hours		16

Spring

Foreign language ¹		4
Life and physical sciences (p. 27)		3
Social and behavioral sciences (p. 31)		3
Classics directed elective ³		3
General elective ⁴		3
Semester Credit Hours		16

Second Year

Fall		
Foreign language ¹		3
Language, philosophy and culture (p. 28)		3
Life and physical sciences (p. 27)		3
Classics directed elective ⁵		3
General elective ⁴		3
Semester Credit Hours		15

Spring

Communication (p. 27)		3
Creative arts (p. 30)		3
Foreign language ¹		3
Classics directed elective ⁵		3
General elective ⁴		3
Semester Credit Hours		15

Third Year

Fall		
American history (p. 30)		3
Mathematics (p. 27) ²		3
Classics directed elective ⁵		3
Classics directed elective ⁵		3
General elective ⁴		3
Semester Credit Hours		15

Spring

American history (p. 30)		3
Life and physical sciences (p. 27)		3
Classics directed elective ⁵		3
Literature directed elective (https://catalog.tamu.edu/undergraduate/arts-and-sciences/arts-requirements/)		3
General elective ⁴		3
Semester Credit Hours		15

Fourth Year

Fall

CLAS 491	Research ⁶	1
Government/Political science (p. 31)		3
Classics directed elective ⁵		3
Literature directed elective (https://catalog.tamu.edu/undergraduate/arts-and-sciences/arts-requirements/)		3
General elective ⁴		3
Semester Credit Hours		13

Spring

CLAS 410	Seminar in Classical Studies ⁶	3
Government/Political science (p. 31)		3
Social and behavioral sciences (p. 31)		3
Classics directed elective ⁵		3
General elective ⁴		3
Semester Credit Hours		15
Total Semester Credit Hours		120

¹ Complete 14 hours of a foreign language (p. 261) through the intermediate level. If you choose to enroll in a language you have studied previously without receiving college credit, you must first take a placement test. See academic advisor.

² At least 3 hours must be in MATH. Three hours may be PHIL 240.

³ Select from ANTH 300-499 (p. 922); ARCH 430, ARCH 434; ARTS 335; CLAS 220, CLAS 230-499 (p. 971); HIST 300-499 (p. 1069). Students must make a grade of C or better in all courses taken.

⁴ Select from any 100-499 courses not used elsewhere, except CLAS 300-499 (p. 971). Only 14 hours of KINE 199; AERS 100-499 (p. 900); MLSC 100-499 (p. 1151); NVSC 100-499 (p. 1178); SOMS 100-499 (p. 1237) may be used towards general electives.

⁵ Select from ANTH 316, ANTH 317/RELS 317; CLAS 220, CLAS 230-499 (p. 971); PHIL 410, PHIL 411. Students must make a grade of C or better in all courses taken.

⁶ Must make grade of C or better.

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a core category, a college/department requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

All Classics majors are strongly encouraged to select 15-18 hours in a minor field of study.

Students must earn a C or better in all major coursework.

Courses cross-listed with other programs cannot be used under different prefixes to fulfill more than one requirement.

Classics - BA, Language and Literature Track

The BA in Classics is designed to give students a thorough grounding in the culture, history, literature, and intellectual accomplishments of Ancient Greece and Rome from the Bronze Age to the dawn of the Middle Ages.

Studying the history and literature of these civilizations will not only help students to develop skills in close reading, writing, and critical thinking, but will also help them to see how fundamental concepts of Western Civilization such as rationalism and democracy first arose in Classical Antiquity.

The Literature and Language track has a traditional focus on Latin and Greek philology (students choose either Latin or Ancient Greek to specialize in, but are encouraged to take both) and is intended to enable students to read and enjoy the great texts of Classical Antiquity (Homer, Herodotus, Thucydides, Livy, Tacitus, the New Testament, etc.) in the original languages.

A major in Classics signals a commitment to serious intellectual enquiry and is an excellent basis for careers in law, business, consulting, public service, and teaching. Those intending to pursue careers in medicine or finance will also find that a major in Classics can be easily combined with undergraduate courses required for those fields.

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 104	Composition and Rhetoric	3
Foreign language	¹	3
Government/Political science	(p. 31)	3
Mathematics	(p. 27) ²	3
General elective	³	4
Semester Credit Hours		16
Spring		
Foreign language	¹	3
Life and physical sciences	(p. 27)	3
Social and behavioral sciences	(p. 31)	3
Literature directed elective	(https://catalog.tamu.edu/undergraduate/arts-and-sciences/arts-requirements/)	3
General elective	³	3
Semester Credit Hours		15
Second Year		
Fall		
Foreign language	¹	3
Language, philosophy and culture	(p. 28)	3
Government/Political science	(p. 31)	3
Classics directed elective	⁴	3
General elective	³	3
Semester Credit Hours		15
Spring		
Communication	(p. 27)	3

Creative arts	(p. 30)	3
Foreign language	¹	3
Mathematics	(p. 27) ²	3
General elective	³	3

Semester Credit Hours 15

Third Year

Fall

American history	(p. 30)	3
Foreign language	¹	3
Classics directed elective	⁵	3
General elective	³	3
General elective	³	3

Semester Credit Hours 15

Spring

Foreign language	¹	3
Life and physical sciences	(p. 27)	3
Social and behavioral sciences	(p. 31)	3
General elective	³	3
General elective	³	3

Semester Credit Hours 15

Fourth Year

Fall

CLAS 491	Research	1
American history	(p. 30)	3
Life and physical sciences	(p. 27)	3
General elective	³	3
General elective	³	3

Semester Credit Hours 13

Spring

CLAS 410	Seminar in Classical Studies	3
Classics directed elective	⁴	3
Literature directed elective	(https://catalog.tamu.edu/undergraduate/arts-and-sciences/arts-requirements/)	3
General elective	³	3
General elective	³	4

Semester Credit Hours 16

Total Semester Credit Hours 120

¹ Select Greek language sequence or Latin language sequence for a total of 18 hours, with a grade of C or better in all courses taken. Greek: Take CLAS 102, CLAS 211, 12 hours from CLAS 310-319 (p. 971). Latin: Take CLAS 122, CLAS 221, CLAS 222, 9 hours from CLAS 320-329 (p. 971).

² At least 3 hours must be in MATH. Three hours may be PHIL 240.

³ Select from any 100-499 courses not used elsewhere, except CLAS 300-499 (p. 971). Only 14 hours of KINE 199; AERS 100-499 (p. 900); MLSC 100-499 (p. 1151); NVSC 100-499 (p. 1178); SOMS 100-499 (p. 1237) may be used towards general electives.

⁴ Select from ANTH 300-499 (p. 922); ARCH 430, ARCH 434; ARTS 335; CLAS 211, CLAS 220, CLAS 221, CLAS 222, CLAS 230-499 (p. 971); HIST 300-499 (p. 1069). Students must make a grade of C or better in all courses taken.

⁵ Select from ANTH 316, ANTH 317/RELS 317; CLAS 251/RELS 251, CLAS 330-381 (p. 971), CLAS 415-444 (p. 971), PHIL 410, PHIL 411. Students must make a grade of C or better in all courses taken.

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a core category, a college/department requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

All Classics majors are strongly encouraged to select 15-18 hours in a minor field of study.

Students must earn a C or better in all major coursework.

Courses cross-listed with other programs cannot be used under different prefixes to fulfill more than one requirement.

Modern Languages - BA, French Option

A major in French provides students with language skills that translate into practical tools for use in today's interconnected world, whether in Texas, Europe, Africa, or beyond.

Above the practical aspect of the major, students of French acquire a rich view of the world through explorations into literature, history, and cultural studies. Focusing on analytical and critical thinking, as well as cultural awareness, our students are prepared to enter careers in fields such as education, international business, human resources, research, government, social service, tourism, journalism, and translation, as well as graduate studies in French and professional schools (medicine, law, business). To enhance their plan of study and create even more professional opportunities after graduation, French majors are encouraged to seek out a complementary minor or second major/degree, such as in the other languages and programs offered by Texas A&M's Department of Global Languages and Cultures.

To underscore the focus on cultural awareness and to support the achievement of increased linguistic proficiency, our majors are encouraged to study abroad in a French-speaking country. The French program offers summer study abroad programs for credit, and departmental faculty and advising staff also work closely with students to match their interests with semester and full-year programs abroad.

Students will be required to complete, by coursework or placement test, all 100- and 200-level courses in sequence. Once a student has received credit for a higher-level language course, the student is no longer eligible to receive credit for prerequisite courses.

Program Requirements

First Year

Fall	Semester Credit Hours
ENGL 104 Composition and Rhetoric	3
Government/Political science (p. 31)	3
Mathematics (p. 27) ¹	3
General elective ²	4

General elective ²	1
Semester Credit Hours	14
Spring	
American history (p. 30)	3
Creative arts (p. 30)	3
Life and physical sciences (p. 27)	3
Literature directed elective (p. 261)	3
General elective ²	4
Semester Credit Hours	16
Second Year	
Fall	
FREN 201 Intermediate French I ² or FREN 221 or Field Studies I	3
Communication (p. 27)	3
Language, philosophy and culture (p. 28)	3
Social and behavioral sciences (p. 31)	3
Literature directed elective (p. 261)	3
Semester Credit Hours	15
Spring	
FREN 202 Intermediate French II ² or FREN 222 or Field Studies II	3
American history (p. 30)	3
Government/Political science (p. 31)	3
Life and physical sciences (p. 27)	3
General elective or minor ³	3
Semester Credit Hours	15
Third Year	
Fall	
FREN 300-499 (p. 1049) ⁴	3
FREN 300-499 (p. 1049) ⁴	3
Minor ³	3
Social and behavioral sciences (p. 31)	3
General elective ²	3
Semester Credit Hours	15
Spring	
FREN 300-499 (p. 1049) ⁴	3
FREN 300-499 (p. 1049) ⁴	3
Mathematics (p. 27) ¹	3
Minor ³	3
General elective ²	3
Semester Credit Hours	15
Fourth Year	
Fall	
FREN 300-499 (p. 1049) ⁴	3
FREN 300-499 (p. 1049) ⁴	3
Life and physical sciences (p. 27)	3
Minor ³	3
General elective ²	3
Semester Credit Hours	15
Spring	
FREN 300-499 (p. 1049) ⁴	3
FREN 300-499 (p. 1049) ⁴	3

FREN 300-499 (p. 1049) ⁴	3
Minor ³	3
Minor ³	3
Semester Credit Hours	15
Total Semester Credit Hours	120

¹ At least three hours must be in MATH. Three hours may be PHIL 240.

² FREN 101 and FREN 102 are prerequisites for intermediate FREN courses and will count as general electives in the degree plan. If you choose to enroll in a language you have studied previously without receiving college credit, you must first take a placement test. See the Foreign Language paragraph.

³ See the Minor Field of Study paragraph.

⁴ Minimum of 9 hours at the 400- level.

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a core category, a college/department requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

Foreign Language

Students entering Modern Languages - French take a placement exam to determine the level of and number of required French courses. Exam results may fulfill a maximum of 14 semester credit hours.

- Students placed in 101 will take 101, 102, 201 and 202 and 27 semester credit hours at the 300- or 400-level.
- Students placed in 102 will take 102, 201 and 202 and 27 semester credit hours at the 300- or 400-level.
- Students placed in 201 will take 201 and 202 and 27 semester credit hours at the 300- or 400-level.
- Students placed in 202 will take 202 and 27 semester credit hours at the 300- or 400-level.
- Students placing out of 101, 102, 201 and 202 will take 27 semester credit hours at the 300- or 400-level.

Minor Field of Study

All Modern Language majors must select a minor field of study from departments or divisions within or outside of the College of Arts and Sciences or in a particular area of interest (as in the case of interdisciplinary minors). The minor will consist of a minimum of 15 hours of coursework, as defined by the minor department. No more than 9 credit hours may be at the 100-299 level. Interdisciplinary minors such as women's and gender studies, classical studies, religious studies, and business have specific requirements; students should consult undergraduate advisors in these areas of study. A second major may substitute for the minor. Courses used to meet the minor requirements may not be used in the major. See also the statement on "Minor Field of Study" under the general requirements of the College of Arts and Sciences. In general, the careful combination of foreign language skills with other major curricula enhances preparation for careers in business, industry and government. Teaching certification is available to majors through the School of Education and Human Development. Consult the School of Education and Human Development section under secondary teacher certification for additional information.

Any departmental major must earn a C or better in all major and minor coursework.

No more than 12 hours of FREN 200-299 (p. 1049) may be used for this degree.

Other courses may qualify for the college and university requirements categories. Students should consult the approved list of courses available in the Undergraduate Student Services Office in the College of Arts and Sciences. The lists incorporate University Core Curriculum requirements. No course can be counted in more than one category.

Modern Languages - BA, German Option

A major in German provides students with language skills that translate into practical tools for use in today's interconnected world, whether in Texas, Europe, or beyond.

Above the practical aspect of the major, students of German acquire a rich view of the world through explorations into literature, history, and cultural studies. Focusing on analytical and critical thinking, as well as cultural awareness, our students are prepared to enter careers in fields such as education, international business, human resources, research, government, social service, tourism, journalism, and translation, as well as graduate studies in German and professional schools (medicine, law, business). To enhance their plan of study and create even more professional opportunities after graduation, German majors are encouraged to seek out a complementary minor or second major/degree, such as in the other languages and programs offered by A&M's Department of Global Languages and Cultures.

To underscore the focus on cultural awareness and to support the achievement of increased linguistic proficiency, our major requires a minimum 10-week experience abroad in a German-speaking country. The German program offers summer study abroad programs for credit, and departmental faculty and advising staff also work closely with students to match their interests with semester and full-year programs abroad.

Students will be required to complete, by coursework or placement test, all 100- and 200-level courses in sequence. Once a student has received credit for a higher-level language course, the student is no longer eligible to receive credit for prerequisite courses.

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 104	Composition and Rhetoric	3
Government/Political science (p. 31)		3
Mathematics (p. 27) ¹		3
General elective ²		4
General elective ²		1
Semester Credit Hours		14

Spring

American history (p. 30)		3
Creative arts (p. 30)		3
Life and physical sciences (p. 27)		3

Literature directed elective (p. 261)	3
General elective ²	4
Semester Credit Hours	16

Second Year**Fall**

Select one of the following: ^{2,3}	3
GERM 201 Intermediate German I	
GERM 204 Intensive Intermediate German	
GERM 221 Field Studies I	
Communication (p. 27)	3
Language, philosophy and culture (p. 28)	3
Social and behavioral sciences (p. 31)	3
Literature directed elective (p. 261)	3
Semester Credit Hours	15

Spring

Select one of the following: ^{2,3}	3
GERM 202 Intermediate German II	
GERM 222 Field Studies II	
GERM 204 Intensive Intermediate German	
American history (p. 30)	3
Government/Political science (p. 31)	3
Life and physical sciences (p. 27)	3
General elective or minor ⁴	3
Semester Credit Hours	15

Third Year**Fall**

Study Abroad ⁵	
GERM 300-499 (p. 1063)	3
GERM 300-499 (p. 1063)	3
GERM 300-499 (p. 1063)	3
GERM 300-499 (p. 1063)	3
General elective ²	3
Semester Credit Hours	15

Spring

GERM 310 Composition	3
Life and physical sciences (p. 27)	3
Social and behavioral sciences (p. 31)	3
Minor ⁴	3
General elective ²	3
Semester Credit Hours	15

Fourth Year**Fall**

GERM 315 Literary Investigations: German Short Fiction	3
GERM 400-499 (p. 1063)	3
Mathematics (p. 27) ¹	3
Minor ⁴	3
Minor ⁴	3
Semester Credit Hours	15

Spring

GERM 300-499 (p. 1063)	3
GERM 400-499 (p. 1063)	3

Minor ⁴	3
Minor ⁴	3
General elective ²	3

Semester Credit Hours**15****Total Semester Credit Hours****120**

¹ At least three hours must be in MATH. Three hours may be PHIL 240.

² GERM 101 and GERM 102 are prerequisites for intermediate GERM courses and will count as general electives in the degree plan. If you choose to enroll in a language you have studied previously without receiving college credit, you must first take a placement test. See the Foreign Language paragraph.

³ Two-semester or one-semester sequence of Intermediate German is required. Select from GERM 201 and GERM 202, GERM 221 and GERM 222, GERM 204

⁴ See the Minor Field of Study paragraph.

⁵ See the Study Abroad Requirement paragraph.

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a core category, a college/department requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

Foreign Language Requirement

Students entering Modern Languages - German take a placement exam to determine the level of and number of required German courses. Exam results may fulfill a maximum of 14 semester credit hours.

- Students placed in 101 will take 101, 102, 201 and 202 and 27 semester credit hours at the 300- or 400-level.
- Students placed in 102 will take 102, 201 and 202 and 27 semester credit hours at the 300- or 400-level.
- Students placed in 201 will take 201 and 202 and 27 semester credit hours at the 300- or 400-level.
- Students placed in 202 will take 202 and 27 semester credit hours at the 300- or 400-level.
- Students placing out of 101, 102, 201 and 202 will take 27 semester credit hours at the 300- or 400-level.

Minor Field of Study

All Modern Language majors must select a minor field of study from departments or divisions within or outside of the College of Arts and Sciences or in a particular area of interest (as in the case of interdisciplinary minors). The minor will consist of a minimum of 15 hours of coursework, as defined by the minor department. No more than 9 credit hours may be at the 100-299 level. Interdisciplinary minors such as women's and gender studies, classical studies, religious studies, and business have specific requirements; students should consult undergraduate advisors in these areas of study. A second major may substitute for the minor. Courses used to meet the minor requirements may not be used in the major. See also the statement on "Minor Field of Study" under the general requirements of the College of Arts and Sciences. In general, the careful combination of foreign language skills with other major curricula enhances preparation for careers in business, industry and government. Teaching certification is available to majors through the School of Education and Human Development. Consult the

School of Education and Human Development section under secondary teacher certification for additional information.

Study Abroad Requirement

All German majors are required to study for one semester or summer in a German-speaking country approved by the department.

Any departmental major must earn a C or better in all major and minor coursework.

No more than 12 hours of GERM 200-299 (p. 1063) may be used for this degree.

Other courses may qualify for the college and university requirements categories. Students should consult the approved list of courses available in the Undergraduate Student Services Office in the College of Arts and Sciences. The lists incorporate University Core Curriculum requirements. No course can be counted in more than one category.

Modern Languages - BA, Russian Option

A major in Russian provides students with language skills that translate into practical tools for use in today's interconnected world, whether in Texas, Europe, Asia, or beyond.

Above the practical aspect of the major, students of Russian acquire a rich view of the world through explorations into literature, history, and cultural studies. Focusing on analytical and critical thinking, as well as cultural awareness, our students are prepared to enter careers in fields such as education, international business, human resources, research, government, social service, tourism, journalism, and translation, as well as graduate studies in Russian and professional schools (medicine, law, business). To enhance their plan of study and create even more professional opportunities after graduation, Russian majors are encouraged to seek out a complementary minor or second major/degree, such as in the other languages and programs offered by A&M's Department of Global Languages and Cultures.

To underscore the focus on cultural awareness and to support the achievement of increased linguistic proficiency, our majors are encouraged to study abroad in a Russian-speaking country. The Russian program offers summer study abroad programs for credit, and departmental faculty and advising staff also work closely with students to match their interests with semester and full-year programs abroad.

Students will be required to complete, by coursework or placement test, all 100- and 200-level courses in sequence. Once a student has received credit for a higher-level language course, the student is no longer eligible to receive credit for prerequisite courses.

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 104	Composition and Rhetoric	3
	Government/Political science (p. 31)	3
	Mathematics (p. 27) ¹	3
	General elective ²	4

General elective ²		1
Semester Credit Hours		14
Spring		
	American history (p. 30)	3
	Creative arts (p. 30)	3
	Life and physical sciences (p. 27)	3
	Literature directed elective (p. 261)	3
	General elective ²	4
Semester Credit Hours		16
Second Year		
Fall		
RUSS 201	Intermediate Russian I ²	3
or RUSS 221	or Field Studies I	
	Communication (p. 27)	3
	Language, philosophy and culture (p. 28)	3
	Social and behavioral sciences (p. 31)	3
	Literature directed elective (p. 261)	3
Semester Credit Hours		15
Spring		
RUSS 202	Intermediate Russian II ²	3
or RUSS 222	or Field Studies II	
	American history (p. 30)	3
	Government/Political science (p. 31)	3
	Life and physical sciences (p. 27)	3
	General elective or minor ³	3
Semester Credit Hours		15
Third Year		
Fall		
RUSS 301	Advanced Grammar and Composition I	3
or RUSS 322	or Masterpieces of Russian Literature	
	Select one of the following:	3
RUSS 441/ EURO 441	The Russian Novel I - Tolstoy and Dostoevsky	
RUSS 442/ EURO 442	The Russian Novel II - The Twentieth Century	
RUSS 443/ EURO 443	Contemporary Russian Prose	
RUSS 444/ EURO 444	Russian Drama	
	Social and behavioral sciences (p. 31)	3
	Minor ³	3
	General elective ²	3
Semester Credit Hours		15
Spring		
RUSS 302	Advanced Grammar and Composition II	3
or RUSS 322	or Masterpieces of Russian Literature	
RUSS 446/ EURO 446	Russian Artistic Culture I - Beginnings to 1900	3
or RUSS 447/ EURO 447	or Russian Artistic Culture II - 1890 to Present	
	Mathematics (p. 27) ¹	3
	Minor ³	3
	General elective ²	3
Semester Credit Hours		15

Fourth Year**Fall**

Life and physical sciences (p. 27)	3
Minor ³	3
Russian elective ⁴	3
Russian elective ⁴	3
General elective ²	3
Semester Credit Hours	15

Spring

RUSS 410 Seminar in Russian Studies	3
Minor ³	3
Minor ³	3
Russian elective ⁴	3
Russian elective ⁴	3
Semester Credit Hours	15
Total Semester Credit Hours	120

¹ At least three hours must be in MATH. Three hours may be PHIL 240.

² Select from any 100-499 courses not used elsewhere (except RUSS 200-499 (p. 1221)). RUSS 101 and RUSS 102 are prerequisites for intermediate RUSS courses and will count as general electives in the degree plan. If you choose to enroll in a language you have studied previously without receiving college credit, you must first take a placement test. See the Foreign Language paragraph.

³ See the Minor Field of Study paragraph.

⁴ Select from RUSS 203-220 (p. 1221), RUSS 223-499 (p. 1221), up to 6 hours of EURO 440-449 (p. 1038).

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a core category, a college/department requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

Foreign Language

Students entering Modern Languages - Russian take a placement exam to determine the level of and number of required Russian courses. Exam results may fulfill a maximum of 14 semester credit hours.

- Students placed in 101 will take 101, 102, 201 and 202 and 27 semester credit hours at the 300- or 400-level.
- Students placed in 102 will take 102, 201 and 202 and 27 semester credit hours at the 300- or 400-level.
- Students placed in 201 will take 201 and 202 and 27 semester credit hours at the 300- or 400-level.
- Students placed in 202 will take 202 and 27 semester credit hours at the 300- or 400-level.
- Students placing out of 101, 102, 201 and 202 will take 27 semester credit hours at the 300- or 400-level

Minor Field of Study

All Modern Language majors must select a minor field of study from departments or divisions within or outside of the College of Arts and Sciences or in a particular area of interest (as in the case of interdisciplinary minors). The minor will consist of a minimum of 15 hours of coursework, as defined by the minor department. No more than

9 credit hours may be at the 100-299 level. Interdisciplinary minors such as women's and gender studies, classical studies, religious studies, and business have specific requirements; students should consult undergraduate advisors in these areas of study. A second major may substitute for the minor. Courses used to meet the minor requirements may not be used in the major. See also the statement on Minor Field of Study (<https://catalog.tamu.edu/undergraduate/arts-and-sciences/arts-requirements/>) under the general requirements of the College of Arts and Sciences. In general, the careful combination of foreign language skills with other major curricula enhances preparation for careers in business, industry and government. Teaching certification is available to majors through the School of Education and Human Development. Consult the School of Education and Human Development section under secondary teacher certification for additional information.

Any departmental major must earn a C or better in all major and minor coursework.

No more than 12 hours of RUSS 200-299 (p. 1221) may be used for this degree.

Other courses may qualify for the college and university requirements categories. Students should consult the approved list of courses available in the Undergraduate Student Services Office in the College of Arts and Sciences. The lists incorporate University Core Curriculum requirements. No course can be counted in more than one category.

Spanish - BA

A Spanish major provides students with language skills that translate into a practical tool for use in our increasingly bilingual landscape, whether in Texas, the American Southwest, one of the many areas in the U.S. with large Spanish-speaking populations, or beyond our borders where over 500 million Spanish speakers reside.

Above the practical aspect of the major, students of Spanish acquire a rich view of the world. Focusing on analytical and critical thinking, as well as cultural awareness, our students are prepared to enter professions in fields such as education, business, human resources, research, government, social service, tourism, journalism, and translation, as well as graduate studies in Spanish and professional schools (medicine, law, business). To enhance their career options, Spanish majors are encouraged to seek out a complementary minor or second major/degree, such as in the other languages offered by A&M's Department of Global Languages and Cultures, to create even more opportunities after graduation. Similarly, students can also complete an internship that will provide practical hands-on experience.

To underscore the focus on cultural awareness and to support the achievement of increased linguistic proficiency, our major requires a minimum 10-week experience abroad in a Spanish-speaking country. This experience abroad can be in a formal academic setting, through an internship or other comparable environment.

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 104	Composition and Rhetoric	3
American history (p. 30)		3
Creative arts (p. 30)		3

Life and physical sciences (p. 27)	3
General elective ¹	4
Semester Credit Hours	16

Spring

Select one of the following: 3

COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	

Language, philosophy and culture (p. 28)	3
Mathematics (p. 27)	3
Social and behavioral sciences (p. 31)	3
General elective ¹	4

Semester Credit Hours 16**Second Year****Fall**

SPAN 201	Intermediate Spanish I	3
Life and physical sciences (p. 27)		3
Mathematics (p. 27)		3
Literature directed elective (https://catalog.tamu.edu/undergraduate/arts-and-sciences/arts-requirements/)		3
General elective ¹		3

Semester Credit Hours 15**Spring**

SPAN 202 or SPAN 203	Intermediate Spanish II or Intermediate Spanish for Heritage Speakers	3
American history (p. 30)		3
Life and physical sciences (p. 27)		3
General elective ¹		3
General elective ¹		3

Semester Credit Hours 15**Third Year****Fall**

Government/Political science (p. 31)	3
Spanish language/Linguistic ²	3
Spanish literature/Culture ³	3
General elective ¹	3
General elective ¹	3

Semester Credit Hours 15**Spring**

Spanish language/Linguistic ²	3
Spanish literature/Culture ³	3
Spanish literature/Culture ³	3
Spanish interdisciplinary elective ⁴	3
General elective ¹	1

Semester Credit Hours 13**Fourth Year****Fall**

Government/Political science (p. 31)	3
Language, philosophy and culture or creative arts (p. 28)	3

Spanish language/Linguistic ²	3
Spanish interdisciplinary elective ⁴	3
General elective ¹	3

Semester Credit Hours 15**Spring**

Social and behavioral sciences (p. 31)	3
Literature directed elective (https://catalog.tamu.edu/undergraduate/arts-and-sciences/arts-requirements/)	3
Spanish interdisciplinary elective ⁴	3
General elective ¹	3
General elective ¹	3

Semester Credit Hours 15**Total Semester Credit Hours** 120¹ Select any 100-499 course not used elsewhere, except SPAN 200-499 (p. 1238).² Select from the following: SPAN 301, SPAN 302 or SPAN 304, SPAN 303, SPAN 306, SPAN 307, SPAN 318, SPAN 350, SPAN 352, SPAN 407, SPAN 417, SPAN 452, SPAN 462.³ Select from the following: SPAN 311, SPAN 312, SPAN 320, SPAN 331, SPAN 332, SPAN 341, SPAN 342, SPAN 410, SPAN 411, SPAN 412, SPAN 413, SPAN 414, SPAN 421, SPAN 423, SPAN 445, SPAN 450, SPAN 460, SPAN 461.⁴ Select from SPAN 300-499 (p. 1238), HISP 100-499 (p. 1068); HISP-related courses (see HISP-Related Interdisciplinary Courses table), or any course, including 489 Special Topics, with 33% Hispanic focus.

A grade of C or higher is required if a course is to be counted in the major field.

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

Spanish majors are required to complete a credit-bearing 10-week minimum semester-long study or experience abroad in a Spanish-speaking country. Study abroad options include University-sponsored, reciprocal, affiliated, and independent programs. Selection of location and type of experience abroad should be made in consultation with departmental advisors. For students who are unable to study abroad, an internship may be used instead. This option is available only with prior approval by the Spanish advisor.

HISP-Related Interdisciplinary Courses

Code	Title	Semester Credit Hours
ANTH 308	Archaeology of Mesoamerica	3
ANTH 445	Studies in African Diaspora	3
ENGL 336	Life and Literature of the Southwest	3
ENGL 338	American Ethnic Literature	3
ENGL 351/ FILM 351	Advanced Film	3
ENGL 362/ HISP 362	Latino/a Literature	3
FILM 401	National Cinema History	3

FILM 405/ EURO 405	European Cinema	3
GEOG 323	Geography of Latin America	3
HIST 304	Southwest Borderlands	3
HIST 305	Chicana/o History since 1848	3
HIST 307	Latinx History	3
HIST 316	Latino/a Labor in the United States	3
HIST 319	U.S. Immigration and Ethnicity	3
HIST 321	The Age of Revolution in the Atlantic World	3
HIST 322	History of the Iberian World	3
HIST 326	History of the Caribbean	3
HIST 341	Latin America to 1810	3
HIST 342	Latin America Since 1810	3
HIST 343	Inter-American Relations	3
HIST 441	History of Mexico, 1821 to the Present	3
HIST 449	History of Brazil, 1822 to the Present	3
HLTH 236	Introduction to Health Disparities and Diversity	3
IBUS 459	Latin American Markets	3
PHIL 283	Latin American Philosophy	3
POLS 304	Latino Politics in the United States	3
POLS 323	Political Systems of Latin America	3
POLS 362	Latin American Political Thought	3
POLS 368	Latin American Legislatures	3
POLS 423	U.S.-Latin American Relations	3
SOCI 203	U.S.-Mexico Border	3
SOCI 317/ AFST 317	Racial and Ethnic Relations	3
SOCI 337	International Migration	3
SOCI 403	Sociology of Latinos	3
SOCI 404/ RPTS 404	Sociology of the Community	3
THEA 200	Introduction to World Theatre	3

University Studies - BA, Race, Gender, Ethnicity Concentration

Students develop in-depth understanding of race, gender and ethnicity through an individualized, inquiry-rich program that integrates multiple disciplines.

This area of concentration is purposefully designed to require that students complete an individualized body of coursework that educates them in interdisciplinary knowledge. Inquiry-rich, research-based courses in multiple disciplines, along with senior-level courses provide students with in-depth understanding of the methodologies appropriate to interdisciplinary studies in the Race, Gender, Ethnicity Concentration. Other course offerings are drawn from areas such as Global Studies, Africana Studies, Jewish Studies, Latino/a and Mexican-American Studies, and Women's and Gender Studies.

In addition to a core of courses focused on race, ethnicity and gender, each student must complete two minors for the degree. It is expected

that at least one minor will be from outside the College of Arts and Sciences.

A student enrolled in the University Studies concentration of Race, Gender, Ethnicity may not pursue a double major or a double degree.

Program Requirements

First Year

Fall	Semester Credit Hours
American history (p. 30)	3
Communication (p. 27)	3
Introduction to Race, Gender, Ethnicity ¹	3
Mathematics (p. 27)	3
General elective ²	4
Semester Credit Hours	16

Spring

American history (p. 30)	3
Communication (p. 27)	3
Mathematics (p. 27)	3
Social science directed elective ³	3
General elective ²	4
Semester Credit Hours	16

Second Year

Fall

Foreign language ²	3
Government/Political science (p. 31)	3
Life and physical sciences (p. 27)	3
Humanities directed elective ⁴	3
Minor ⁵	3
Semester Credit Hours	15

Spring

Foreign language ²	3
Government/Political science (p. 31)	3
Life and physical sciences (p. 27)	3
Social science directed elective ³	3
Minor ⁵	3
Semester Credit Hours	15

Third Year

Fall

Life and physical sciences (p. 27)	3
Social and behavioral sciences (p. 31)	3
Humanities directed elective ⁴	3
Minor ⁵	3
Minor ⁵	3
Semester Credit Hours	15

Spring

Creative arts (p. 30)	3
Humanities/Social science directed elective ⁶	3
Minor ⁵	3
Minor ⁵	3

General elective ^{5,7}	3
Semester Credit Hours	15
Fourth Year	
Fall	
Humanities/Social science directed elective ⁶	3
Minor ⁵	3
Minor ⁵	3
Minor ⁵	3
Minor ⁵	3
Semester Credit Hours	15
Spring	
Introduction to Race, Gender, Ethnicity ¹	3
Language, philosophy and culture (p. 28)	3
Minor ⁵	3
Minor ⁵	3
General elective ^{5,7}	1
Semester Credit Hours	13
Total Semester Credit Hours	120

¹ Select from AFST 201, GLST 201, JWST 201/RELS 201, LMAS 201, WGST 200, or any course approved by the Department of Global Languages and Cultures.

² Students must complete Intermediate level foreign language coursework to complete degree requirements, however students will be required to complete or successfully place out of beginning level language courses prior to intermediate course enrollment. Students can apply the first eight hours (beginning 1 and 2) of foreign language courses as eight hours of general electives in their degree program.

³ Select from ANTH 404/WGST 404, ANTH 427; COMM 335, COMM 407/WGST 407, COMM 420/WGST 420; POLS 304, POLS 317, POLS 320, POLS 367/WGST 367, POLS 462/WGST 462; PBSI 300/WGST 300; SOCI 207/WGST 207, SOCI 317/AFST 317, SOCI 323/AFST 323, SOCI 403, SOCI 410/WGST 410, SOCI 421/WGST 421.

⁴ Select from AFST 201, AFST 302, AFST 325, AFST 326, AFST 481; ANTH 205, ANTH 301; ARAB 215, ARAB 258; CHIN 405, CHIN 465/FILM 465; CLAS 330; COMM 425/AFST 425, COMM 431; ENGL 204/AFST 204, ENGL 329/AFST 329, ENGL 333/WGST 333, ENGL 338, ENGL 339/AFST 339, ENGL 362/HISP 362, ENGL 374/WGST 374, ENGL 393/AFST 393, ENGL 403, ENGL 474/WGST 474; FILM 394; FREN 422, FREN 425/FILM 425; GERM 435/FILM 435, GERM 440, GERM 441; GLST 201, GLST 401/INTA 401, GLST 407, GLST 410/INTA 410, GLST 413, HISP 413, WGST 413; HISP 206, HISP 352/FILM 352, HISP 363, HISP 409; HIST 258, HIST 300/AFST 300, HIST 301/AFST 301, HIST 304, HIST 305, HIST 307, HIST 319, HIST 330, HIST 345/AFST 345; HIST 346/AFST 346, HIST 401, HIST 461/WGST 461, HIST 473/WGST 473, HIST 476/WGST 476, HIST 477/WGST 477; ITAL 251, ITAL 452, ITAL 453, ITAL 455/FILM 455, ITAL 456; JWST 201/RELS 201, JWST 301, JWST 315/FILM 315; PERF 326; PHIL 252/AFST 252, PHIL 283, PHIL 352/AFST 352, PHIL 353/AFST 353, PHIL 409, PHIL 464/RELS 464; RUSS 446/EURO 446, RUSS 447/EURO 447; SPAN 412; WGST 330, WGST 394.

⁵ Students must complete 48 hours of General Electives of which 30-36 hours should be used to satisfy the requirements for two university approved minors. Only 14 hours of KINE 199; AERS 100-499 (p. 900); MLSC 100-499 (p. 1151); NVSC 100-499 (p. 1178); SOMS 100-499 (p. 1237) may be used for General Electives. Minors will range between 15 and 18 hours. One minor must be chosen from outside of the college. Consult with advisor regarding how to declare desired minor.

⁶ Select from AFST 201, AFST 302, AFST 325, AFST 326, AFST 481; ANTH 205, ANTH 301; ARAB 215, ARAB 258; CHIN 405, CHIN 465/FILM 465; CLAS 330; COMM 425/AFST 425, COMM 431; ENGL 204/AFST 204, ENGL 329/AFST 329, ENGL 333/WGST 333, ENGL 338, ENGL 339/AFST 339, ENGL 362/HISP 362, ENGL 374/WGST 374, ENGL 393/AFST 393, ENGL 403, ENGL 474/WGST 474; FILM 394; FREN 422, FREN 425/FILM 425; GERM 435/FILM 435, GERM 440, GERM 441; GLST 201, GLST 401/INTA 401, GLST 407, GLST 410/INTA 410, GLST 413, HISP 413, WGST 413; HISP 206, HISP 352/FILM 352, HISP 363, HISP 409; HIST 258, HIST 300/AFST 300, HIST 301/AFST 301, HIST 304, HIST 305, HIST 307, HIST 319, HIST 330, HIST 345/AFST 345; HIST 346/AFST 346, HIST 401, HIST 461/WGST 461, HIST 473/WGST 473, HIST 476/WGST 476, HIST 477/WGST 477; ITAL 251, ITAL 452, ITAL 453, ITAL 455/FILM 455, ITAL 456; JWST 201/RELS 201, JWST 301, JWST 315/FILM 315; PERF 326; PHIL 252/AFST 252, PHIL 283, PHIL 352/AFST 352, PHIL 353/AFST 353, PHIL 409, PHIL 464/RELS 464; RUSS 446/EURO 446, RUSS 447/EURO 447; SPAN 412; WGST 330, WGST 394.

⁷ 100-499 courses not used elsewhere.

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a core category, a college/departement requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

University Studies - BS, Race, Gender, Ethnicity Concentration

Students develop in-depth understanding of race, gender and ethnicity through an individualized, inquiry-rich program that integrates multiple disciplines.

This area of concentration is purposefully designed to require that students complete an individualized body of coursework that educates them in interdisciplinary knowledge. Inquiry-rich, research-based courses in multiple disciplines, along with senior-level courses provide students with in-depth understanding of the methodologies appropriate to interdisciplinary studies in the Race, Gender, Ethnicity Concentration. Other course offerings are drawn from areas such as Global Studies, Africana Studies, Jewish Studies, Latino/a and Mexican-American Studies, and Women's and Gender Studies.

The BS degree differs from the BA in being more focused on problem solving and analysis of data in examining major social and cultural issues. The BS degree therefore requires more courses in science and encourages statistics and mathematics.

In addition to a core of courses focused on race, ethnicity and gender, each student must complete two minors for the degree. It is expected that at least one minor will be from outside the College of Arts and Sciences.

A student enrolled in the University Studies concentration of Race, Gender, Ethnicity may not pursue a double major or a double degree.

Program Requirements

First Year

Fall

	Semester Credit Hours
American history (p. 30)	3
Communication (p. 27)	3
Government/Political science (p. 31) ¹	3
Introduction to Race, Gender, Ethnicity ²	3
Mathematics (p. 27)	3
Semester Credit Hours	15

Spring

American history (p. 30)	3
Communication (p. 27)	3
Government/Political science (p. 31) ¹	3
Mathematics (p. 27)	3
Social science directed elective ³	3
Semester Credit Hours	15

Second Year

Fall

Language, philosophy and culture (p. 28)	3
Life and physical sciences (p. 27)	3
Humanities directed elective ⁴	3
Minor ⁵	3
Minor ⁵	3
Semester Credit Hours	15

Spring

Life and physical sciences (p. 27)	3
Social and behavioral sciences (p. 31)	3
Social science directed elective ³	3
Minor ⁵	3
Minor ⁵	3
Semester Credit Hours	15

Third Year

Fall

Creative arts (p. 30)	3
Life and physical sciences (p. 27)	3
Humanities directed elective ⁴	3
Minor ⁵	3
Minor ⁵	3
Semester Credit Hours	15

Spring

Humanities/Social science directed elective ⁶	3
Science directed elective ⁷	3
Minor ⁵	3
Minor ⁵	3
General elective ^{5,8}	3
Semester Credit Hours	15

Fourth Year

Fall

Humanities/Social science directed elective ⁴	3
Minor ³	3

Minor ³	3
Minor ³	3
Science directed elective ⁶	3

Semester Credit Hours

15

Spring

Introduction to Race, Gender, Ethnicity ²	3
Minor ⁵	3
Minor ⁵	3
General elective ^{5,8}	3
General elective ^{5,8}	3

Semester Credit Hours

15

Total Semester Credit Hours

120

¹ One course on federal government and one course on state/local government will fulfill this requirement. Completing four semesters of upper-level ROTC may be substituted for 3 semester hours of the six hours required.

² Select from AFST 201, GLST 201, JWST 201/RELS 201, LMAS 201, WGST 200, or any course approved by the Department of Global Languages and Cultures.

³ Select from ANTH 404/WGST 404, ANTH 427; COMM 335, COMM 407/WGST 407, COMM 420/WGST 420; PBSI 300/WGST 300; POLS 304, POLS 317, POLS 320, POLS 367/WGST 367, POLS 462/WGST 462; SOCI 207/WGST 207, SOCI 317/AFST 317, SOCI 323/AFST 323, SOCI 403, SOCI 410/WGST 410, SOCI 421/WGST 421.

⁴ Select from AFST 201, AFST 302, AFST 325, AFST 326, AFST 481; ANTH 205, ANTH 301; ARAB 215, ARAB 258; CHIN 405, CHIN 465/FILM 465; CLAS 330; COMM 425/AFST 425, COMM 431; ENGL 204/AFST 204, ENGL 329/AFST 329, ENGL 333/WGST 333, ENGL 338, ENGL 339/AFST 339, ENGL 362/HISP 362, ENGL 374/WGST 374, ENGL 393/AFST 393, ENGL 403, ENGL 474/WGST 474; FILM 394; FREN 422, FREN 425/FILM 425; GERM 435/FILM 435, GERM 440, GERM 441; GLST 201, GLST 401/INTA 401, GLST 407, GLST 410/INTA 410, GLST 413, HISP 413, WGST 413; HISP 206, HISP 352/FILM 352, HISP 363, HISP 409; HIST 258, HIST 300/AFST 300, HIST 301/AFST 301, HIST 304, HIST 305, HIST 307, HIST 319, HIST 330, HIST 345/AFST 345; HIST 346/AFST 346, HIST 401, HIST 461/WGST 461, HIST 473/WGST 473, HIST 476/WGST 476, HIST 477/WGST 477; ITAL 251, ITAL 452, ITAL 453, ITAL 455/FILM 455, ITAL 456; JWST 201/RELS 201, JWST 301, JWST 315/FILM 315; PERF 326; PHIL 252/AFST 252, PHIL 283, PHIL 352/AFST 352, PHIL 353/AFST 353, PHIL 409, PHIL 464/RELS 464; RUSS 446/EURO 446, RUSS 447/EURO 447; SPAN 412; WGST 330, WGST 394.

⁵ Students must complete 48 hours of general electives of which 30-36 hours should be used to satisfy the requirements for two university approved minors. Minors will range between 15 and 18 hours. One minor must be chosen from outside of the college. Consult with advisor regarding how to declare desired minor.

⁶ Select from AFST 201, AFST 302, AFST 325, AFST 326, AFST 481; ANTH 205, ANTH 301; ARAB 215, ARAB 258; CHIN 405, CHIN 465/FILM 465; CLAS 330; COMM 425/AFST 425, COMM 431; ENGL 204/AFST 204, ENGL 329/AFST 329, ENGL 333/WGST 333, ENGL 338, ENGL 339/AFST 339, ENGL 362/HISP 362, ENGL 374/WGST 374, ENGL 393/AFST 393, ENGL 403, ENGL 474/WGST 474; FILM 394; FREN 422, FREN 425/FILM 425; GERM 435/FILM 435, GERM 440, GERM 441; GLST 201, GLST 401/INTA 401, GLST 407, GLST 410/INTA 410, GLST 413, HISP 413, WGST 413; HISP 206, HISP 352/FILM 352, HISP 363, HISP 409; HIST 258, HIST 300/AFST 300,

HIST 301/AFST 301, HIST 304, HIST 305, HIST 307, HIST 319, HIST 330, HIST 345/AFST 345; HIST 346/AFST 346, HIST 401, HIST 461/ WGST 461, HIST 473/WGST 473, HIST 476/WGST 476,HIST 477/ WGST 477; ITAL 251, ITAL 452, ITAL 453, ITAL 455/FILM 455, ITAL 456; JWST 201/RELS 201,JWST 301, JWST 315/FILM 315; PERF 326; PHIL 252/AFST 252, PHIL 283, PHIL 352/AFST 352, PHIL 353/ AFST 353, PHIL 409, PHIL 464/RELS 464; RUSS 446/EURO 446, RUSS 447/EURO 447; SPAN 412; WGST 330, WGST 394.

⁷ Select from ATMO 100-499 (p. 940); BIOL 100-499 (p. 951); CHEM 100-499 (p. 964); GEOL 100-499 (p. 1059); GEOP 100-499 (p. 1062); MATH 140-499 (p. 1135); OCNG 100-499 (p. 1182); PHYS 100-499 (p. 1205); STAT 201-499 (p. 1248).

⁸ Select any 100-499 courses not used elsewhere. Only 14 hours of KINE 199; AERS 100-499 (p. 900); MLSC 100-499 (p. 1151); NVSC 100-499 (p. 1178); SOMS 100-499 (p. 1237) may be used for General Electives.

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a core category, a college/department requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

Africana Studies - Minor

The interdisciplinary minor in Africana Studies provides students with a unique opportunity to think critically about the cultural, historical, and social contributions and experiences of people from Africa and of African descent across ethnic, regional, and national boundaries.

Africana Studies courses are a commingling of traditional approaches to the field and cutting edge scholarship that challenge stereotypical portrayals the world over.

Because the Africana Studies Minor is interdisciplinary, students can draw on courses from across the College of Arts and Sciences. Students also complete core classes in the Africana Studies discipline. The interdisciplinary nature of the program provides students opportunities to understand Africana Studies through different lenses, including art, literature, history, contemporary issues, individual and interpersonal experiences, performance, and politics.

A background in Africana Studies complements any career field by providing a strong foundation in key workplace skills: critical thinking, communication, research, writing, and cultural understanding. Additionally, the Africana Studies minor prepares students to address some of the crucial societal issues today: immigration, health policy, justice and law reform, international relations, and educational equality.

Program Requirements

Code	Title	Semester Credit Hours
AFST 200-499 (p. 901)		6
Select two from the following:		6
AFST 201	Introduction to Africana Studies	
AFST 302	Gateway Course	
AFST 481	Seminar	
Select one of the following:		3
AFST 200-499 (p. 901)		

POLS 320	Race and Politics in the United States	
SOCI 319/ SPMT 319	Sociology of Sport	
Total Semester Credit Hours		15

Students must make a grade of C or better.

At least 6 hours must be at the 300-400 level.

Arabic Studies - Minor

This minor is a valuable complement to the academic portfolio of any student majoring in the humanities, social sciences, or natural sciences, who wishes to add an international dimension to their intellectual profile.

The minor in Arabic Studies is an academic program open to all students in the university. The minor is interdisciplinary in nature and combines courses in Arabic language and culture with electives in Arabic studies, as well as a capstone project. A minor in Arabic Studies also helps to prepare students for careers in education, international development, non-profit agencies and NGOs, translating and interpreting, public relations and marketing, government service, international law, international business, engineering, and research. In addition, Arabic Studies faculty offer study abroad programs in order to enrich student learning experiences and cultural knowledge while helping students attain higher proficiency in the language.

Students must complete ARAB 101 and ARAB 102 before they may declare a minor in Arabic Studies.

Program Requirements

Code	Title	Semester Credit Hours
ARAB 202	Intermediate Arabic II	3
ARAB 491	Research ¹	3
Select two of the following:		6
ARAB 301	Reading and Composition	
ARAB 302	Reading and Composition II	
ARAB 321	Business Arabic	
ARAB 323	Media Arabic	
Select two of the following:		6
ARAB 215	Introduction to Modern Arab Culture	
ARAB 221	Introduction to Arabic Language and Society	
ARAB 258	Global Middle Eastern Cultures	
ARAB 300-499 (p. 927)		
GEOG 320	The Middle East	
HIST 221/ RELS 221	History of Islam	
HIST 347/ RELS 347	Rise of Islam, 600-1258	
HIST 348	Modern Middle East	
Total Semester Credit Hours		18

¹ A capstone project that is completed in an approved upper-division Arabic Studies course is required of all students pursuing a minor in Arabic Studies during their final year of the program. It consists of a

substantial research paper (15–20 pages) on an original topic and is conducted under the direction of a faculty member with the approval of the departmental advisors. Through the capstone course and project, students get a chance to integrate their classroom knowledge about the Arab world and use their study-abroad experiences and internships in an Arabic-speaking country, if any, to address an issue of interest to them. Issues that students can choose to address could be of linguistic, cultural, historical, religious, or political nature, among others. Upon its completion, and in coordination with the departmental advisors, the final project will be presented orally to Arabic classes in order to maximize its benefits.

Students must earn a C or better in all minor coursework.

Chinese - Minor

This minor is a valuable complement to the academic portfolio of any student majoring in the humanities, social sciences, or natural sciences, who wishes to add Chinese language proficiency and an international dimension to their intellectual profile.

The minor in Chinese is an academic program open to all students in the university. The minor is interdisciplinary in nature and combines courses in Chinese language and culture with electives in Chinese studies, as well as a capstone project. A minor in Chinese also helps to prepare students for careers in education, international development, non-profit agencies and NGOs, translating and interpreting, public relations and marketing, government service, international law, international business, engineering, global health, and research. In addition, Chinese studies faculty offer study abroad programs in order to enrich student learning experiences and cultural knowledge while helping students attain higher proficiency in the language.

Program Requirements

Code	Title	Semester Credit Hours
CHIN 201	Intermediate Chinese I	3
CHIN 202	Intermediate Chinese II	3
CHIN 301	Reading and Composition	3
CHIN 302	Reading and Composition II	3
CHIN 491	Research (Capstone course)	3
CHIN 303-489 (p. 971)		3
Total Semester Credit Hours		18

Students must earn a C or better in all minor coursework.

Capstone Project

The capstone project allows students to integrate knowledge and skills about topics pertaining to Chinese language, culture, history, geography, etc. that they have gained through their coursework, including any study abroad experience in China. Students will consult with the faculty in Chinese and meet regularly with a faculty advisor to complete an independent research project about a topic of their interest pertaining to China.

Classical Studies - Minor

The minor is interdisciplinary in nature and combines courses in Greek or Latin language with electives in multiple disciplines.

The minor in Classical Studies is an academic program open to all students in the university. The focus on the history, beliefs, and material culture of ancient Greek and Roman civilization helps students to see how fundamental concepts of Western Civilization first arose in Classical Antiquity, and is a valuable complement to the academic portfolio of any student majoring in the humanities, social sciences, or natural sciences. A minor in Classics also helps to prepare students for careers in education, international development, non-profit agencies and NGOs, translating and interpreting, public relations and marketing, government service, international law, international business, engineering, global health, and research.

Program Requirements

Code	Title	Semester Credit Hours
Latin Language		
CLAS 221	Intermediate Latin I	3
Select one of the following:		3
CLAS 222	Intermediate Latin II	
CLAS 320 to 329 (p. 971)		
Electives		
Select four of the following:		12
ANTH 317/	Introduction to Biblical Archaeology	
RELS 317		
ARCH 430	History of Ancient Architecture in the Near East, Egypt, Greece and Rome	
ARCH 434	The Role of Sculpture and Painting in Ancient Architecture	
CLAS 220	History of Christianity: Origins to the Reformation	
CLAS 250 to 499 (p. 971)		
PHIL 410	Classical Philosophy	
Total Semester Credit Hours		18
Code	Title	Semester Credit Hours
Greek Language		
CLAS 211	Intermediate Greek	3
CLAS 310 to 319 (p. 971)		3
Electives		
Select four of the following:		12
ANTH 317/	Introduction to Biblical Archaeology	
RELS 317		
ARCH 430	History of Ancient Architecture in the Near East, Egypt, Greece and Rome	
ARCH 434	The Role of Sculpture and Painting in Ancient Architecture	
CLAS 220	History of Christianity: Origins to the Reformation	
CLAS 250 to 499 (p. 971)		
PHIL 410	Classical Philosophy	
Total Semester Credit Hours		18

At least 9 hours must be at the 300-499 level.

Students must earn a C or better in all minor coursework.

Comparative Cultural Studies International - Minor

The minor in Comparative Cultural Studies – International focuses on how culture and politics affect societies across the world.

The program's strong interdisciplinary approach in the humanities and social sciences gives students the skills and competencies they need to address complex and critical global issues. The minor provides students with tools to better understand cultural perspectives from around the world. The comparative and transnational focus encourages students to learn about other cultures and social systems, to reflect back on their own societies, and to discover how they want to position themselves as globally engaged citizens.

The courses recommended for the minor examine such issues as media, power, politics, literature, film, performance, globalization, international development, and global public health. The coursework gives students the opportunity to gain expertise in areas or cultures outside of the United States and allows them to develop comparative and international perspectives valued by public and private employers. It is critical for contemporary students to understand the impact of politics and policies on people's lives, global change, social movements, and conflict.

The minor will assist students who are seeking a wide variety of jobs, ranging from international development to social and popular media, as well as private business ventures, cultural organizations, public relations, marketing, international law, global health, and non-profit organizations. It is also beneficial for students who are pursuing a wide range of graduate and professional degrees, including law, education, non-profit administration, public policy, public health, communication, cultural studies, environmental studies, media studies, anthropology, social work, and business.

Program Requirements

Code	Title	Semester Credit Hours
Select one of the following:		3
GLST 201	Introduction to Global Studies	
GLST 211/ ENGL 211	Foundations in Cultural Studies	
Select two of the following:		6
COMM 335	Intercultural Communication	
COMM 340	Communication and Popular Culture	
ENGL 308	History of Literary Criticism	
GLST 311/ ENGL 309	Cultural Politics	
PHIL 330	Philosophy of Art	
Select three of the following:		9
AFST 325	Africana Humanities	
AFST 326	Africana Popular Culture	
AFST 327/ MUSC 327	Popular Musics in the African Diaspora	
AFST 338/ COMM 338	Critical Race Discourse	

AFST 379/ ENGL 379	Postcolonial Literatures
AFST 391	Africana Feminisms
AFST 393/ ENGL 393	Studies in Africana Literature and Culture
AFST 398/ FILM 398	Africana Cinema
AFST 401	Slavery in World History
ANTH 324/ MUSC 324	Music in World Cultures
ANTH 335	Cultures of Central Asia
ANTH 370	Cultural Diversity and Ethics
ANTH 403/ RELS 403	Anthropology of Religion
ANTH 404/ WGST 404	Women and Culture
ARAB 215	Introduction to Modern Arab Culture
ARAB 258	Global Middle Eastern Cultures
ARAB 400-499 (p. 927)	
CHIN 400-499 (p. 971)	
CLAS 236/ HIST 236	War and Violence in the Ancient World
CLAS 250	Greek and Roman Civilization
CLAS 251/ RELS 251	Classical Mythology
CLAS 261	Great Books of the Classical Tradition
CLAS 262	Great Books of Christian Antiquity and the Latin Middle Ages
CLAS 300-499 (p. 971)	
COMM 240	Rhetorical Criticism
COMM 245	Difficult Dialogues on Power, Privilege, and Difference
COMM 338/ AFST 338	Critical Race Discourse
COMM 343	Communication in a Diverse World
COMM 346/ JOUR 346	Media, Culture and Identity
COMM 365/ JOUR 365	International Communication
EURO 300-499 (p. 1038)	
ENGL 206	Twenty-first Century Literature and Culture
ENGL 207	Human Thinking and Digital Culture
ENGL 306	Transnational Literature and Culture
ENGL 342	The Rhetoric of Gender and Health
ENGL 351/ FILM 351	Advanced Film
ENGL 354	Modern Rhetorical Theory
ENGL 356/ FILM 356	Literature and Film
ENGL 379/ AFST 379	Postcolonial Literatures
ENGL 391	Folklore, Literature, and World Cultures

ENGL 392/	Studies in Literature, Religion and
RELS 392	Culture
ENGL 393/	Studies in Africana Literature and
AFST 393	Culture
ENGL 401	Contemporary Literary Theory
ENGL 403	Language and Gender
FILM 215/	Global Cinema
GLST 215	
FILM 343/	Sex, Gender and Cinema
WGST 343	
FILM 351/	Advanced Film
ENGL 351	
FILM 356/	Literature and Film
ENGL 356	
FILM 394	Studies in Film Genre
FILM 398/	Africana Cinema
AFST 398	
FILM 400-499 (p. 1041)	
FREN 301	French Society and Culture in
	Evolution
FREN 321-499 (p. 1049)	
GEOG 311	Cultural Geography
GERM 313-499 (p. 1063)	
GLST 201	Introduction to Global Studies
GLST 209-499 (p. 1065)	
HISP 250	Contemporary Spanish Culture
HISP 260	Contemporary Mexican Culture
HISP 352/	Hispanic Literature and Film
FILM 352	
HISP 363	Borderlands: U.S. and Mexico
HISP 471/	Hispanic Religions
RELS 471	
HIST 358/	Chinese Cultural History
ASIA 358	
HIST 418-429 (p. 1069)	
ITAL 400-499 (p. 1102)	
JAPN 400-499 (p. 1105)	
JWST 200-499 (p. 1109)	
MODL 221/	World Literature
ENGL 221	
MODL 222/	World Literature
ENGL 222	
PERF 301	Performance in World Cultures
PERF 325	Dance in World Cultures
MUSC 327/	Popular Musics in the African
AFST 327	Diaspora
PERF 328	Japanese Traditional Performing
	Arts
PERF 450-461 (p. 1192)	
PHIL 283	Latin American Philosophy
PHIL 331/	Philosophy of Religion
RELS 331	
PHIL 352/	Africana Philosophy
AFST 352	

PHIL 353/	Radical Black Philosophies of Race
AFST 353	and Racism
PHIL 371	Philosophy of Literature
PHIL 376/	Philosophy, Film and Evil
FILM 376	
PHIL 409	Studies in Gender and Philosophy
PHIL 419	Current Continental Philosophy
RUSS 322	Masterpieces of Russian Literature
RUSS 400-499 (p. 1221)	
SPAN 312	Hispanic Culture and Civilization:
	18th Century to Present
SPAN 320-332 (p. 1238)	
SPAN 341	Spanish-American Literature from
	1492 to 1821
SPAN 342	Spanish-American Literature from
	1821 to 1935
HISP 409	Hispanic Photography in a Global
	Context
SPAN 410	Hispanic Film
SPAN 411	Contemporary Hispanic Society and
	Culture
SPAN 413	Hispanic Culture through Art
SPAN 414	Mexican Cinema and Culture
SPAN 421	Latin American Poetry and Music
SPAN 423	Soccer in the Hispanic World
SPAN 445	Cervantes
SPAN 450	Contemporary Spanish and
	Spanish-American Literature
SPAN 460	Topics in Hispanic Literature
SPAN 461	Topics in Hispanic Culture

Total Semester Credit Hours**18**

Students must make a grade of C or better in all courses.

French - Minor

This minor combines courses in French language and culture, and is a valuable complement to the academic portfolio of any student majoring in the humanities, social sciences, or natural sciences, who wishes to add linguistic proficiency in French and an international dimension to their intellectual profile.

The minor in French is an academic program open to all students in the university. A minor in French also helps to prepare students for careers in education, international development, non-profit agencies and NGOs, translating and interpreting, public relations and marketing, government service, international law, international business, engineering, global health, and research. In addition, French studies faculty offer study abroad programs in order to enrich student learning experiences and cultural knowledge while helping students attain higher proficiency in the language.

Program Requirements

Code	Title	Semester Credit Hours
FREN 201	Intermediate French I	3
or FREN 221	or Field Studies I	

FREN 202	Intermediate French II	3
or FREN 22: or Field Studies II		
FREN 300	Written Communication in the French-Speaking World	3
FREN 301 to 499 (p. 1049)		9
Total Semester Credit Hours		18

Students must make a grade of C or better in all minor coursework.

German - Minor

This minor combines courses in German language and culture and is a valuable complement to the academic portfolio of any student majoring in the humanities, social sciences, or natural sciences who wishes to add linguistic proficiency in German and an international dimension to their intellectual profile.

The minor in German is an academic program open to all students. A minor in German also helps to prepare students for careers in education, international development, non-profit agencies and NGOs, translating and interpreting, public relations and marketing, government service, international law, international business, engineering, global health, and research. In addition, German studies faculty offer study abroad programs in order to enrich student learning experiences and cultural knowledge while helping students attain higher proficiency in the language.

Program Requirements

Code	Title	Semester Credit Hours
Select two-semester or one-semester sequence of Intermediate German		6
GERM 201	Intermediate German I	
or GERM	or Field Studies I	
and		
GERM 202	Intermediate German II	
or GERM	or Field Studies II	
or		
GERM 204	Intensive Intermediate German	
GERM 310	Composition	
or GERM 315 or Literary Investigations: German Short Fiction		3
GERM 300 to 499 (p. 1063)		9
Total Semester Credit Hours		18

Students must make a grade of C or better.

Hispanic Studies for Community Engagement - Minor

The minor in Hispanic Studies for Community Engagement offers students the opportunity to combine advanced Spanish language skills and Hispanic cultural knowledge with a service-learning experience.

This minor complements degrees from other disciplines as it can incorporate courses taught in English that address multiple themes from throughout the Hispanic world. Coursework for this minor consists of Spanish, Anthropology, English, Hispanic Studies, History, Philosophy,

Political Science, or Sociology; and a service-learning experience with an organization or institution whose primary focus is providing services to Hispanic or Spanish-speaking communities. A minor in Hispanic Studies for Community Engagement helps to prepare students for careers in education, international development, non-profit agencies and NGOs, translating and interpreting, public relations and marketing, government service, international law, international business, engineering, global health, and research.

Program Requirements

Code	Title	Semester Credit Hours
Spanish requirement		
Select two of the following:		6
SPAN 301	Oral Expression	
SPAN 302	Advanced Grammar	
SPAN 303	Spanish Composition	
SPAN 304	Advanced Grammar for Heritage Speakers	
SPAN 312	Hispanic Culture and Civilization: 18th Century to Present	
SPAN 411	Contemporary Hispanic Society and Culture	
SPAN 412	U.S. Hispanic Writers	
SPAN 460	Topics in Hispanic Literature	
SPAN 461	Topics in Hispanic Culture	
SPAN 462	Topics in Hispanic Linguistics	
Electives ¹		
Select three of the following: ²		9
ANTH 308	Archaeology of Mesoamerica	
ANTH 445	Studies in African Diaspora	
ENGL 336	Life and Literature of the Southwest	
ENGL 338	American Ethnic Literature	
GEOG 323	Geography of Latin America	
HISP 352/ FILM 352	Hispanic Literature and Film	
HISP 362/ ENGL 362	Latino/a Literature	
HISP 363	Borderlands: U.S. and Mexico	
HISP 409	Hispanic Photography in a Global Context	
HISP 471/ RELS 471	Hispanic Religions	
HIST 304	Southwest Borderlands	
HIST 305	Chicana/o History since 1848	
HIST 307	Latinx History	
HIST 341	Latin America to 1810	
HIST 342	Latin America Since 1810	
HIST 441	History of Mexico, 1821 to the Present	
PHIL 283	Latin American Philosophy	
POLS 304	Latino Politics in the United States	
POLS 323	Political Systems of Latin America	
POLS 362	Latin American Political Thought	
POLS 423	U.S.-Latin American Relations	

SOCI 217	Introduction to Race and Ethnicity
SOCI 317/ AFST 317	Racial and Ethnic Relations
SOCI 403	Sociology of Latinos
SPAN 201	Intermediate Spanish I
SPAN 202	Intermediate Spanish II
SPAN 203	Intermediate Spanish for Heritage Speakers
SPAN 208	Spanish for Health Professionals I
SPAN 218	Spanish for Health Professionals II
SPAN 221	Field Studies Abroad I
SPAN 222	Field Studies Abroad II
SPAN 285	Directed Studies
SPAN 289	Special Topics in...
SPAN 305	Spanish for Legal Professions
SPAN 306	Business Spanish
SPAN 307	Spanish for the Sciences
SPAN 311	Hispanic Culture and Civilization to the 18th Century
SPAN 318	Oral Communication for Health Professionals
SPAN 320	Introduction to Hispanic Literature
SPAN 331	Spanish Literature to 1700
SPAN 332	Spanish Literature from 1700 to 1936
SPAN 341	Spanish-American Literature from 1492 to 1821
SPAN 342	Spanish-American Literature from 1821 to 1935
SPAN 350	Spanish Phonetics and Phonology
SPAN 352	Hispanic Linguistics
SPAN 403	Advanced Writing in Spanish
SPAN 407	Spanish-English Translation
SPAN 410	Hispanic Film
SPAN 413	Hispanic Culture through Art
SPAN 414	Mexican Cinema and Culture
SPAN 417	Advanced Spanish-English Translation
SPAN 421	Latin American Poetry and Music
SPAN 423	Soccer in the Hispanic World
SPAN 445	Cervantes
SPAN 450	Contemporary Spanish and Spanish-American Literature
SPAN 452	Hispanic Sociolinguistics
SPAN 485	Directed Studies
SPAN 489	Special Topics in...
SPAN 491	Research
Capstone ³	3
SPAN 483	Community Impact through Service Learning in Spanish

Total Semester Credit Hours 18

¹ No more than 6 hours from one area and at least 6 hours must be 300-400 level.

² Any course of relevant content not listed in the electives may be substituted with the advisor's permission.

³ To be selected in consultation with program coordinator and academic advisor during last 6 hours of minor.

Students must make a grade of C or better in minor courses.

Italian - Minor

This minor combines courses in Italian language and culture, and is a valuable complement to the academic portfolio of any student majoring in the humanities, social sciences, or natural sciences, who wishes to add linguistic proficiency in Italian and an international dimension to their intellectual profile.

The minor in Italian is an academic program open to all students in the university. A minor in Italian also helps to prepare students for careers in education, international development, non-profit agencies and NGOs, translating and interpreting, public relations and marketing, government service, international law, international business, engineering, global health, and research.

Program Requirements

Code	Title	Semester Credit Hours
ITAL 201	Intermediate Italian I	3
ITAL 202	Intermediate Italian II	3
ITAL 250-499 (p. 1102)		12
Total Semester Credit Hours		18

Students must make a grade of C or better in all minor coursework.

Japanese - Minor

This minor is a valuable complement to the academic portfolio of any student majoring in the humanities, social sciences, or natural sciences, who wishes to add linguistic proficiency in Japanese and an international dimension to their intellectual profile.

The minor in Japanese is an academic program open to all students in the university. The minor is interdisciplinary in nature and combines courses in Japanese language and culture with electives in Japanese studies, as well as a capstone project. A minor in Japanese also helps to prepare students for careers in education, international development, non-profit agencies and NGOs, translating and interpreting, public relations and marketing, government service, international law, international business, engineering, global health, and research. In addition, Japanese studies faculty offer study abroad programs in order to enrich student learning experiences and cultural knowledge while helping students attain higher proficiency in the language.

Students must complete JAPN 101 and JAPN 102 before they may declare a minor in Japanese.

Program Requirements

Code	Title	Semester Credit Hours
JAPN 201	Intermediate Japanese I	4
JAPN 202	Intermediate Japanese II	4
JAPN 301	Upper Level Japanese I	3

JAPN 302	Upper Level Japanese II	3
JAPN 491	Research	1
Select one of the following: ¹		3
FILM 481	Seminar in Film Studies	
HIST 350/ ASIA 350	World War II in Asia and the Pacific	
HIST 352/ ASIA 352	Modern East Asia	
HIST 356/ ASIA 356	Twentieth Century Japan	
JAPN 325	Japanese Language and Culture through Manga	
JAPN 485	Directed Studies	
PERF 328	Japanese Traditional Performing Arts	
PERF 489	Special Topics in...	
SOCI 463	Gender in Asia	
Total Semester Credit Hours		18

¹ Other elective courses may be chosen in consultation with the departmental advisors.

Students must earn a C or better in all minor coursework.

Capstone Project

A capstone project completed in an approved upper-division Japanese course is required of all students pursuing a minor in Japanese during their final year of the program. The capstone project allows students to integrate knowledge and skills about topics pertaining to Japanese language, culture, history, geography, etc. that they gained through their previous classes, study abroad experience in Japan, or personal readings. Students will consult and regularly meet with an advisor to complete a reading/writing assignment about a topic of their interest pertaining to Japan.

Jewish Studies - Minor

The Jewish Studies Minor is an interdisciplinary minor that focuses on Jewish religious traditions, history, texts, art, and figures from the ancient to the contemporary period.

Coursework addresses key issues in Jewish studies from multiple traditions, including religious studies, literature, history, film, anthropology, and philosophy. The minor is open to students from any major, and allows students to cultivate knowledge and understanding of Judaism and of Israeli society, history, and culture in regional and comparative contexts. A minor in Jewish Studies also helps to prepare students for careers in education, international development, non-profit agencies and NGOs, public relations and marketing, government service, international law, international business, engineering, global health, and research.

Program Requirements

Code	Title	Semester Credit Hours
JWST 201/ RELS 201	Introduction to Jewish Studies	3
Select 6 hours from the following:		6

GERM 440	Global Germany	
GERM 441	Representations of the Holocaust	
HIST 348	Modern Middle East	
HIST 405	History of the Holocaust	
JWST 300-499 (p. 1109)		
RELS 317/ ANTH 317	Introduction to Biblical Archaeology	
RELS 331/ PHIL 331	Philosophy of Religion	
RELS 365/ HIST 365	Religion in Early America	
RELS 403/ ANTH 403	Anthropology of Religion	
RELS 464/ PHIL 464	Modern Jewish Thought and Philosophy	
RELS 480/ COMM 480	Religious Communication	
Select 6 hours from the following:		6
GERM 440	Global Germany	
GERM 441	Representations of the Holocaust	
HBRW 101-289 (p. 1067)		
HIST 348	Modern Middle East	
HIST 405	History of the Holocaust	
JWST 285-499 (p. 1109)		
RELS 317/ ANTH 317	Introduction to Biblical Archaeology	
RELS 331/ PHIL 331	Philosophy of Religion	
RELS 365/ HIST 365	Religion in Early America	
RELS 403/ ANTH 403	Anthropology of Religion	
RELS 464/ PHIL 464	Modern Jewish Thought and Philosophy	
RELS 480/ COMM 480	Religious Communication	
Total Semester Credit Hours		15

Students must make a grade of C or better in all minor coursework.

Religious Studies - Minor

The Religious Studies Minor offers students the opportunity to better understand how religion addresses core concerns about human existence across cultures.

The interdisciplinary Religious Studies Minor at Texas A&M University encourages students to explore the many ways people experience and articulate the sacred.

Students who minor in Religious Studies select from a range of courses that match their interests and goals from a variety of disciplines in the College of Arts and Sciences. Students have the opportunity to study specific religious traditions, to approach religion through the study of rituals, symbols, and literature, and to examine religion as a human phenomenon situated in culture and history. Topics of study include the history of religious traditions, religion in contemporary life, religion in the

arts and literature, and many other topics. Students gain perspective on the complexity of religious thought and practices in world cultures.

The Religious Studies Minor emphasizes a number of skills that are important to success in the workplace and as a citizen of the world: critical thinking, problem solving, cultural understanding, and written, oral, and visual communication. The ability to understand the significance of religion at individual, interpersonal, social, and cultural levels can serve students in nearly every career path, even those that do not focus on religion. The skills that students learn through the study of religion as a human endeavor provide an intellectual foundation for future careers in education, international development, non-profit agencies and NGOs, public relations and marketing, government service, international law, international business, engineering, global health, and research.

Program Requirements

Code	Title	Semester Credit Hours
RELS 200-499 (http://catalog.tamu.edu/undergraduate/course-descriptions/rels/) ¹		6
RELS 300-499 (http://catalog.tamu.edu/undergraduate/course-descriptions/rels/)		9
Total Semester Credit Hours		15

¹ Six semester credit hours in approved languages, including: ARAB 201, ARAB 202, ARAB 301, ARAB 302; CLAS 211, CLAS 221, CLAS 222, CLAS 311, CLAS 312, CLAS 313, CLAS 321, CLAS 322 will be accepted in lieu of RELS 200-499 (p. 1217).

Students must make a grade of C or better in all courses.

At least 9 semester credit hours must be 300-400 level courses.

Russian - Minor

The minor combines courses in Russian language and culture, and is a valuable complement to the academic portfolio of any student majoring in the humanities, social sciences, or natural sciences, who wishes to add linguistic proficiency in Russian and an international dimension to their intellectual profile.

The minor in Russian is an academic program open to all students in the university. A minor in Russian also helps to prepare students for careers in education, international development, non-profit agencies and NGOs, translating and interpreting, public relations and marketing, government service, international law, international business, engineering, global health, and research. In addition, Russian studies faculty offer study abroad programs in order to enrich student learning experiences and cultural knowledge while helping students attain higher proficiency in the language.

Program Requirements

Code	Title	Semester Credit Hours
RUSS 201 or RUSS 221 or Field Studies I	Intermediate Russian I	3
RUSS 202 or RUSS 222 or Field Studies II	Intermediate Russian II	3

RUSS 301 or RUSS 302 or Advanced Grammar and Composition II	Advanced Grammar and Composition I	3
RUSS 446/ EURO 446 or RUSS 447 or Russian Artistic Culture II - EURO 447 1890 to Present	Russian Artistic Culture I - Beginnings to 1900	3
Select two from the following:		6
RUSS 211 RUSS 300 to 499 (p. 1221) ¹	Russian Conversation	
Total Semester Credit Hours		18

¹ Any RUSS course at the 300- and 400-level not used for credit previously.

Students must earn a C or better in all minor coursework.

Spanish - Minor

The Spanish minor allows students with other majors to work on their linguistic skills while they gain Hispanic cultural competency.

A great way to complement coursework in many other majors, including those in science, health, and business, this minor focuses on language-based coursework that will serve as an asset upon entering the job market after graduation. A minor in Spanish also helps to prepare students for careers in education, international development, non-profit agencies and NGOs, translating and interpreting, public relations and marketing, government service, international law, international business, engineering, and research.

We have identified the following disciplinary themes as key focus areas that would prepare students for professional programs and employment in careers in a variety of fields that require or would benefit from the knowledge of Spanish. The themes are recommendations and may be combined with other themes or other elective courses. Completion of theme courses does not in itself confer a minor.

- Business-Law and Law Enforcement
- Culture, Art, and Cinema
- Heritage Language
- Linguistics
- Literature

For a list of recommended courses for each theme, please visit <https://artsci.tamu.edu/global-lang-cultures/academics/undergraduate/minors/spanish-minor.html>.

Program Requirements

Code	Title	Semester Credit Hours
SPAN 201 or SPAN 221 or Field Studies Abroad I	Intermediate Spanish I	3
Select one of the following:		3
SPAN 202 SPAN 203	Intermediate Spanish II Intermediate Spanish for Heritage Speakers	

SPAN 222 Field Studies Abroad II	
SPAN 208-499 (p. 1238)	3
SPAN 300-499 (p. 1238)	9
Total Semester Credit Hours	18

At least 9 of these 18 hours must be taken at Texas A&M. A grade of C or better is required for a course to be counted in the minor field.

Spanish for the Health Professions - Minor

The minor in Spanish for the Health Professions is designed to prepare students who are interested in developing Spanish proficiency in a culturally sensitive manner within the biomedical environment.

It is ideal for future professionals interested in serving Spanish-speaking clients in a clinical setting by developing Spanish language skills and cultural competency. Required coursework includes intermediate and advanced Spanish language classes with a focus on biomedical terminology and contexts. The program complements a variety of programs in areas such as nursing, life sciences, biomedical sciences, biology, psychological and brain sciences, dentistry, public health sciences, and other professional programs in medical fields. A minor in Spanish for the Health Professions helps to prepare students for careers in health care, global health, veterinary medicine, education, international development, non-profit agencies and NGOs, translating and interpreting, public relations and marketing, government service, international law, international business, engineering, and research.

Program Requirements

Code	Title	Semester Credit Hours
SPAN 208	Spanish for Health Professionals I	3
SPAN 218	Spanish for Health Professionals II	3
SPAN 307	Spanish for the Sciences	3
	or SPAN 318 or Oral Communication for Health Professionals	
HISP 204-499 (p. 1068)		3
SPAN 300-499 (p. 1238)		6
Total Semester Credit Hours		18

Must make a grade of C or better in each course used toward the minor requirements.

Proficiency in Modern Languages - Certificate

This certificate offers students of any major an internationally recognized proficiency in a modern language, enhancing career prospects in global fields and graduate studies.

The Certificate of Proficiency in Modern Languages is open to all students at the university regardless of their major. It is designed to prepare undergraduate students for jobs and/or graduate programs requiring a strong command of one of the languages offered through Texas A&M's Department of Global Languages & Cultures (Arabic, Chinese, French, German, Italian, Japanese, Russian, and Spanish) by providing them with an internationally-recognized marker of proficiency.

In addition to completing 12 credit hours at the 200-400 level in a single language with a passing grade, students pursuing the certificate of Proficiency in Modern Languages are required to demonstrate their ability in that language by achieving a score of Advanced-Low on the Oral Proficiency Interview (OPI) test developed by the American Council on the Teaching of Foreign Languages.

Program Requirements

Code	Title	Semester Credit Hours
Select 12 hours from the following: ¹		12
ARAB 200-499 (p. 927)		
CHIN 200-499 (p. 971)		
FREN 200-499 (p. 1049)		
GERM 200-499 (p. 1063)		
ITAL 200-499 (p. 1102)		
JAPN 200-499 (p. 1105)		
RUSS 200-499 (p. 1221)		
SPAN 200-499 (p. 1238)		
Total Semester Credit Hours		12

¹ The 12 hours must be taken in a single foreign language from the list provided.

In order to be awarded the Certificate of Proficiency in Modern Languages, students must take the Oral Proficiency Interview (OPI) test and achieve a ranking of at least "Advanced Low."

Department of History

Welcome to the History Department!

The Department of History, through its dual functions of research and teaching, seeks to broaden and deepen our understanding of the past and prepare students to engage with the increasingly complex present. Upon earning a BA or BS in History, students will be able to apply critical thinking skills to, and communicate verbally and in written format about, contemporary events. Our undergraduate students also develop the skills necessary for quality research, the assessment of conflicting evidence, and the practice of effective writing, argumentation, and advocacy. As a result, they will become more informed citizens and more proficient in the abilities that most employers continue to value above all others. The faculty teach over one hundred undergraduate courses on peoples, ideas, and cultures from around the world and across the ages and are devoted to developing students' ability to understand how studying history can help solve some of today's most pressing problems. The department also encourages students to participate in Texas A&M University's numerous study-abroad programs to enhance their familiarity with global cultures and improve their foreign language proficiency.

The Department of History at Texas A&M offers the BA, BS, BA+MA, MA, and PhD. A major in history affords students both a broad education and valuable practical skills. By acquiring familiarity with people in multifaceted times, places, and circumstances, students of history develop a sophisticated human empathy which is the key to good scholarship and good citizenship alike. Teaching is one important career path for history majors. But many students utilize a major in history as preparation for a career in government agencies, law and law enforcement, the military, intelligence analysis, foreign service,

technology, business, public relations, non-profit work, parks and recreation, archival and library resources, museums, advertising, and religious leadership. History stands as the departure point for an array of jobs in any number of different fields.

Faculty

Alonzo, Armando C, Associate Professor
History
PHD, Indiana University, 1994

Anderson, Terry H, Professor
History
PHD, Indiana University, 1978

Bach, Damon R, Senior Lecturer
History
PHD, Texas A&M University, 2013

Bickham, Troy O, Professor
History
PHD, University of Oxford, 2001

Bouton, Cynthia A, Professor
History
PHD, State University of New York, Binghamton, 1985

Broussard, Albert S, Professor
History
PHD, Duke University, 1977

Brunson, Takkara K, Associate Professor
History
PHD, The University of Texas-Austin, 2011

Brunstedt, Jonathan Jay, Associate Professor
History
PHD, University of Oxford, 2011

Chavana, Adrian, Assistant Professor
History
PHD, University of Minnesota - Twin Cities, 2023

Dror, Olga, Professor
History
PHD, Cornell University, 2003

Emre, Side, Associate Professor
History
PHD, University of Chicago, 2009

Fletcher, Ryan L., Instructional Assistant Professor
History
PHD, University of Mississippi, 2013

Foote, Lorien L, Professor
History
PHD, University of Oklahoma at Norman, 1999

Haefeli, Evan P, Professor
History
PHD, Princeton University, 2000

Hernandez, Sonia, Professor
History
PHD, University of Houston, 2006

Herzogenrath, Jessica Ray, Instructional Associate Professor
History
PHD, Texas A&M University, 2014

Howell, Kenneth W, Visiting Lecturer
History
PHD, Texas A&M University, 2005

Hudson, Angela P, Professor
History
PHD, Yale University, 2007

Hudson, David R, Instructional Professor
History
PHD, Texas A&M University, 1998

Johnson, Violet M, Professor
History
PHD, Boston College, 1992

Kamphoefner, Walter D, Professor
History
PHD, University of Missouri, 1978

Kim, Hoi-Eun, Associate Professor
History
PHD, Harvard University, 2006

Kirkendall, Andrew J, Professor
History
PHD, University of North Carolina at Chapel Hill, 1996

MacNamara, Lawrence Trent, Associate Professor
History
PHD, Columbia University, 2015

McGlone, Kevin Joseph, Senior Lecturer
History
PHD, Texas A&M University, 2016

McInnis, Verity G, Instructional Associate Professor
History
PHD, Texas A&M University, 2012

McNamara, Sarah J, Associate Professor
History
PHD, University of North Carolina at Chapel Hill, 2016

Moran, Rachel, Professor
History
PHD, The Pennsylvania State University, 2013

Nie, Lina, Assistant Professor
History
PHD, University of Southern California, 2024

Parker, Jason C, Professor
History
PHD, University of Florida, 2002

Randolph, Justin, Assistant Professor

History

PHD, Yale University, 2020

Reese, Roger R, Professor

History

PHD, The University of Texas at Austin, 1990

Riegg, Stephen B, Associate Professor

History

PHD, The University of North Carolina at Chapel Hill, 2016

Rohrbaugh, Collin Michael, Visiting Lecturer

History

PHD, Texas A&M University, 2023

Rouleau, Brian J, Professor

History

PHD, University of Pennsylvania, 2010

Sachs, Miranda, Assistant Professor

History

PHD, Yale University, 2017

Schloss, Rebecca H, Associate Professor

History

PHD, Duke University, 2003

Schwartz, Daniel L, Associate Professor

History

PHD, Princeton University, 2009

Seipp, Adam R, Professor

History

PHD, University of North Carolina at Chapel Hill, 2005

Smith Cox, Shae Vaughn, Assistant Professor

History

PHD, University of Nevada, Las Vegas, 2020

Stranges, Anthony N, Associate Professor

History

PHD, University of Wisconsin, Madison, 1977

Unterman, Katherine R, Associate Professor

History

PHD, Yale University, 2011

Weber, Nathaniel R, Lecturer

History

PHD, Texas A&M University, 2016

Weeks, William Dale, Visiting Lecturer

History

PHD, Texas A&M University, 2020

Yeun, Che, Assistant Professor

History

PHD, Harvard University, 2024

Majors

- Bachelor of Arts in History (p. 412)
- Bachelor of Arts in History and Master of Arts in History, 5-Year Degree Program (p. 414)
- Bachelor of Science in History (p. 415)

Minors

- History Minor (p. 416)

Certificates

- Legal History Certificate (p. 417)

History - BA

This program cultivates essential skills for understanding the present through the past, preparing students for success in various career fields.

Students who wish to major in History do so because they understand that the problems of the present are fundamentally rooted in the choices made by past peoples. History majors, therefore, do not memorize names and dates. Instead, they are detectives, busily scrutinizing and actively interpreting the historical record for a deeper understanding as to why the world looks as it does and how our society might be improved. And in doing so, history majors acquire a number of practical skills that many different employers look for in job candidates. Our majors become experts in both written and oral self-expression, argumentation, and advocacy. In addition, history majors acquire the skills necessary to conduct thorough research, assess evidence, and effectively present findings. It is no wonder, then, that our majors succeed in the fields of education, law, law enforcement, public service, consulting, and business, among many other careers. In today's global economy, there is persistent demand for job candidates familiar with wide-ranging cultures and points of view. In the History major, students take courses specializing in many different cultures and time periods. This array of classes helps familiarize students with multifaceted human experiences while developing marketable skills that make our graduates competitive in a variety of career fields. This is particularly true of majors who take advantage of the University's numerous opportunities for study abroad and foreign language instruction.

Teacher Certification

Some history majors may wish to pursue a career in education at the middle-, or high-school levels. The History Department is proud to welcome and help train the future teachers of both Texas and the nation. Students wishing to meet certification requirements to teach history or social studies in the secondary schools of Texas should contact the College of Education and Human Development for more complete information about the certification options available at Texas A&M University. To be eligible for these options, students must also consult with, and have approval of, their academic advisor in the Department of History.

Program Requirements

First Year

Fall

ENGL 104	Composition and Rhetoric ¹	3
HIST 101 or HIST 103	Western Civilization to 1660 ¹ or World History to 1500	3
HIST 105	History of the United States ¹	3
Creative arts (p. 30)		3
Foreign language ²		4

Semester Credit Hours 16

Spring

HIST 102 or HIST 104	Western Civilization Since 1660 ¹ or World History Since 1500	3
HIST 106	History of the United States ¹	3
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
Foreign language ²		4
Social and behavioral sciences (p. 31)		3

Semester Credit Hours 16

Second Year

Fall

Foreign language ²		3
Government/Political science (p. 31)		3
Language, philosophy and culture (p. 28)		3
History elective ^{1,3}		3
General elective ⁴		3

Semester Credit Hours 15

Spring

HIST 280	The Historian's Craft ^{1,5}	3
Foreign language ²		3
Government/Political science (p. 31)		3
Mathematics (p. 27)		3
General elective ⁴		3

Semester Credit Hours 15

Third Year

Fall

Language, philosophy and culture or creative arts (p. 28)		3
Life and physical sciences (p. 27)		3
History elective ^{1,3}		3
Literature directed elective (p. 261)		3
General elective ⁴		3

Semester Credit Hours 15

Spring

Social and behavioral sciences (p. 31)		3
History elective ^{1,3}		3
History elective ^{1,3}		3

General elective ⁴ 3

General elective ⁴ 3

Semester Credit Hours 15

Fourth Year

Fall

HIST 481	Seminar in History ^{1,5}	3
Life and physical sciences (p. 27)		3
Mathematics (p. 27)		3
General elective ⁴		3
General elective ⁴		3

Semester Credit Hours 15

Spring

Life and physical sciences (p. 27)		3
History elective ^{1,3}		3
Literature directed elective (p. 261)		3
General elective ⁴		1
General elective ⁴		3

Semester Credit Hours 13

Total Semester Credit Hours 120

¹ Must make a grade of C or better.

² Complete 14 hours of a foreign language (p. 261) through the intermediate level. If you choose to enroll in a language you have studied previously without receiving college credit, you must first take a placement test. See academic advisor.

³ At least 12 hours at the 300- and 400-level. At least 3 hours of pre-modern history and at least 3 hours each from three of the five lists (United States; Europe; Latin America and Caribbean; Africa, Asia and the Middle East; Thematic). Maximum 3 hours of 200- level course may be used.

⁴ Select any 100-499 course not used elsewhere (except ASCC 100-499 (p. 937); HIST 100-299 (p. 1069)). Up to 12 hours of HIST 300-499 (p. 1069) may be used for this requirement. Only 14 hours of KINE 199; AERS 100-499 (p.); MLSC 100-499 (p. 1151); NVSC 100-499 (p. 1178); SOMS 100-499 (p. 1237) may be used towards general electives.

⁵ Writing-intensive course.

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

Students should plan a program of study in consultation with one of the department's undergraduate advisors.

A minimum of 33 hours in history may be applied to the degree. Students must take not less than 15 credit hours at upper level for history residency requirement. A grade of C or higher is required for a course to be counted in the major field. A student must complete not less than 18 hours of coursework in history at Texas A&M University.

History - 5-Year Bachelor of Arts and Master of Arts in History

This program is designed for students seeking advanced training in history for their future careers.

The Department of History offers a five-year joint degree program that provides qualified students the opportunity to simultaneously earn a Bachelor of Arts in History and a Master of Arts in History (BA/MA) in a shorter period of time and at a slightly lower financial cost. In this program, the undergraduate degree requirements are modified to prepare students for the rigor of graduate-level coursework. At the completion of the degree, students are well-prepared to apply for doctoral programs in history and other humanities disciplines, teaching positions, and public humanities.

Undergraduate students interested in this program apply during the spring of their junior year. If admitted, students begin taking graduate-level courses in the fall of their senior year. Please note that the BA/MA program is a rigorous and intellectually demanding curriculum and carries a heavy course load. Applicants should have a solid grounding in basic history and a strong interest in advanced historical study.

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 104	Composition and Rhetoric	3
HIST 101 or HIST 103	Western Civilization to 1660 or World History to 1500	3
HIST 105	History of the United States	3
Creative arts (p. 30)		3
Foreign language ¹		4
Semester Credit Hours		16
Spring		
HIST 102 or HIST 104	Western Civilization Since 1660 or World History Since 1500	3
HIST 106	History of the United States	3
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
Foreign language ¹		4
Social and behavioral sciences (p. 31)		3
Semester Credit Hours		16
Second Year		
Fall		
HIST 280	The Historian's Craft ²	3
Foreign language ¹		3
Government/Political science (p. 31)		3
Language, philosophy and culture (p. 28)		3
General elective ³		3
Semester Credit Hours		15

Spring

Foreign language ¹		3
Government/Political science (p. 31)		3
Mathematics (p. 27)		3
Life and physical sciences (p. 27)		3
History elective ⁴		3
General elective ³		3
Semester Credit Hours		18

Third Year

Fall

HIST 481	Seminar in History ²	3
Language, philosophy and culture or creative arts (p. 28)		3
Life and physical sciences (p. 27)		3
Literature directed elective (p. 261)		3
General elective ³		3
Semester Credit Hours		15

Spring

Social and behavioral sciences (p. 31)		3
History elective ⁴		3
History elective ⁴		3
General elective ³		3
General elective ³		3
Semester Credit Hours		15

Fourth Year

Fall

HIST 628	Historiography ⁵	3
Life and physical sciences (p. 27)		3
Mathematics (p. 27)		3
Graduate elective ⁶		3
General elective ³		3
Semester Credit Hours		15

Spring

HIST 629	Research Methods in History ⁵	3
Literature directed elective (p. 261)		3
General elective ³		1
General elective ³		3
General elective ³		3
Graduate elective ⁶		3
Semester Credit Hours		16

Fifth Year

Fall

Graduate elective ⁶		3
Graduate elective ⁶		3
Graduate elective ⁶		3
Graduate elective ⁶		3
Semester Credit Hours		12

Spring

Graduate elective ⁶		3
Graduate elective ⁶		3
Graduate elective ⁶		3

Graduate elective ⁶	3
Semester Credit Hours	12
Total Semester Credit Hours	150

- ¹ Complete 14 hours of a foreign language (p. 261) through the intermediate level. If you choose to enroll in a language you have studied previously without receiving college credit, you must first take a placement test. See academic advisor.
- ² Writing-intensive course.
- ³ Select any 100-499 course not used elsewhere (except ASCC 100-499 (p. 937); HIST 100-299 (p. 1069)). Up 12 hours of HIST 300-499 (p. 1069) may be used for this requirement.
- ⁴ At least 9 hours at the 300- and 400-level. At least 3 hours from three of the five lists (United States; Europe; Latin America and Caribbean; Africa, Asia and the Middle East; Thematic). At least 3 of these hours must also qualify as pre-modern history.
- ⁵ Course will double-count toward both the undergraduate and graduate degree when completing the MA Non-Thesis track.
- ⁶ Select any course from HIST 600-699 (<https://catalog.tamu.edu/graduate/course-descriptions/hist/>). See graduate adviser about course selection as well as the use of HIST 685 independent studies for credit toward the degree.

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

Students should plan a program of study in consultation with one of the department's undergraduate advisors.

A minimum of 33 hours in history may be applied to the degree. Students must take not less than 15 credit hours at upper level for history residency requirement. A grade of C or higher is required for a course to be counted in the major field. A student must complete not less than 18 hours of coursework in history at Texas A&M University.

The program includes a total of 150 hours (Thesis Track) or 156 hours (Non-Thesis Track). The Thesis track allows up to 0 hours of graduate coursework to be applied toward both the Bachelor of Arts in History and the Master of Arts in History. The Non-Thesis track allows up to 6 hours of graduate coursework to be applied toward both the Bachelor of Arts in History and the Master of Arts in History.

History - BS

This program cultivates essential skills for understanding the present through the past, preparing students for success in various career fields.

Students who wish to major in History do so because they understand that the problems of the present are fundamentally rooted in the choices made by past peoples. History majors, therefore, do not memorize names and dates. Instead, they are detectives, busily scrutinizing and actively interpreting the historical record for a deeper understanding as to why the world looks as it does and how our society might be improved. And in doing so, history majors acquire a number of practical skills that many different employers look for in job candidates. Our majors become experts in both written and oral self-expression, argumentation, and advocacy. In addition, history majors acquire the skills necessary to conduct thorough research, assess evidence, and effectively present

findings. It is no wonder, then, that our majors succeed in the fields of education, law, law enforcement, public service, consulting, and business, among many other careers. In today's global economy, there is persistent demand for job candidates familiar with wide-ranging cultures and points of view. In the History major, students take courses specializing in many different cultures and time periods. This array of classes helps familiarize students with multifaceted human experiences while developing marketable skills that make our graduates competitive in a variety of career fields. This is particularly true of majors who take advantage of the University's numerous opportunities for study abroad and foreign language instruction.

The BS in History differs from the BA because students are not required to earn foreign language credit. Instead, they are asked to complete additional credit hours in a variety of science, technology, engineering, and mathematics fields. BS degree candidates will be offered fairly wide latitude in selecting their STEM courses, but should consider enrolling in classes that align with their particular historical interests and prospective career paths. Many emerging fields in science, technology, and health are seeking employees who combine a working knowledge of STEM concepts with the enhanced analytical, critical thinking, and writing skills gained within history classrooms. A BS in History will provide opportunities to develop skillsets to answer this growing demand.

Teacher Certification

Some history majors may wish to pursue a career in education at the middle-, or high-school levels. The History Department is proud to welcome and help train the future teachers of both Texas and the nation. Students wishing to meet certification requirements to teach history or social studies in the secondary schools of Texas should contact the College of Education and Human Development for more complete information about the certification options available at Texas A&M University. To be eligible for these options, students must also consult with, and have approval of, their academic advisor in the Department of History.

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 104	Composition and Rhetoric ¹	3
HIST 101 or HIST 103	Western Civilization to 1660 ¹ or World History to 1500	3
HIST 105	History of the United States ¹	3
Creative arts (p. 30)		3
Science elective ²		3
Semester Credit Hours		15

Spring

HIST 102 or HIST 104	Western Civilization Since 1660 ¹ or World History Since 1500	3
HIST 106	History of the United States ¹	3
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	

Social and behavioral sciences (p. 31)	3
Science elective ²	3
Semester Credit Hours	15
Second Year	
Fall	
Language, philosophy and culture (p. 28)	3
Government/Political science (p. 31)	3
History elective ^{1,3}	3
Science elective ²	3
General elective ⁴	3
Semester Credit Hours	15
Spring	
HIST 280 The Historian's Craft ^{1,5}	3
Government/Political science (p. 31)	3
Mathematics (p. 27)	3
Science elective ²	3
General elective ⁴	3
Semester Credit Hours	15
Third Year	
Fall	
Language, philosophy and culture or creative arts (p. 28)	3
Life and physical sciences (p. 27)	3
History elective ^{1,3}	3
Literature directed elective (p. 261)	3
General elective ⁴	3
Semester Credit Hours	15
Spring	
Social and behavioral sciences (p. 31)	3
History elective ³	3
History elective ³	3
General elective ⁴	3
General elective ⁴	3
Semester Credit Hours	15
Fourth Year	
Fall	
HIST 481 Seminar in History ^{1,5}	3
Life and physical sciences (p. 27)	3
Mathematics (p. 27)	3
General elective ⁴	3
General elective ⁴	3
Semester Credit Hours	15
Spring	
Life and physical sciences (p. 27)	3
History elective ^{1,3}	3
Literature directed elective (p. 261)	3
General elective ⁴	3
General elective ⁴	3
Semester Credit Hours	15
Total Semester Credit Hours	120

¹ Must make a grade of C or better.² See departmental advisor for approved list³ At least 12 hours at the 300- and 400-level. At least 3 hours of pre-modern history and at least 3 hours each from three of the five lists (United States; Europe; Latin America and Caribbean; Africa, Asia and the Middle East; Thematic). Maximum 3 hours of 200- level course may be used.⁴ Select any 100-499 course not used elsewhere. (except ASCC 100-499 (p. 937); HIST 100-299 (p. 1069).) Up 12 hours of HIST 300-499 (p. 1069) may be used for this requirement. Only 14 hours of KINE 199; AERS 100-499 (p.); MLSC 100-499 (p. 1151); NVSC 100-499 (p. 1178); SOMS 100-499 (p. 1237) may be used towards general electives.⁵ Writing-intensive course.

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/departments requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

Students should plan a program of study in consultation with one of the department's undergraduate advisors.

A minimum of 33 hours in history may be applied to the degree. Students must take not less than 15 credit hours at upper level for history residency requirement. A grade of C or higher is required for a course to be counted in the major field. A student must complete not less than 18 hours of coursework in history at Texas A&M University.

History - Minor

A minor in history broadens one's education and enhances job market competitiveness by developing strong writing and critical thinking skills.

The Department of History offers a minor in History. Students from all majors are welcome to pursue this credential, as history is the ideal complement to virtually any course of study at Texas A&M. Students in the sciences and engineering, for example, would greatly benefit by using a history minor to help sharpen their writing and critical thinking skills. Employers consistently cite a lack of proficiency in writing and reasoning as one of their chief complaints about prospective hires. Students with a history minor receive valuable training in precisely those things. Other students interested in graduate or professional programs such as law school or social work also stand to benefit from a historical perspective on the issues and problems that matter to our nation and world today.

To add a history minor, a student must make a request through academic advisors in their major.

Program Requirements

Code	Title	Semester Credit Hours
Lower-level history ¹		6
Upper-level history ²		9
Total Semester Credit Hours		15

¹ Select from HIST 101-106 (p. 1069), HIST 201, HIST 202, HIST 209, HIST 210, HIST 212-214 (p. 1069), HIST 220-222 (p. 1069), HIST 225, HIST 226, HIST 230-232 (p. 1069), HIST 234, HIST 236/CLAS 236, HIST 240-242 (p. 1069), HIST 258, HIST 289.

² Select from HIST 300-489 (p. 1069).

Students must make a grade of C or better in all courses.

Legal History - Certificate

The purpose of the Legal History Certificate is to provide students with historical knowledge and analytical skills that will give them a strong foundation for a law school education.

Students will learn about the historical development of the American legal system, read legal documents, perform legal research, and practice argumentative writing. The coursework includes two required classes, two elective courses from the History Department, and a directed studies course (zero-credit) that is fulfilled by submitting a paper from any History class about a legal topic.

The Legal History Certificate program is specifically focused on the skill set future lawyers need. The American Bar Association (ABA) and the Law School Admissions Council (LSAC) have identified background historical knowledge as an essential foundation for a law school education. Lawyers must understand historical precedent, the historical context in which laws were made, and the evolution of legal doctrine. The ABA and the LSAC also emphasize the importance of critical reading, research, and writing skills as important preparation for an advanced legal education. The Legal History Certificate will prepare students in all of these areas. It positions Aggies to succeed in law school and provides them with an advantage in the admissions process.

The Legal History Certificate is open to all majors. Students interested in the Legal History Certificate should contact the History Department academic advisor, Adrianna Rodriguez (adrianna_rodriguez@tamu.edu), or the program's primary faculty sponsor, Dr. Ryan Fletcher (rffletcher@tamu.edu).

Program Requirements

Code	Title	Semester Credit Hours
HIST 447	Law and Society in the United States through Reconstruction ¹	3
HIST 448	American Law Since 1865 ¹	3
HIST 485	Directed Studies ^{2,3}	0
Select two of the following: ¹		6
HIST 225	Revolutionary America	
HIST 230	American Military History, 1609 to Present	
HIST 258	American Indian History	
HIST 301/AFST 301	Blacks in the United States Since 1877	
HIST 305	Chicana/o History since 1848	
HIST 307	Latinx History	
HIST 308	History of American Indians in the U.S. South	
HIST 319	U.S. Immigration and Ethnicity	
HIST 365/RELS 365	Religion in Early America	
HIST 368	The Birth of the Republic, 1763-1820	
HIST 369	The United States, 1820-1860	

HIST 370	Civil War and Reconstruction
HIST 371	America in the Gilded Age, 1877-1901
HIST 372	Reform, War and Normalcy: The United States, 1901-1929
HIST 373	The Great Depression and World War II
HIST 374	The United States After World War II
HIST 444	American Military History Since 1901
HIST 452	The American Revolution
HIST 455	History of the American City
HIST 464	International Developments Since 1918
HIST 473/ WGST 473	Women's History in the Modern U.S.

Total Semester Credit Hours **12**

¹ Must make a grade of C or better.

² Must be taken after or concurrent with the completion of the other credit hours for the certificate. Students must submit a writing sample covering some aspect of legal history, which may be a piece of writing previously submitted for one of the courses listed above.

³ Students must sign up for the certificate through an advisor before completing 105 credit hours.

Department of Mathematics

The Department of Mathematics offers curricula which lead to the following undergraduate degrees: Bachelor of Science in Applied Mathematics, Bachelor of Arts in Mathematics and Bachelor of Science in Mathematics. A combined baccalaureate/graduate degree program is also offered.

The curriculum for the BS in Applied Mathematics includes courses in economics, industrial engineering, statistics, computer science and mathematics. A student completing this program is prepared to enter employment with analytical and quantitative tools relevant to modern technological industries and/or modern financial markets. On the other hand, with the appropriate electives chosen, the student is prepared to enter quantitatively oriented graduate programs. Advising for this degree option is done through the Undergraduate Program Office in the Department of Mathematics.

With carefully chosen electives in education, any one of the above three degree plans can lead to teacher certification. Students interested in teacher certification may find the BA degree plan the most suitable since this degree plan offers the greatest flexibility for the inclusion of teacher certification courses.

Faculty

Allen, Angela J, Instructional Associate Professor
Mathematics
MS, Texas A&M University, 2005

Anshevich, Michael V, Professor
Mathematics
PHD, University of California at Berkeley, 2000

Austin, Amy L, Instructional Associate Professor
Mathematics
MS, Texas A&M University, 1994

Baskin, Dean R, Professor
Mathematics
PHD, Stanford University, 2010

Battle, Guy A, Professor
Mathematics
PHD, Duke University, 1977

Baudier, Florent P, Associate Professor
Mathematics
PHD, Universite De Besancon, 2010

Berkolaiko, Gregory, Professor
Mathematics
PHD, University of Bristol, 2001

Bobkova, Irina, Associate Professor
Mathematics
PHD, Northwestern University, 2014

Bollinger, Kathryn L, Instructional Associate Professor
Mathematics
MS, Texas A&M University, 1998

Bonito, Andrea, Professor
Mathematics
PHD, Ecole Polytechnique Federale de Lausanne, Switzerland, 2006

Cantu, Justin C, Instructional Assistant Professor
Mathematics
PHD, Texas A&M University, 2019

Cartee, Elliot, Instructional Assistant Professor
Mathematics
PHD, Cornell University, 2020

Carter, Tamara A, Instructional Associate Professor
Mathematics
PHD, Texas A&M University, 2005

Cecchini, Simone, Assistant Professor
Mathematics
PHD, Northeastern University, 2017

Chen, Goong, Professor
Mathematics
PHD, University of Wisconsin, Madison, 1977

Chu, Hung Viet, Visiting Assistant Professor
Mathematics
PHD, University of Illinois Urbana-Champaign, 2023

Coffelt, Vanessa Lea, Instructional Associate Professor
Mathematics
MS, Kansas State University, 2005

Comech, Andrew, Associate Professor
Mathematics
PHD, Columbia University, 1997

Daripa, Prabir, Professor
Mathematics
PHD, Brown University, 1985

Demlow, Alan, Professor
Mathematics
PHD, Cornell University, 2002

Devore, Ronald A, Distinguished Professor
Mathematics
PHD, Ohio State University, 1967

Dorpalen-Barry, Galen, Assistant Professor
Mathematics
PHD, University of Minnesota, 2021

Dykema, Kenneth J, Professor
Mathematics
PHD, University of California at Berkeley, 1993

Efendiev, Yalchin R, Professor
Mathematics
PHD, California Institute of Technology, 1999

Erukulangara, Muhammed Rashad, Instructional Assistant Professor
Mathematics
PHD, University of South Florida, 2024

Favrie, Nicolas, Visiting Professor
Mathematics
PHD, Universite Aix Marseille 1, 2008

Ferraro, Giacomo Hermes, Visiting Assistant Professor
Mathematics
PHD, Universite Bourgogne Franche-Comte, 2023

Fillman, Jake, Assistant Professor
Mathematics
PHD, Rice University, 2015

Fisk, John David, Lecturer
Mathematics
MA, University of Houston, 2018

Foran, Ali, Instructional Associate Professor
Mathematics
PHD, Texas A&M University, 2018

Foucart, Simon, Professor
Mathematics
PHD, University of Cambridge, 2005

Fovelle, Audrey, Visiting Assistant Professor
Mathematics
PHD, Universite Bourgogne Franche-Comte, 2023

Garcia, Bradford A, Lecturer
Mathematics
PHD, Texas A&M University, 2022

Goncharuk, Nataliya, Assistant Professor
Mathematics
PHD, Institute for Information Transmission Problems, 2016

Gong, Sherry, Associate Professor
Mathematics
PHD, Massachusetts Institute of Technology, 2018

Grigorchuk, Rostislav, Distinguished Professor
Mathematics
PHD, Moscow State University of Lomomosov, 1978

Guermond, Jean-Luc, Professor
Mathematics
PHD, Sorbonne Universites, 1995

Hening, Alexandru, Associate Professor
Mathematics
PHD, University of California - Berkeley, 2013

Hester, Yvette C, Instructional Associate Professor
Mathematics
PHD, Texas A&M University, 2000

Howard, Peter B, Professor
Mathematics
PHD, Indiana University, 1998

Hu, Runjie, Visiting Assistant Professor
Mathematics
MS, Peking University, 2018

Huang, Hang, Assistant Professor
Mathematics
PHD, University of Wisconsin, 2019

Hussein, Saud, Lecturer
Mathematics
PHD, University of Houston, 2016

Janssens, Sebastiaan Gerard, Instructor
Mathematics
MSC, Universiteit Utrecht, 2010

Kahlig, Joe E, Instructional Associate Professor
Mathematics
MS, Texas A&M University, 1994

Kang, Minchul, Instructional Assistant Professor
Mathematics
PHD, University of Minnesota, 2005

Kapita, Shelvean, Instructional Assistant Professor
Mathematics
PHD, University of Delaware, 2016

Karn, Trevor, Visiting Assistant Professor
Mathematics
MS, University of Minnesota, 2022

Kazemi, Sana, Instructional Assistant Professor
Mathematics
PHD, University of Memphis, 2022

Kilmer, Kendra R, Instructional Associate Professor
Mathematics
MS, Texas A&M University, 2003

Kim, Joung Dong, Instructional Associate Professor
Mathematics
PHD, State University of New York at Stony Brook, 2012

Kim, Young Ho, Visiting Assistant Professor
Mathematics
BS, Seoul National University, 2019

Klein, Heather Lynette, Instructional Professor
Mathematics
MS, Texas A&M University, 2004

Klein, Patricia, Assistant Professor
Mathematics
PHD, University of Michigan, 2018

Kuchment, Peter, Distinguished Professor
Mathematics
PHD, Kharkov State University, Russia, 1973

Lacini, Justin, Assistant Professor
Mathematics
PHD, University of California, San Diego, 2020

Landsberg, Joseph M, Professor
Mathematics
PHD, Duke University, 1990

Larson, David R, Professor
Mathematics
PHD, University of California at Berkeley, 1976

Lee, Jong Jun, Instructional Assistant Professor
Mathematics
PHD, University of Maryland, 2014

Lee, Sang Rae, Instructional Associate Professor
Mathematics
PHD, University of Oklahoma, 2012

Li, Long, Visiting Assistant Professor
Mathematics
PHD, Nanjing University, 2022

Lim, Yi Sheng, Visiting Assistant Professor
Mathematics
PHD, University of Bath, 2023

Lima-Filho, Paulo, Professor
Mathematics
PHD, State University of New York at Stony Brook, 1989

Liu, Chun-Hung, Associate Professor
Mathematics
PHD, Georgia Institute of Technology, 2014

Liu, Wencai, Professor
Mathematics
PHD, Fudan University, 2015

Liu, Xin, Assistant Professor
Mathematics
PHD, The Chinese University of Hong Kong, 2017

Lockhart, Bret James, Lecturer
Mathematics
MS, Texas A&M University, 2010

Luhrmann, Jonas, Associate Professor
Mathematics
PHD, Eidgenössische Technische Hochschule Zürich, 2016

Ma, Qiaochu, Visiting Assistant Professor
Mathematics
PHD, UFR de Mathematiques, Universite de Paris, 2022

Maier, Matthias, Associate Professor
Mathematics
PHD, Ruprecht-Karls Universität Heidelberg, Germany, 2015

Mandziuk, Tomasz, Visiting Assistant Professor
Mathematics
PHD, University of Warsaw, 2022

Manuel, David J, Instructional Professor
Mathematics
MS, Texas A&M University, 1994

Mashburn, Jacob W, Instructional Assistant Professor
Mathematics
PHD, Texas A&M University, 2022

Masri, Mohamad R, Professor
Mathematics
PHD, The University of Texas at Austin, 2005

Matusevich, Laura F, Professor
Mathematics
PHD, University of California at Berkeley, 2002

Mendelson, Shahar, Professor
Mathematics
PHD, Technion, Israel Institute of Technology, 1998

Morvant, Angelique E, Lecturer
Mathematics
PHD, Texas A&M University, 2024

Narcowich, Francis J, Professor
Mathematics
PHD, Princeton University, 1972

Nekrashevych, Volodymyr, Professor
Mathematics
PHD, Taras Shevchenko National University, Russia, 1998

Olvera, Hugo, Lecturer
Mathematics
MS, The University of Texas Pan American, 2014

Onica, Constantin, Instructional Associate Professor
Mathematics
PHD, Texas A&M University, 2005

Paouris, Grigorios, Professor
Mathematics
PHD, University of Crete, 2004

Papanikolas, Matthew A, Professor
Mathematics
PHD, Brown University, 1998

Pearlstein, Rosanna, Lecturer
Mathematics
PHD, University of Massachusetts Amherst, 1998

Perales, Daniel, Visiting Assistant Professor
Mathematics
PHD, University of Waterloo, 2022

Petrova, Guergana P, Professor
Mathematics
PHD, University of Southern Carolina, 1999

Popov, Bojan D, Professor
Mathematics
PHD, University of Southern Carolina, 1999

Rahm, Robert S, Instructional Associate Professor
Mathematics
PHD, Washington University in St. Louis, 2017

Ranabhat, Min Bahadur, Instructional Assistant Professor
Mathematics
PHD, Kansas State University, 2020

Reihani, Kamran, Instructional Assistant Professor
Mathematics
PHD, Tarbiat Modares University, 2005

Rojas, Joseph M, Professor
Mathematics
PHD, University of California at Berkeley, 1995

Rowell, Eric C, Professor
Mathematics
PHD, University of California at San Diego, 2003

Rundell, William, Professor
Mathematics
PHD, Glasgow University, 1974

Schiellack, Vincent, Associate Professor
Mathematics
PHD, The University of Texas at Austin, 1982

Schlumprecht, Thomas B, Professor
Mathematics
PHD, Ludwig Maximilians Universität, Germany, 1988

Schrader, Todd W, Instructional Associate Professor
Mathematics
MS, Texas A&M University, 2016

Sengupta, Sinjini, Instructional Associate Professor
Mathematics
PHD, Florida State University, 2006

Shatalov, Oksana, Instructional Professor
Mathematics
PHD, Technion - Israel Institute of Technology, 2001

Shiu, Anne J, Professor
Mathematics
PHD, University of California at Berkeley, 2010

Siegel, Jonathan, Assistant Professor
Mathematics
PHD, University of California, Los Angeles, 2018

Siktar, Joshua, Visiting Assistant Professor
Mathematics
PHD, University of Tennessee, Knoxville, 2024

Simanjuntak, Paul, Visiting Assistant Professor
Mathematics
PHD, University of Missouri-Columbia, 2023

Smith, Roger R, Professor
Mathematics
PHD, University of Oxford, 1976

Sottile, Frank J, Professor
Mathematics
PHD, University of Chicago, 1994

Sprekeler, Timo Frank, Assistant Professor
Mathematics
PHD, University of Oxford, 2021

Stiller, Peter F, Professor
Mathematics
PHD, Princeton University, 1977

Sze, Christopher, Lecturer
Mathematics
PHD, University of South Florida, 2023

Thicke, Kyle Steven, Instructional Assistant Professor
Mathematics
PHD, Duke University, 2019

Titi, Edriss S, Professor
Mathematics
PHD, Indiana University, Bloomington, 1986

Tran, Minh Binh, Associate Professor
Mathematics
PHD, Paris 13 University, 2011

Victor, Collin, Visiting Assistant Professor
Mathematics
PHD, University of Nebraska - Lincoln, 2023

Vorobets, Mariya, Instructional Associate Professor
Mathematics
PHD, Lviv National University, 2004

Vorobets, Yaroslav, Associate Professor
Mathematics
PHD, Moscow Lomonosov State University, 1998

Wang, Kun, Instructional Assistant Professor
Mathematics
PHD, University of Puerto Rico, Rio Piedras, 2014

Wang, Xueyin, Visiting Assistant Professor
Mathematics
PHD, Nankai University, 2024

Weeks, John M, Instructional Assistant Professor
Mathematics
PHD, Mathematics, 2022

Welsh, Andrea, Visiting Assistant Professor
Mathematics
PHD, Georgia Institute of Technology, 2019

White, Jacob Anthony, Instructional Assistant Professor
Mathematics
PHD, Arizona State University, 2010

Whitfield, Jennifer G, Instructional Professor
Mathematics
PHD, Texas A&M University, 2017

Willis, Michael, Assistant Professor
Mathematics
PHD, University of Virginia, 2017

Witherspoon, Sarah J, Professor
Mathematics
PHD, University of Chicago, 1994

Xie, Zhizhang, Professor
Mathematics
PHD, The Ohio State University, 2011

Yan, Huafei, Professor
Mathematics
PHD, Massachusetts Institute of Technology, 1997

Yang, Tian, Associate Professor
Mathematics
PHD, Rutgers University at New Brunswick, 2013

Yang, Yuxuan, Visiting Assistant Professor
Mathematics
BS, Peking University, 2020

Yasskin, Philip B, Associate Professor
Mathematics
PHD, University of Maryland, 1979

Yershova, Yuliia, Visiting Assistant Professor
Mathematics
PHD, Institute of Mathematics of National Academy of Sciences of Ukraine, 2015

Yoo, Youngho, Visiting Assistant Professor
Mathematics
PHD, Georgia Institute of Technology, 2022

Yu, Guoliang, Professor
Mathematics
PHD, State University Of New York At Stony Brook, 1991

Zelenko, Igor, Professor
Mathematics
PHD, Technion - Israel Institute of Technology, 2002

Zhong, Suhan, Visiting Assistant Professor
Mathematics
PHD, University of California- San Diego, 2019

Zhou, Jianxin, Professor
Mathematics
PHD, Pennsylvania State University, 1986

Zhu, Bo, Visiting Assistant Professor
Mathematics
MA, Peking University, 2016

Majors

- Bachelor of Science in Applied Mathematics, Actuarial Science Emphasis (p. 422)
- Bachelor of Science in Applied Mathematics, Biological Science Emphasis (p. 424)
- Bachelor of Science in Applied Mathematics, Computational Science Emphasis (p. 425)
- Bachelor of Science in Applied Mathematics, Cryptography Emphasis (p. 426)
- Bachelor of Science in Applied Mathematics, Economics Emphasis (p. 428)
- Bachelor of Science in Applied Mathematics, Math Emphasis (p. 429)
- Bachelor of Science in Applied Mathematics, Statistics Emphasis (p. 431)
- Bachelor of Science in Applied Mathematics and Master of Science in Economics, 5-Year Degree Program (p. 432)
- Bachelor of Science in Applied Mathematics and Master of Science in Mathematics, 5-Year Degree Program (p. 434)
- Bachelor of Arts in Mathematics (p. 436)
- Bachelor of Arts in Mathematics, Teaching Emphasis (p. 437)
- Bachelor of Arts in Mathematics and Master of Science in Mathematics, 5-Year Degree Program (p. 439)
- Bachelor of Science in Mathematics (p. 440)
- Bachelor of Science in Mathematics and Master of Science in Mathematics, 5-Year Degree Program (p. 442)
- Bachelor of Science in University Studies, Mathematics for Teaching Concentration (p. 444)

Minors

- Mathematics Minor (p. 444)

Applied Mathematics - BS, Actuarial Science Emphasis

The curriculum in the Bachelor of Science in Applied Mathematics with an Actuarial Science emphasis explores the application of analytical problem solving tools to challenges in the financial and insurance industries.

Students in the Actuarial Science emphasis investigate techniques in applied and pure mathematics and pursue electives in economics and finance that demonstrate how mathematics can be used to model financial concerns in the insurance and related industries.

A student completing this program is prepared to enter employment with analytical and quantitative tools relevant to modern financial markets. Coursework in the Actuarial emphasis prepares students to take actuarial exams necessary for employment in the actuarial industry. Furthermore, with the appropriate electives chosen, the student is prepared to enter quantitatively oriented graduate schools. A minor in business or economics is well suited to students in this program. All advising for this degree option is done through the Undergraduate Program Office in the Department of Mathematics.

Program Requirements

First Year

		Semester Credit Hours
Fall		
ENGL 104 or ENGL 103	Composition and Rhetoric or Introduction to Rhetoric and Composition	3
MATH 171	Calculus I	4
University Core Curriculum (p. 26) ¹		3
Freshman Science elective ²		4
General elective ^{3,4}		1
Semester Credit Hours		15

Spring

ECON 202 or ECON 203	Principles of Economics or Principles of Economics	3
MATH 172	Calculus II	4
University Core Curriculum (p. 26) ¹		3
Freshman Science elective ²		4
General elective ^{3,4}		1
Semester Credit Hours		15

Second Year

Fall

MATH 221	Several Variable Calculus	4
MATH 300	Foundations of Mathematics	3
STAT 211	Principles of Statistics I	3
Select one of the following:		4
CSCE 110	Programming I	
CSCE 111	Introduction to Computer Science Concepts and Programming	
CSCE 206	Structured Programming in C	
Semester Credit Hours		14

Spring

MATH 308	Differential Equations	3
MATH 325	The Mathematics of Interest	3
STAT 212	Principles of Statistics II	3
Select one of the following:		3-4
CSCE 110	Programming I	
CSCE 111	Introduction to Computer Science Concepts and Programming	
CSCE 120	Program Design and Concepts	
CSCE 206	Structured Programming in C	
University Core Curriculum (p. 26) ¹		3
Semester Credit Hours		15

Third Year**Fall**

MATH 323	Linear Algebra	3
MATH 411 or STAT 414	Mathematical Probability ⁵ or Mathematical Statistics I	3
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences	4
Select 3 hours from the following:		3
ECMT 463	Introduction to Econometrics	
ECON 311-489 (p. 1016)		
FINC 309-489 (p. 1043)		
University Core Curriculum (p. 26) ¹		3
Semester Credit Hours		16

Spring

MATH 409	Analysis on the Real Line	3
MATH 419	Applications of Actuarial Science	3
Select 3 hours from the following:		3
ECMT 463	Introduction to Econometrics	
ECON 311-489 (p. 1016)		
FINC 309-489 (p. 1043)		
Select one of the following:		4
OCNG 451	Mathematical Modeling of Ocean Climate	
PHYS 207 & PHYS 227	Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences	
University Core Curriculum (p. 26) ¹		3
Semester Credit Hours		16

Fourth Year**Fall**

MATH 425	The Mathematics of Contingent Claims	3
Select 3 hours from the following:		3
CSCE 210-470 (p. 985) ⁶		
ISEN 320	Operations Research I	
ISEN 340	Operations Research II	
MATH 407-499 (p. 1135)		
STAT 335-482 (p. 1248)		
Select 3 hours from the following:		3
ECMT 463	Introduction to Econometrics	
ECON 311-489 (p. 1016)		
FINC 309-489 (p. 1043)		
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
University Core Curriculum (p. 26) ¹		3
Semester Credit Hours		15

Spring

MATH 437	Principles of Numerical Analysis	4
Select 3 hours from the following:		3
CSCE 210-470 (p. 985) ⁶		

ISEN 320	Operations Research I	
ISEN 340	Operations Research II	
MATH 407-499 (p. 1135)		
STAT 335-482 (p. 1248)		
General elective ^{3,4}		6-7
Semester Credit Hours		14
Total Semester Credit Hours		120

¹ Of the 18 hours shown as University Core Curriculum (p. 26), 3 must be from Language, Philosophy and Culture; 3 from Creative Arts; 6 from American History; and 6 from Government/Political Science.

² Select 4 hours from ASTR 111, BIOL 111, BIOL 112, CHEM 119, CHEM 120, CHEM 107, CHEM 117. The remaining 4 hours may be selected from ASTR 111, ATMO 201/ATMO 202, BIOL 111, BIOL 112, CHEM 119, CHEM 120, CHEM 107/CHEM 117, GEOL 101/GEOL 102, OCNG 251/OCNG 252.

³ MATH 170 is highly recommended for math majors co-enrolled in MATH 150, MATH 151, MATH 152, MATH 171 or MATH 172. MATH 200 is also highly recommended for math majors co-enrolled in MATH 151, MATH 152, MATH 171 or MATH 172.

⁴ Select from any 100-499 course not used elsewhere (except ALED 125; ASCC 102; ASTR 109/PHYS 109, ASTR 119/PHYS 119; BMEN 153; KINE 199; LAND 101; MATH 102-148, MATH 151-168 (p. 1135), MATH 304, MATH 309, MATH 311, MATH 365, MATH 366, MATH 367, MATH 375, MATH 376; PBSI 301 PHYS 201, PHYS 202, PHYS 205; STAT 201, STAT 301 - 303 (p. 1248)).

⁵ MATH 411 should be taken the semester after taking MATH 221.

⁶ Except CSCE 222/ECEN 222, CSCE 285, CSCE 289, CSCE 291, CSCE 402.

Maximum of 3 hours of MATH 300 or CSCE 222/ECEN 222 may be used in this degree program.

Maximum of 3 hours of MATH 411 or STAT 414 may be used in this degree program.

Maximum of 4 hours of MATH 417, MATH 437 or CSCE 442 may be used in this degree program.

If a grade of D or F is earned in any of the following courses, MATH 151/MATH 171, MATH 152/MATH 172, MATH 221/MATH 251/MATH 253, MATH 300, MATH 323 or MATH 308, this course must be immediately retaken and a grade of C or better earned. The department will allow at most two grades of D in upper-level (325-499) courses. If a third D is earned, one of the three courses in which a D was earned must be retaken and a grade of C or better earned.

Students desiring teacher certification should consult the requirements for certification before registering for electives.

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity courses (p. 49) and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a general elective can be used to satisfy this requirement. See academic advisor.

Applied Mathematics - BS, Biological Science Emphasis

The curriculum in the Bachelor of Science in Applied Mathematics with a Biological Sciences emphasis explores the application of analytical problem-solving tools to problems in biology, medicine, and the environment.

Students in the Biological Sciences emphasis investigate techniques in applied and pure mathematics and pursue electives in biology and other sciences that demonstrate how mathematics models phenomena in the life sciences.

A student completing this program is prepared for a career in applications of mathematics to the life sciences. Furthermore, this degree program is designed to contain the coursework required for students interested in medical school, and it is recommended for pre-med students interested in pursuing a mathematics degree. With the appropriate electives chosen, the student is also prepared to enter quantitatively oriented graduate programs, including PhD programs in Applied Mathematics or Mathematics. A minor in biology is well suited to students in this program. All advising for this degree option is done through the Undergraduate Program Office in the Department of Mathematics.

Program Requirements

Biological Science Emphasis: Consult with departmental advisor.

First Year

		Semester Credit Hours
Fall		
BIOL 111	Introductory Biology I	4
CHEM 119	Fundamentals of Chemistry I	4
ENGL 104 or ENGL 103	Composition and Rhetoric or Introduction to Rhetoric and Composition	3
MATH 171	Calculus I	4
General Elective ^{1,4}		1

Semester Credit Hours 16

Spring

BIOL 112	Introductory Biology II	4
CHEM 120	Fundamentals of Chemistry II	4
ENGL 203 or ENGL 210	Writing about Literature or Technical and Professional Writing	3
MATH 172	Calculus II	4
General Elective ^{1,4}		1

Semester Credit Hours 16

Second Year

Fall		
BIOL 200-470 (p. 951)		3
CHEM 227 & CHEM 237	Organic Chemistry I and Organic Chemistry Laboratory	4
MATH 221	Several Variable Calculus	4
MATH 300	Foundations of Mathematics	3

Semester Credit Hours 14

Spring

BIOL 200-470 (p. 951)		3

CHEM 228 & CHEM 238	Organic Chemistry II and Organic Chemistry Laboratory	4
MATH 308	Differential Equations	3
MATH 323	Linear Algebra	3
University Core Curriculum (p. 26) ^{2,5}		3

Semester Credit Hours 16

Third Year

Fall

BICH 410	Comprehensive Biochemistry I	3
MATH 409	Analysis on the Real Line	3
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences	4
STAT 312	Statistics for Biology	3
University Core Curriculum (p. 26) ²		3

Semester Credit Hours 16

Spring

MATH 411	Mathematical Probability	3
MATH 469	Introduction to Mathematical Biology	3
PHYS 207 & PHYS 227	Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences	4
University Core Curriculum (p. 26) ²		3

Semester Credit Hours 13

Fourth Year

Fall

Select 6 hours from the following: ³		6
MATH 325	The Mathematics of Interest	
MATH 407-499 (p. 1135)		
Select from one of the following:		4
CSCE 110	Programming I	
CSCE 111	Introduction to Computer Science Concepts and Programming	
CSCE 206	Structured Programming in C	
University Core Curriculum (p. 26) ²		3
University Core Curriculum (p. 26) ²		3

Semester Credit Hours 16

Spring

MATH 442	Mathematical Modeling	3
Select 3 hours from the following:		3
MATH 325	The Mathematics of Interest	
MATH 407-499 (p. 1135)		
University Core Curriculum (p. 26) ²		3
University Core Curriculum (p. 26) ²		3
General Elective ⁴		1

Semester Credit Hours 13

Total Semester Credit Hours 120

¹ MATH 170 is highly recommended for math majors co-enrolled in MATH 150, MATH 151, MATH 152, MATH 171, or MATH 172. MATH 200 is also highly recommended for math majors co-enrolled in MATH 151, MATH 152, MATH 171, or MATH 172.

² Of the 18 hours shown as University Core Curriculum (p. 26), 3 must be from Language, Philosophy and Culture, 3 from Creative Arts, 6 from American History, 6 from Government/Political Science.

³ Select from MATH 325, MATH 407-499 (p. 1135). One course must be a W or C course.

⁴ Select from any 100-499 course not used elsewhere, (except ALED 125; ASCC 102; ASTR 109/PHYS 109, ASTR 119/PHYS 119; BMEN 153; KINE 199; LAND 101; MATH 102-148, MATH 151-168 (p. 1135), MATH 304, MATH 309, MATH 311, MATH 365, MATH 366, MATH 367, MATH 375, MATH 376; PBSI 301; PHYS 201, PHYS 202, PHYS 205; STAT 201 STAT 301 - 303 (p. 1248)).

⁵ PBSI 107 or SOCI 205 is recommended for Medical School.

Maximum of 3 hours of MATH 300 or CSCE 222/ECEN 222 may be used in this degree program.

Maximum of 3 hours of MATH 411 or STAT 414 may be used in this degree program.

Maximum of 4 hours of MATH 417, MATH 437 or CSCE 442 may be used in this degree program.

If a grade of D or F is earned in any of the following courses, MATH 151/MATH 171, MATH 152/MATH 172, MATH 221/MATH 251/MATH 253, MATH 300, MATH 323 or MATH 308, this course must be immediately retaken and a grade of C or better earned. The department will allow at most two Ds in upper-level (325-499) courses. If a third D is earned, one of the three courses in which a D was earned must be retaken and a grade of C or better earned.

Students desiring teacher certification should consult the requirements for certification before registering for electives.

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity course (p. 49)s and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a general elective can be used to satisfy this requirement. See academic advisor.

Applied Mathematics - BS, Computational Science Emphasis

The curriculum in the Bachelor of Science in Applied Mathematics with a Computational emphasis explores the application of analytical problem-solving tools to concrete problems in computation and technology.

Students in the Computational emphasis investigate a broad array of techniques in applied and pure mathematics and pursue electives in computer science that demonstrate how mathematics models challenges in computing and technology.

A student completing this program is prepared to enter employment with analytical and quantitative tools relevant to technological industries.

Furthermore, with the appropriate electives chosen, the student is prepared to enter quantitatively oriented graduate schools, including PhD programs in Applied Mathematics or Mathematics. A minor in computer science is well suited to students in this program. All advising for this degree option is done through the Undergraduate Program Office in the Department of Mathematics.

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 104 or ENGL 103	Composition and Rhetoric or Introduction to Rhetoric and Composition	3
MATH 171	Calculus I	4
University Core Curriculum (p. 26) ²		3
Freshman Science elective ¹		4
General elective ^{3,4}		1

Semester Credit Hours 15

Spring

ECON 202 or ECON 203	Principles of Economics or Principles of Economics	3
MATH 172	Calculus II	4
University Core Curriculum (p. 26) ²		3
Freshman Science elective ¹		4
General elective ^{3,4}		1

Semester Credit Hours 15

Second Year

Fall		
MATH 221	Several Variable Calculus	4
MATH 300	Foundations of Mathematics	3
STAT 211	Principles of Statistics I	3
Select one of the following:		4
CSCE 110	Programming I	
CSCE 111	Introduction to Computer Science Concepts and Programming	
CSCE 206	Structured Programming in C	

Semester Credit Hours 14

Spring

CSCE 120	Program Design and Concepts	3
MATH 308	Differential Equations	3
MATH 323	Linear Algebra	3
STAT 212	Principles of Statistics II	3
University Core Curriculum (p. 26) ²		3

Semester Credit Hours 15

Third Year

Fall		
CSCE 221	Data Structures and Algorithms	4
MATH 409	Analysis on the Real Line	3
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences	4
Select 3 hours from the following:		3
MATH 325	The Mathematics of Interest	
MATH 407-499 (p. 1135)		

Semester Credit Hours 14

Spring

CSCE 314	Programming Languages	3

MATH 437	Principles of Numerical Analysis	4
Select 3 hours from the following:		3
MATH 325	The Mathematics of Interest	
MATH 407-499 (p. 1135)		
Select one of the following:		4
OCNG 451	Mathematical Modeling of Ocean Climate	
PHYS 207 & PHYS 227	Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences	
Semester Credit Hours		14
Fourth Year		
Fall		
CSCE 411	Design and Analysis of Algorithms	3
MATH 415 or MATH 433	Modern Algebra I or Applied Algebra	3
Select 3 hours from the following:		3
MATH 325	The Mathematics of Interest	
MATH 407-499 (p. 1135)		
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
University Core Curriculum (p. 26) ²		3
General Elective ⁴		1
Semester Credit Hours		16
Spring		
CSCE 433	Formal Languages and Automata	3
Select 3 hours from the following:		3
CSCE 210-470 (p. 985) ⁵		
ISEN 320	Operations Research I	
ISEN 340	Operations Research II	
MATH 325	The Mathematics of Interest	
MATH 407-499 (p. 1135)		
STAT 335-482 (p. 1248)		
University Core Curriculum (p. 26) ²		3
University Core Curriculum (p. 26) ²		3
General elective ⁴		5
Semester Credit Hours		17
Total Semester Credit Hours		120

KINE 199; LAND 101; MATH 102-148, MATH 151-168 (p. 1135), MATH 304, MATH 309, MATH 311, MATH 365, MATH 366, MATH 367, MATH 375, MATH 376; PBSI 301; PHYS 201, PHYS 202, PHYS 205; STAT 201, STAT 301, STAT 302, STAT 303).

⁵ Except CSCE 222/ECEN 222, CSCE 285, CSCE 289, CSCE 291, CSCE 402.

Maximum of 3 hours of MATH 300 or CSCE 222/ECEN 222 may be used in this degree program.

Maximum of 3 hours of MATH 411 or STAT 414 may be used in this degree program.

Maximum of 4 hours of MATH 417, MATH 437 or CSCE 442 may be used in this degree program.

If a grade of D or F is earned in any of the following courses, MATH 151/MATH 171, MATH 152/MATH 172, MATH 221/MATH 251/MATH 253, MATH 300, MATH 323 or MATH 308, this course must be immediately retaken and a grade of C or better earned. The department will allow at most two grades of D in upper-level (325-499) courses. If a third D is earned, one of the three courses in which a D was earned must be retaken and a grade of C or better earned.

Students desiring teacher certification should consult the requirements for certification before registering for electives.

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity course (p. 49)s and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a general elective can be used to satisfy this requirement. See academic advisor.

Applied Mathematics - BS, Cryptography Emphasis

The curriculum in the Bachelor of Science in Applied Mathematics with a Cryptography emphasis explores the application of analytical problem solving tools to concrete problems in cybersecurity.

Students in the Cryptography emphasis investigate a broad array of techniques in applied and pure mathematics and pursue electives in computer science that demonstrate how mathematics is central to keeping information and data secure.

A student completing this program is prepared to enter employment with analytical and quantitative tools relevant to technological industries or government, especially in cybersecurity related fields. Furthermore, with the appropriate electives chosen, the student is prepared to enter quantitatively oriented graduate schools, including PhD programs in Applied Mathematics or Mathematics. A minor in computer science or cybersecurity is well suited to students in this program. All advising for this degree option is done through the Undergraduate Program Office in the Department of Mathematics.

¹ Select 4 hours from ASTR 111, BIOL 111, BIOL 112, CHEM 119, CHEM 120, CHEM 107/CHEM 117. The remaining 4 hours may be selected from ASTR 111, ATMO 201/ATMO 202, BIOL 111, BIOL 112, CHEM 119, CHEM 120, CHEM 107/CHEM 117, GEOL 101/GEOL 102, OCNG 251/OCNG 252.

² Of the 18 hours shown as University Core Curriculum (p. 26), 3 must be from Language, Philosophy and Culture; 3 from Creative Arts; 6 from American History; and 6 from Government/Political Science.

³ MATH 170 is highly recommended for math majors co-enrolled in MATH 150, MATH 151, MATH 152, MATH 171 or MATH 172. MATH 200 is also highly recommended for math majors co-enrolled in MATH 151, MATH 152, MATH 171 or MATH 172.

⁴ Select from any 100-499 course not used elsewhere (except ALED 125; ASCC 102; ASTR 109/PHYS 109, ASTR 119/PHYS 119; BMEN 153;

Program Requirements

First Year

Fall

ENGL 104 or ENGL 103	Composition and Rhetoric or Introduction to Rhetoric and Composition	3
MATH 171	Calculus I	4
University Core Curriculum (p. 26)	¹	3
Freshman Science elective	²	4
General elective	^{3,4}	1

Semester Credit Hours 15

Spring

ECON 202 or ECON 203	Principles of Economics or Principles of Economics	3
MATH 172	Calculus II	4
University Core Curriculum (p. 26)	¹	3
Freshman Science elective	²	4
General elective	^{3,4}	1

Semester Credit Hours 15

Second Year

Fall

MATH 221	Several Variable Calculus	4
MATH 300	Foundations of Mathematics	3
STAT 211	Principles of Statistics I	3
Select one of the following:		4
CSCE 110	Programming I	
CSCE 111	Introduction to Computer Science Concepts and Programming	
CSCE 206	Structured Programming in C	

Semester Credit Hours 14

Spring

CSCE 120	Program Design and Concepts	3
MATH 308	Differential Equations	3
MATH 323	Linear Algebra	3
STAT 212	Principles of Statistics II	3
University Core Curriculum (p. 26)	¹	3

Semester Credit Hours 15

Third Year

Fall

MATH 409	Analysis on the Real Line	3
MATH 470	Communications and Cryptography	3
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences	4
University Core Curriculum (p. 26)	¹	3
General Elective	⁴	1

Semester Credit Hours 14

Spring

MATH 415 or MATH 433	Modern Algebra I ⁵ or Applied Algebra	3

MATH 471	Communications and Cryptography II	3
Select one of the following:		4

OCNG 451	Mathematical Modeling of Ocean Climate	
PHYS 207 & PHYS 227	Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences	

University Core Curriculum (p. 26)	¹	3

General elective	⁴	3

Semester Credit Hours 16

Fourth Year

Fall

MATH 427 or MATH 431	Introduction to Number Theory or Structures and Methods of Combinatorics	3

MATH 472	Elliptic Curve Cryptography	3

Select 3 hours from the following:		3

CSCE 210-470 (p. 985)	⁶	

ISEN 320	Operations Research I	

ISEN 340	Operations Research II	

MATH 325	The Mathematics of Interest	

MATH 407-499 (p. 1135)		

STAT 335-482 (p. 1248)		

Select one of the following:		3

COMM 203	Public Speaking (Select one of the following:)	

COMM 205	Communication for Technical Professions	

COMM 243	Argumentation and Debate (Elective)	

General elective	⁴	3

Semester Credit Hours 15

Spring

MATH 411	Mathematical Probability	3

MATH 437	Principles of Numerical Analysis	4

Select 3 hours from the following:		3

CSCE 210-470 (p. 985)	⁶	

MATH 325	The Mathematics of Interest	

MATH 407-499 (p. 1135)		

Select 3 hours from the following:		3

CSCE 210-470 (p. 985)	⁶	

ISEN 320	Operations Research I	

ISEN 340	Operations Research II	

MATH 325	The Mathematics of Interest	

MATH 407-499 (p. 1135)		

STAT 335-482 (p. 1248)		

University Core Curriculum (p. 26)	¹	3

Semester Credit Hours 16

Total Semester Credit Hours 120

¹ Of the 18 hours shown as University Core Curriculum (p. 26), 3 must be from Language, Philosophy and Culture; 3 from Creative Arts; 6 from American History; and 6 from Government/Political Science.

² Select 4 hours from ASTR 111, BIOL 111, BIOL 112, CHEM 119, CHEM 120, CHEM 107/CHEM 117. The remaining 4 hours may be selected from ASTR 111, ATMO 201/ATMO 202, BIOL 111, BIOL 112,

CHEM 119, CHEM 120, CHEM 107/CHEM 117, GEOL 101/GEOL 102, OCNG 251/OCNG 252.

³ MATH 170 is highly recommended for math majors co-enrolled in MATH 150, MATH 151, MATH 152, MATH 171 or MATH 172. MATH 200 is also highly recommended for math majors co-enrolled in MATH 151, MATH 152, MATH 171 or MATH 172.

⁴ Select from any 100-499 course not used elsewhere (except ALED 125; ASCC 102; ASTR 109/PHYS 109, ASTR 119/PHYS 119; BMEN 153; KINE 199; LAND 101; MATH 102-148, MATH 151-168 (p. 1135), MATH 304, MATH 309, MATH 311, MATH 365, MATH 366, MATH 367, MATH 375, MATH 376; PBSI 301; PHYS 201, PHYS 202, PHYS 205; STAT 201, STAT 301-303 (p. 1248)).

⁵ MATH 433 is only offered in spring semesters.

⁶ Except CSCE 222/ECEN 222, CSCE 285, CSCE 289, CSCE 291, CSCE 402.

Maximum of 3 hours of MATH 300 or CSCE 222/ECEN 222 may be used in this degree program.

Maximum of 3 hours of MATH 411 or STAT 414 may be used in this degree program.

Maximum of 4 hours of MATH 417, MATH 437 or CSCE 442 may be used in this degree program.

If a grade of D or F is earned in any of the following courses, MATH 151/MATH 171, MATH 152/MATH 172, MATH 221/MATH 251/MATH 253, MATH 300, MATH 323 or MATH 308, this course must be immediately retaken and a grade of C or better earned. The department will allow at most two grades of D in upper-level (325-499) courses. If a third D is earned, one of the three courses in which a D was earned must be retaken and a grade of C or better earned.

Students desiring teacher certification should consult the requirements for certification before registering for electives.

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity course (p. 49)s and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a general elective can be used to satisfy this requirement. See academic advisor.

Applied Mathematics - BS, Economics Emphasis

The curriculum in the Bachelor of Science in Applied Mathematics with an Economics emphasis explores the application of analytical problem-solving tools to challenges in business and financial industries.

Students in the Economics emphasis investigate techniques in applied and pure mathematics and pursue electives in economics and finance that demonstrate how mathematics can be used to model economic and financial concerns.

A student completing this program is prepared to enter employment with analytical and quantitative tools relevant to modern financial markets. Coursework in the Economics emphasis prepares students to take actuarial exams necessary for employment in the actuarial industry. Furthermore, with the appropriate electives chosen, the student is prepared to enter quantitatively oriented graduate schools, including PhD programs in Applied Mathematics or Mathematics. A minor in business or economics is well suited to students in this program. All advising for

this degree option is done through the Undergraduate Program Office in the Department of Mathematics.

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 104 or ENGL 103	Composition and Rhetoric or Introduction to Rhetoric and Composition	3
MATH 171	Calculus I ¹	4
University Core Curriculum (p. 26) ³		3
Freshman Science elective ²		4
General elective ⁴		1
Semester Credit Hours		15

Spring

ECON 202	Principles of Economics	3
MATH 172	Calculus II ¹	4
University Core Curriculum (p. 26) ³		3
Freshman Science elective ²		4
General elective ⁴		1
Semester Credit Hours		15

Second Year

Fall

MATH 221	Several Variable Calculus	4
MATH 300	Foundations of Mathematics	3
STAT 211	Principles of Statistics I	3
Select one of the following:		4
CSCE 110	Programming I	
CSCE 111	Introduction to Computer Science Concepts and Programming	
CSCE 206	Structured Programming in C	
Semester Credit Hours		14

Spring

MATH 308	Differential Equations	3
MATH 323	Linear Algebra	3
ECON 323	Microeconomic Theory	3
STAT 212	Principles of Statistics II	3
Select one of the following:		3-4
CSCE 110	Programming I	
CSCE 111	Introduction to Computer Science Concepts and Programming	
CSCE 120	Program Design and Concepts	
CSCE 206	Structured Programming in C	
Semester Credit Hours		15

Third Year

Fall

MATH 325	The Mathematics of Interest	3
MATH 409	Analysis on the Real Line	3

PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences	4

University Core Curriculum (p. 26) ³	3

Semester Credit Hours	13

Spring

MATH 411 or STAT 414	Mathematical Probability or Mathematical Statistics I	3

MATH 425	The Mathematics of Contingent Claims	3

Select one of the following:	4

OCNG 451	Mathematical Modeling of Ocean Climate	

PHYS 207 & PHYS 227	Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences	

University Core Curriculum (p. 26) ³	3

General elective ⁴	3

Semester Credit Hours	16

Fourth Year**Fall**

MATH 407-499 (p. 1135)	3

ECON 459	Games and Economic Behavior (University Core Curriculum (p. 26)) ³	3

Select one of the following:	3

COMM 203	Public Speaking	

COMM 205	Communication for Technical Professions	

COMM 243	Argumentation and Debate	

University Core Curriculum (p. 26) ³	3

General elective ⁴	3-4

Semester Credit Hours	16

Spring

ISEN 320 or ISEN 340	Operations Research I or Operations Research II	3

MATH 407-499 (p. 1135)	3

ECMT 463	Introduction to Econometrics	3

MATH 437	Principles of Numerical Analysis	4

University Core Curriculum (p. 26) ³	3

Semester Credit Hours	16

Total Semester Credit Hours	120

¹ MATH 170 is highly recommended for math majors co-enrolled in MATH 150, MATH 151, MATH 152, MATH 171 or MATH 172. MATH 200 is also highly recommended for math majors co-enrolled in MATH 151, MATH 152, MATH 171 or MATH 172.

² Select 4 hours from ASTR 111, BIOL 111, BIOL 112, CHEM 119, CHEM 120, CHEM 107/CHEM 117. The remaining 4 hours may be selected from ASTR 111, ATMO 201/ATMO 202, BIOL 111, BIOL 112, CHEM 119, CHEM 120, CHEM 107/CHEM 117, GEOL 101/GEOL 102, OCNG 251/OCNG 252.

³ Of the 18 hours shown as University Core Curriculum (p. 26), 3 must be from Language, Philosophy and Culture; 3 from Creative Arts; 6 from American History; and 6 from Government/Political Science.

⁴ Select from any 100-499 course not used elsewhere (except ALED 125; ASCC 102; ASTR 109/PHYS 109, ASTR 119/PHYS 119; BMEN 153; KINE 199; LAND 101; MATH 102-148, MATH 151-168 (p. 1135),

MATH 304, MATH 309, MATH 311, MATH 365, MATH 366, MATH 367, MATH 375, MATH 376; PBSI 301; PHYS 201, PHYS 202, PHYS 205; STAT 201, STAT 301, STAT 302, STAT 303).

Maximum of 3 hours of MATH 300 or CSCE 222/ECEN 222 may be used in this degree program.

Maximum of 3 hours of MATH 411 or STAT 414 may be used in this degree program.

Maximum of 4 hours of MATH 417, MATH 437 or CSCE 442 may be used in this degree program.

If a grade of D or F is earned in any of the following courses, MATH 151/MATH 171, MATH 152/MATH 172, MATH 221/MATH 251/MATH 253, MATH 300, MATH 323 or MATH 308, this course must be immediately retaken and a grade of C or better earned. The department will allow at most two grades of D in upper-level (325-499) courses. If a third D is earned, one of the three courses in which a D was earned must be retaken and a grade of C or better earned.

Students desiring teacher certification should consult the requirements for certification before registering for electives.

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a general elective can be used to satisfy this requirement. See academic advisor.

Applied Mathematics - BS, Math Emphasis

The curriculum in the Bachelor of Science in Applied Mathematics with a Mathematics emphasis explores the application of analytical problem-solving tools to concrete problems in technology and business.

Students in the Mathematics emphasis investigate a broad array of techniques in applied and pure mathematics and pursue electives in related fields, such as computer science and statistics, that demonstrate how mathematics models challenges we face every day.

A student completing this program is prepared to enter employment with analytical and quantitative tools relevant to technological industries or modern financial markets. Furthermore, with the appropriate electives chosen, the student is prepared to enter quantitatively oriented graduate schools, including PhD programs in Applied Mathematics or Mathematics. All advising for this degree option is done through the Undergraduate Program Office in the Department of Mathematics.

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 104 or ENGL 103	Composition and Rhetoric or Introduction to Rhetoric and Composition	3
MATH 171	Calculus I	4
University Core Curriculum (p. 26) ²		3
Freshman Science elective ¹		4

General elective ^{3,4}	1
Semester Credit Hours	15
Spring	
MATH 172 Calculus II	4
University Core Curriculum (p. 26) ²	3
University Core Curriculum (p. 26) ²	3
Freshman Science elective ¹	4
General elective ^{3,4}	1
Semester Credit Hours	15
Second Year	
Fall	
MATH 221 Several Variable Calculus	4
MATH 300 Foundations of Mathematics	3
STAT 211 Principles of Statistics I	3
Select one of the following:	4
CSCE 110 Programming I	
CSCE 111 Introduction to Computer Science Concepts and Programming	
CSCE 206 Structured Programming in C	
Semester Credit Hours	14
Spring	
ECON 202 Principles of Economics	3
or ECON 203 or Principles of Economics	
MATH 308 Differential Equations	3
MATH 323 Linear Algebra	3
STAT 212 Principles of Statistics II	3
Select one of the following:	3-4
CSCE 110 Programming I	
CSCE 111 Introduction to Computer Science Concepts and Programming	
CSCE 120 Program Design and Concepts	
CSCE 206 Structured Programming in C	
Semester Credit Hours	15
Third Year	
Fall	
MATH 409 Analysis on the Real Line	3
PHYS 206 Newtonian Mechanics for Engineering and Science	4
& PHYS 226 and Physics of Motion Laboratory for the Sciences	
Select 3 hours from:	3
MATH 325 The Mathematics of Interest	
MATH 407-499 (p. 1135)	
Select 3 hours from:	3
CSCE 210-470 (p. 985) ⁵	
ISEN 320 Operations Research I	
ISEN 340 Operations Research II	
MATH 325 The Mathematics of Interest	
MATH 407-499 (p. 1135)	
STAT 335-482 (p. 1248)	
University Core Curriculum (p. 26) ²	3
Semester Credit Hours	16

Spring

MATH 410 Multivariate Real Analysis	3
or MATH 446 or Analysis on Metric Spaces	
MATH 415 Modern Algebra I	3
or MATH 433 or Applied Algebra	
Select one of the following:	4
OCNG 451 Mathematical Modeling of Ocean Climate	
PHYS 207 Electricity and Magnetism for Engineering and Science	
& PHYS 227 and Electricity and Magnetism Laboratory for the Sciences	
University Core Curriculum (p. 26) ²	3
Semester Credit Hours	13

Fourth Year**Fall**

Select two of the following:	6
MATH 412 Theory of Partial Differential Equations	
MATH 414 Fourier Series and Wavelets	
MATH 424/ Probability and Computing	
STAT 424	
MATH 442 Mathematical Modeling	
MATH 469 Introduction to Mathematical Biology	
MATH 470 Communications and Cryptography	
MATH 471 Communications and Cryptography II	
MATH 472 Elliptic Curve Cryptography	
MATH 478 Topological Data Analysis	
Select 3 hours from:	3
CSCE 210-470 (p. 985) ⁵	
ISEN 320 Operations Research I	
ISEN 340 Operations Research II	
MATH 325 The Mathematics of Interest	
MATH 407-499 (p. 1135)	
STAT 335-482 (p. 1248)	
Select one of the following:	3
COMM 203 Public Speaking	
COMM 205 Communication for Technical Professions	
COMM 243 Argumentation and Debate	
General Elective ⁴	4

Semester Credit Hours**16****Spring**

MATH 437 Principles of Numerical Analysis	4
Select 3 hours from the following:	3
MATH 325 The Mathematics of Interest	
MATH 407-499 (p. 1135)	
University Core Curriculum (p. 26) ²	3
General Elective ⁴	5-6
Semester Credit Hours	16
Total Semester Credit Hours	120

¹ Select 4 hours from ASTR 111, BIOL 111, BIOL 112, CHEM 119, CHEM 120, CHEM 107/CHEM 117. The remaining 4 hours may be selected from ASTR 111, ATMO 201/ATMO 202, BIOL 111, BIOL 112, CHEM 119, CHEM 120, CHEM 107/CHEM 117, GEOL 101/GEOL 102, OCNG 251/OCNG 252.

² Of the 18 hours shown as University Core Curriculum (p. 26), 3 must be from Language, Philosophy and Culture; 3 from Creative Arts; 6 from American History; and 6 from Government/Political Science.

³ MATH 170 is highly recommended for math majors co-enrolled in MATH 150, MATH 151, MATH 152, MATH 171 or MATH 172. MATH 200 is also highly recommended for math majors co-enrolled in MATH 151, MATH 152, MATH 171 or MATH 172.

⁴ Select from any 100-499 course not used elsewhere (except ALED 125; ASCC 102; ASTR 109/PHYS 109, ASTR 119/PHYS 119; BMEN 153; KINE 199; LAND 101; MATH 102-148, MATH 151-168 (p. 1135), MATH 304, MATH 309, MATH 311, MATH 365, MATH 366, MATH 367, MATH 375, MATH 376; PBSI 301; PHYS 201, PHYS 202, PHYS 205; STAT 201, STAT 301-303 (p. 1248)).

⁵ Except CSCE 222/ECEN 222, CSCE 285, CSCE 289, CSCE 291, CSCE 402.

Maximum of 3 hours of MATH 300 or CSCE 222/ECEN 222 may be used in this degree program.

Maximum of 3 hours of MATH 411 or STAT 414 may be used in this degree program.

Maximum of 4 hours of MATH 417, MATH 437 or CSCE 442 may be used in this degree program.

If a grade of D or F is earned in any of the following courses, MATH 151/MATH 171, MATH 152/MATH 172, MATH 221/MATH 251/MATH 253, MATH 300, MATH 323 or MATH 308, this course must be immediately retaken and a grade of C or better earned. The department will allow at most two D's in upper-level (325-499) courses. If a third D is earned, one of the three courses in which a D was earned must be retaken and a grade of C or better earned.

Students desiring teacher certification should consult the requirements for certification before registering for electives.

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity course (p. 49)s and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a general elective can be used to satisfy this requirement. See academic advisor.

Applied Mathematics - BS, Statistics Emphasis

The curriculum in the Bachelor of Science in Applied Mathematics with a Statistics emphasis explores the application of analytical problem-solving tools to concrete problems in the statistical analysis of data.

Students in the Statistics emphasis investigate a broad array of techniques in applied and pure mathematics and pursue electives in statistics that demonstrate how mathematics is central to acquiring information from the analysis of data sets.

A student completing this program is prepared to enter employment with analytical and quantitative tools relevant to technological industries or government. Furthermore, with the appropriate electives chosen, the student is prepared to enter quantitatively oriented graduate schools, including PhD programs in Applied Mathematics or Mathematics. A minor in computer science or statistics is well suited to students in this program. All advising for this degree option is done through the Undergraduate Program Office in the Department of Mathematics.

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 104 or ENGL 103	Composition and Rhetoric or Introduction to Rhetoric and Composition	3
MATH 171	Calculus I	4
University Core Curriculum (p. 26) ²		3
Freshman Science elective ¹		4
General elective ^{3,4}		1

Semester Credit Hours 15

Spring

ECON 202 or ECON 203	Principles of Economics or Principles of Economics	3
MATH 172	Calculus II	4
University Core Curriculum (p. 26) ²		3
Freshman Science elective ¹		4
General elective ^{3,4}		1

Semester Credit Hours 15

Second Year

Fall

MATH 221	Several Variable Calculus	4
MATH 300	Foundations of Mathematics	3
STAT 211	Principles of Statistics I	3
Select one of the following:		4
CSCE 110	Programming I	
CSCE 111	Introduction to Computer Science Concepts and Programming	
CSCE 206	Structured Programming in C	

Semester Credit Hours 14

Spring

MATH 308	Differential Equations	3
MATH 323	Linear Algebra	3
STAT 212	Principles of Statistics II	3
Select one of the following:		3-4
CSCE 110	Programming I	
CSCE 111	Introduction to Computer Science Concepts and Programming	
CSCE 120	Program Design and Concepts	
CSCE 206	Structured Programming in C	
University Core Curriculum (p. 26) ²		3

Semester Credit Hours 15

Third Year

Fall

MATH 409	Analysis on the Real Line	3
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences	4
STAT 404	Statistical Computing	3
University Core Curriculum (p. 26) ²		3

General Elective ⁴	3
Semester Credit Hours	16
Spring	
MATH 437 Principles of Numerical Analysis	4
STAT 408 Introduction to Linear Models	3
Select one of the following:	4
OCNG 451 Mathematical Modeling of Ocean Climate	
PHYS 207 Electricity and Magnetism for Engineering and Science	
& PHYS 227 and Electricity and Magnetism Laboratory for the Sciences	
University Core Curriculum (p. 26) ²	3
Semester Credit Hours	14
Fourth Year	
Fall	
ISEN 320 Operations Research I	3
or ISEN 340 or Operations Research II	
MATH 411 Mathematical Probability	3
or STAT 414 or Mathematical Statistics I	
Select 6 hours from the following:	6
MATH 325 The Mathematics of Interest	
MATH 407-499 (p. 1135)	
STAT 415 Mathematical Statistics II	
University Core Curriculum (p. 26) ²	3
Semester Credit Hours	15
Spring	
Select 6 hours from the following:	6
CSCE 210 -470 (p. 985) ⁵	
ISEN 320 Operations Research I	
ISEN 340 Operations Research II	
MATH 325 The Mathematics of Interest	
MATH 407-499 (p. 1135)	
STAT 335-482 (p. 1248)	
STAT 485 Directed Studies	
STAT 489 Special Topics in...	
Select one of the following:	3
COMM 203 Public Speaking	
COMM 205 Communication for Technical Professions	
COMM 243 Argumentation and Debate	
General elective ³	6-7
Semester Credit Hours	16
Total Semester Credit Hours	120

⁴ Select from any 100-499 course not used elsewhere (except ALED 125; ASCC 102; ASTR 109/PHYS 109, ASTR 119/PHYS 119; BMEN 153; KINE 199; LAND 101; MATH 102-148, 151-168, (p. 1135) MATH 304, MATH 309, MATH 311, MATH 365, MATH 366, MATH 367, MATH 375, MATH 376; PBSI 301; PHYS 201, PHYS 202, PHYS 205; STAT 201, STAT 301, STAT 302, STAT 303).

⁵ Except CSCE 222/ECEN 222, CSCE 285, CSCE 289, CSCE 291, CSCE 402.

Maximum of 3 hours of MATH 300 or CSCE 222/ECEN 222 may be used in this degree program.

Maximum of 3 hours of MATH 411 or STAT 414 may be used in this degree program.

Maximum of 4 hours of MATH 417, MATH 437 or CSCE 442 may be used in this degree program.

If a grade of D or F is earned in any of the following courses, MATH 151/MATH 171, MATH 152/MATH 172, MATH 221/MATH 251/MATH 253, MATH 300, MATH 323 or MATH 308, this course must be immediately retaken and a grade of C or better earned. The department will allow at most two grades of D in upper-level (325-499) courses. If a third D is earned, one of the three courses in which a D was earned must be retaken and a grade of C or better earned.

Students desiring teacher certification should consult the requirements for certification before registering for electives.

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity course (p. 49)s and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a general elective can be used to satisfy this requirement. See academic advisor.

Applied Mathematics - 5-Year Bachelor of Science and Master of Science in Economics

This combination 5-year program is uniquely designed to open doors for high-achieving undergraduate students to simultaneously pursue a Bachelor of Science in Applied Mathematics, Economics emphasis, and a Master of Science in Economics non-thesis option.

This innovative program equips students with a powerful blend of economic expertise and mathematical prowess, enabling them to cultivate a profound understanding of analytical theory and the technical skills essential for logical reasoning in economic modeling and financial analysis.

Upon completion of this program, students emerge as well-prepared professionals poised for immediate entry into careers spanning government, industry, and business. Students are equipped to work as consultants in domains such as finance, business strategy, international trade, and investment, showcasing their ability to navigate complex economic landscapes. Moreover, this program lays a robust foundation for those aspiring to pursue PhD programs in economics, finance, or related fields, placing a strong emphasis on quantitative analyses as they embark on their academic journeys.

¹ Select 4 hours from ASTR 111, BIOL 111, BIOL 112, CHEM 119, CHEM 120, CHEM 107/CHEM 117. The remaining 4 hours may be selected from ASTR 111, ATMO 201/ATMO 202, BIOL 111, BIOL 112, CHEM 119, CHEM 120, CHEM 107/CHEM 117, GEOL 101/GEOL 102, OCNG 251/OCNG 252.

² Of the 18 hours shown as University Core Curriculum (p. 26), 3 must be from Language, Philosophy and Culture; 3 from Creative Arts; 6 from American History; and 6 from Government/Political Science.

³ MATH 170 is highly recommended for math majors co-enrolled in MATH 150, MATH 151, MATH 152, MATH 171 or MATH 172. MATH 200 is also highly recommended for math majors co-enrolled in MATH 151, MATH 152, MATH 171 or MATH 172.

Program Requirements

First Year

Fall

ENGL 104 or ENGL 103	Composition and Rhetoric or Introduction to Rhetoric and Composition	3
MATH 171	Calculus I ¹	4
University Core Curriculum (p. 26) ²		3
Freshman Science elective ³		4
General elective ⁴		1

Semester Credit Hours 15

Spring

ECON 202	Principles of Economics	3
MATH 172	Calculus II ¹	4
University Core Curriculum (p. 26) ²		3
Freshman Science elective ³		4
General elective ⁴		1

Semester Credit Hours 15

Second Year

Fall

MATH 221	Several Variable Calculus	4
MATH 300	Foundations of Mathematics	3
STAT 211	Principles of Statistics I	3
Select one of the following:		4
CSCE 110	Programming I	
CSCE 111	Introduction to Computer Science Concepts and Programming	
CSCE 206	Structured Programming in C	

Semester Credit Hours 14

Spring

MATH 308	Differential Equations	3
MATH 323	Linear Algebra	3
ECON 323	Microeconomic Theory	3
STAT 212	Principles of Statistics II	3
Select one of the following:		3-4
CSCE 110	Programming I	
CSCE 111	Introduction to Computer Science Concepts and Programming	
CSCE 120	Program Design and Concepts	
CSCE 206	Structured Programming in C	

Semester Credit Hours 15

Third Year

Fall

MATH 325	The Mathematics of Interest	3
MATH 409	Analysis on the Real Line	3
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences	4
University Core Curriculum (p. 26) ²		3

Semester Credit Hours 13

Spring

ECON 203	Principles of Economics	3
MATH 411 or STAT 414	Mathematical Probability or Mathematical Statistics I	3
MATH 425	The Mathematics of Contingent Claims	3
Select one of the following:		4
OCNG 451	Mathematical Modeling of Ocean Climate	
PHYS 207 & PHYS 227	Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences	
University Core Curriculum (p. 26) ²		3

Semester Credit Hours 16

Fourth Year

Fall

ECON 607 or ECMT 673	Foundations of Microeconomic Theory ⁵ or Economic Analytics	3
MATH 407-499 (p. 1135)		3
MATH 437	Principles of Numerical Analysis	4
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
University Core Curriculum (p. 26) ²		3

Semester Credit Hours 16

Spring

ECMT 463	Introduction to Econometrics	3
MATH 407-499 (p. 1135)		3
ECON 611 or ECMT 674	Foundations of Macroeconomic Theory ⁵ or Economic Forecasting	3
University Core Curriculum (p. 26) ²		3
General elective ⁴		3-4

Semester Credit Hours 16

Fifth Year

Fall

ECON 607 or ECMT 673	Foundations of Microeconomic Theory or Economic Analytics	3
ECON 675	Capstone for Financial Economics/ Financial Econometrics	3
ECON/ECMT electives ⁶		6

Semester Credit Hours 12

Spring

ECON 611 or ECMT 674	Foundations of Macroeconomic Theory or Economic Forecasting	3
ECON/ECMT electives ⁶		9

Semester Credit Hours 12

Summer

ECON 684	Professional Internship ⁷	6

Semester Credit Hours 6

Total Semester Credit Hours 150

¹ MATH 170 is highly recommended for math majors co-enrolled in MATH 150, MATH 151, MATH 152, MATH 171 or MATH 172. MATH 200

- is also highly recommended for math majors co-enrolled in MATH 151, MATH 152, MATH 171 or MATH 172.
- ² Of the 18 hours shown as University Core Curriculum (p. 26), 3 must be from language, philosophy and culture, 3 from creative arts, 6 from American history, and 6 from Government/Political Science.
- ³ Select 4 hours from ASTR 111, BIOL 111, BIOL 112, CHEM 119, CHEM 120, CHEM 107/CHEM 117. The remaining 4 hours may be selected from ASTR 111, ATMO 201/ATMO 202, BIOL 111, BIOL 112, CHEM 119, CHEM 120, CHEM 107/CHEM 117, GEOL 101/GEOL 102, OCNG 251/OCNG 252.
- ⁴ Select from any 100-499 course not used elsewhere (except ALED 125; ASCC 102; ASTR 109/PHYS 109, ASTR 119/PHYS 119; BMEN 153; KINE 199; LAND 101; MATH 102-148, MATH 151-168 (p. 1135), MATH 304, MATH 309, MATH 311, MATH 365, MATH 366, MATH 367, MATH 375, MATH 376; PBSI 301; PHYS 201, PHYS 202, PHYS 205; STAT 201, STAT 301, STAT 302, STAT 303).
- ⁵ These hours will be applied towards the BS Applied Mathematics and MS Economics degrees.
- ⁶ Economics graduate advisor will assist with the graduate course electives.
- ⁷ Students may participate in an ECON 684 or enroll for two courses during the summer immediately following completion of their final Spring semester Bachelor course requirements.

Maximum of 3 hours of MATH 300 or CSCE 222/ECEN 222 may be used in this degree program.

Maximum of 3 hours of MATH 411 or STAT 414 may be used in this degree program.

Maximum of 4 hours of MATH 417, MATH 437 or CSCE 442 may be used in this degree program.

If a grade of D or F is earned in any of the following courses, MATH 151/MATH 171, MATH 152/MATH 172, MATH 221/MATH 251/MATH 253, MATH 300, MATH 323 or MATH 308, this course must be immediately retaken and a grade of C or better earned. The department will allow at most two D's in upper-level (325-499) courses. If a third D is earned, one of the three courses in which a D was earned must be retaken and a grade of C or better earned.

Students desiring teacher certification should consult the requirements for certification before registering for electives.

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity course (p. 49)s and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a general elective can be used to satisfy this requirement. See academic advisor.

This program includes a total of 156 hours, which up to 6 hours may be applied toward both the Bachelor of Science in Applied Mathematics and the Master of Science in Economics (Non-Thesis Option).

Applied Mathematics - 5-Year Bachelor of Science and Master of Science in Mathematics

The curriculum in the Bachelor of Science in Applied Mathematics 5-year program explores the application of analytical problem solving tools to concrete problems in technology and business.

The combined program enables ambitious and academically talented mathematics majors at Texas A&M University to earn both a bachelor's degree and a master's degree within a period of five years after entering Texas A&M. Students in this program investigate a broad array of techniques in applied and pure mathematics and pursue electives in related fields, such as computer science and statistics, that demonstrate how mathematics models challenges we face every day.

Among the various advantages of the combined program, upon its completion a student will be in an exceptionally strong position to enter:

- The professional industrial job marketplace;
- A career in secondary education;
- A doctoral program in mathematics, or in a related discipline, at Texas A&M or another university.

The related disciplines include computer science, engineering, physics, statistics, genetics, economics, business administration, education, and biology.

Eligibility for entering a doctoral program in one of these disciplines would depend in part on the undergraduate and graduate external options and areas of emphasis that were reflected in a student's individual degree plan.

Program Requirements

First Year		Semester
Fall		Credit Hours
ENGL 104 or ENGL 103	Composition and Rhetoric or Introduction to Rhetoric and Composition	3
MATH 171	Calculus I	4
Select one of the following:		4
CSCE 110	Programming I	
CSCE 111	Introduction to Computer Science Concepts and Programming	
CSCE 206	Structured Programming in C	
Freshman Science elective ¹		4
General elective ^{2,3}		1
Semester Credit Hours		16
Spring		
MATH 172	Calculus II	4
Select one of the following:		3-4
CSCE 110	Programming I	
CSCE 111	Introduction to Computer Science Concepts and Programming	
CSCE 120	Program Design and Concepts	
CSCE 206	Structured Programming in C	
University Core Curriculum (p. 26) ⁴		3
Freshman Science elective ¹		4
General elective ^{2,3}		1
Semester Credit Hours		15

Second Year**Fall**

ECON 202 or ECON 203	Principles of Economics or Principles of Economics	3
MATH 221	Several Variable Calculus	4
MATH 300	Foundations of Mathematics	3
STAT 211	Principles of Statistics I	3
University Core Curriculum (p. 26) ⁴		3
Semester Credit Hours		16

Spring

MATH 308	Differential Equations	3
MATH 323	Linear Algebra	3
STAT 212	Principles of Statistics II	3
University Core Curriculum (p. 26) ⁴		3
University Core Curriculum (p. 26) ⁴		3
Semester Credit Hours		15

Third Year**Fall**

MATH 409	Analysis on the Real Line	3
MATH 410 or MATH 446	Multivariate Real Analysis or Analysis on Metric Spaces	3
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences	4
University Core Curriculum (p. 26) ⁴		3
University Core Curriculum (p. 26) ⁴		3
Semester Credit Hours		16

Spring

MATH 415 or MATH 433	Modern Algebra I or Applied Algebra	3
MATH 437	Principles of Numerical Analysis	4
Select one of the following:		4
OCNG 451	Mathematical Modeling of Ocean Climate	
PHYS 207 & PHYS 227	Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences	
General elective ³		4
Semester Credit Hours		15

Fourth Year**Fall**

Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
Select one of the following:		3
MATH 412	Theory of Partial Differential Equations	
MATH 414	Fourier Series and Wavelets	
MATH 442	Mathematical Modeling	
MATH 469	Introduction to Mathematical Biology	
MATH 470	Communications and Cryptography	
MATH 471	Communications and Cryptography II	

MATH 472	Elliptic Curve Cryptography	
Select 6 hours from the following:		6
CSCE 210-470 (p. 985) ⁵		
ISEN 320 or ISEN 340	Operations Research I or Operations Research II	
MATH 325	The Mathematics of Interest	
MATH 407-499 (p. 1135)		
STAT 335-482 (p. 1248)		
Semester Credit Hours		12

Spring

Select 3 hours from the following:		3
MATH 325	The Mathematics of Interest	
MATH 407-499 (p. 1135)		
Select 6 hours from the following: ⁶		6
MATH 603-628 (p. 1135)		
MATH 630-639 (p. 1135)		
MATH 641-644 (p. 1135)		
MATH 647-684 (p. 1135)		
General elective ³		5-6
Semester Credit Hours		15
Total Semester Credit Hours		120

Fifth Year

Fall	Semester Credit Hours
Graduate Degree ⁷	32-36
Semester Credit Hours	32-36
Total Semester Credit Hours	32-36

¹ Select 4 hours from ASTR 111, BIOL 111, BIOL 112, CHEM 119, CHEM 120, CHEM 107/CHEM 117. The remaining 4 hours may be selected from ASTR 111, ATMO 201/ATMO 202, BIOL 111, BIOL 112, CHEM 119, CHEM 120, CHEM 107/CHEM 117, GEOL 101/GEOL 102, OCNG 251/OCNG 252.

² MATH 170 is highly recommended for math majors co-enrolled in MATH 150, MATH 151, MATH 152, MATH 171 or MATH 172. MATH 200 is also highly recommended for math majors co-enrolled in MATH 151, MATH 152, MATH 171 or MATH 172.

³ Select from any 100-499 course not used elsewhere (except ALED 125; ASCC 102; ASTR 109/PHYS 109, ASTR 119/PHYS 119; BMEN 153; KINE 199; LAND 101; MATH 102-148, MATH 151-168 (p. 1135), MATH 304, MATH 309, MATH 311, MATH 365, MATH 366, MATH 367, MATH 375, MATH 376; PBSI 301; PHYS 109/ASTR 109, PHYS 119/ASTR 119, PHYS 201, PHYS 202, PHYS 205; STAT 201, STAT 301 - 303 (p. 1248)).

⁴ Of the 18 hours shown as University Core Curriculum (p. 26), 3 must be from language, philosophy and culture, 3 from creative arts, 6 from American history, and 6 from Government/Political Science.

⁵ Except CSCE 222/ECEN 222, CSCE 285, CSCE 289, CSCE 291, CSCE 402.

⁶ For students in the MS Non-Thesis Track, these 6 hours will be used towards both the BS and MS degrees in Mathematics. For students in the MS Thesis Track, 2 of these hours will be used towards both the BS and MS degrees in Mathematics, and the remaining 4 hours will be selected from MATH 407-499 (p. 1135).

⁷ 36 hours for a non-thesis option or 32 hours for a thesis option (up to six of which are MATH 691). Up to six hours of graduate courses may double count for the Non-Thesis Track and up to two hours of graduate courses may double count for the Thesis Track. Except for the MS teaching track, all courses used on the degree plan must be taken face-to-face. For the MS teaching track, students must take four distance courses (MATH 629, MATH 645, MATH 646 and MATH 696), and the remaining courses used on the degree plan must be taken face-to-face. MATH 601 is prohibited for all graduate degree plans, and MATH 696 is not allowed for the non-teaching MS tracks. All MS tracks require at least 24 credit hours of mathematics of which at most six may be undergraduate. Depending on the MS track, courses outside of mathematics may be required or optional. For additional information, reference the department website and select the track of interest.

Maximum of 3 hours of MATH 300 or CSCE 222/ECEN 222 may be used in this degree program.

Maximum of 3 hours of MATH 411 or STAT 414 may be used in this degree program.

Maximum of 4 hours of MATH 417, MATH 437 or CSCE 442 may be used in this degree program.

If a grade of D or F is earned in any of the following courses, MATH 151 / MATH 171, MATH 152 / MATH 172, MATH 221 / MATH 251 / MATH 253, MATH 300, MATH 323 or MATH 308, this course must be immediately retaken and a grade of C or better earned. The department will allow at most two D's in upper-level (325-499) courses. If a third D is earned, one of the three courses in which a D was earned must be retaken and a grade of C or better earned.

Students desiring teacher certification should consult the requirements for certification before registering for electives.

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity course (p. 49)s and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a general elective can be used to satisfy this requirement. See academic advisor.

The program includes a total of 152 hours (Thesis Track) or 156 hours (Non-Thesis Track). The Thesis track allows up to 2 hours of graduate coursework to be applied toward both the Bachelor of Science in Applied Mathematics and the Master of Science in Mathematics face-to-face program. The Non-Thesis track allows up to 6 hours of graduate coursework to be applied toward both the Bachelor of Science in Mathematics and the Master of Science in Mathematics face-to-face program.

Mathematics - BA

The curriculum in the Bachelor of Arts in Mathematics affords students to undertake a traditional liberal arts education in mathematics.

Students in this program investigate a broad array of techniques in mathematics and pursue electives in related fields that demonstrate how mathematics is fundamental to the world at large. The degree is well suited for students interested in pursuing mathematics and some other area, and a minor field of study is required for this degree.

A student completing this program is prepared to enter the professional work force, or with appropriately chosen electives, to pursue professional degrees in various fields, including education, law, and medicine.

Students in this degree can also pursue teaching certification programs. All advising for this degree option is done through the Undergraduate Program Office in the Department of Mathematics.

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 104 or ENGL 103	Composition and Rhetoric or Introduction to Rhetoric and Composition	3
MATH 171	Calculus I	4
University Core Curriculum (p. 26) ¹		3
Freshman Science elective ²		4
General elective ^{3,4}		1
Semester Credit Hours		15

Spring

MATH 172	Calculus II	4
Select one of the following:		4
CSCE 110	Programming I	
CSCE 111	Introduction to Computer Science Concepts and Programming	
CSCE 206	Structured Programming in C	
University Core Curriculum (p. 26) ¹		3
Freshman Science elective ²		4
General elective ^{3,4}		1
Semester Credit Hours		16

Second Year

Fall

MATH 221	Several Variable Calculus	4
MATH 300	Foundations of Mathematics	3
STAT 211	Principles of Statistics I	3
University Core Curriculum (p. 26) ¹		3
University Core Curriculum (p. 26) ¹		3
Semester Credit Hours		16

Spring

MATH 308	Differential Equations	3
MATH 323	Linear Algebra	3
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
University Core Curriculum (p. 26) ¹		3
Minor elective ⁵		3
Semester Credit Hours		15

Third Year

Fall

MATH 409	Analysis on the Real Line	3
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences	4

Minor elective ⁵	3
General elective ⁴	3
Semester Credit Hours	13
Spring	
Select one of the following:	3
MATH 415 Modern Algebra I	
MATH 423 Linear Algebra II	
MATH 433 Applied Algebra	
MATH elective ^{6, 7}	3
Minor electives ⁵	6
General elective ⁴	3
Semester Credit Hours	15
Fourth Year	
Fall	
University Core Curriculum (p. 26)	3
MATH elective ^{6, 7}	6
Minor elective ⁵	3
General elective ⁴	3
Semester Credit Hours	15
Spring	
University Core Curriculum (p. 26) ¹	3
MATH elective ^{6, 7}	3
Minor elective ⁵	3
General electives ⁴	6
Semester Credit Hours	15
Total Semester Credit Hours	120

¹ Of the 21 hours shown as University Core Curriculum (p. 26), 3 must be from language, philosophy and culture, 3 from creative arts, 3 from social and behavioral sciences, 6 from American history, 6 from Government/Political Science.

² Select 4 hours from: ASTR 111, BIOL 111, BIOL 112, CHEM 119, CHEM 120, CHEM 107/CHEM 117, PHYS 207/PHYS 227. The remaining 4 hours may be selected from: ASTR 111, ATMO 201/ATMO 202, BIOL 111, BIOL 112, CHEM 119, CHEM 120, CHEM 107/CHEM 117, GEOL 101/GEOL 102, OCNG 251/OCNG 252, PHYS 207/PHYS 227.

³ MATH 170 is highly recommended for math majors co-enrolled in MATH 150, MATH 151, MATH 152, MATH 171 or MATH 172.

⁴ Select from any 100-499 course not used elsewhere, (except ALED 125; ASCC 102; ASTR 109/PHYS 109, ASTR 119/PHYS 119; BMEN 153; KINE 199; LAND 101; MATH 102 - 148, MATH 151 - 168 (p. 1135), MATH 304, MATH 309, MATH 311, MATH 365, MATH 366, MATH 367, MATH 375, MATH 376; PBSI 301, PHYS 109/ASTR 109, PHYS 119/ASTR 119, PHYS 201, PHYS 202, PHYS 205; STAT 201, STAT 301, STAT 302, STAT 303;).

⁵ A 15-18-hour minor field of study should be selected in conference with a departmental advisor.

⁶ Three hours can be from any 400-level MATH (excluding MATH 401), STAT 335 - STAT 482 (p. 1248), CSCE 210 - CSCE 470 (p. 985) (excluding CSCE 222/ECEN 222, CSCE 285, CSCE 289, CSCE 291), or ISEN 320 - ISEN 430, (p. 1095) excluding any 485 course in any department without permission of a departmental advisor. Students seeking secondary certification must take MATH 403, MATH 467, and either MATH 415 or MATH 433. Students who plan to attend graduate school are encouraged to take MATH 416, MATH 447.

⁷ Nine hours of math elective courses are to be from any 400-level MATH, excluding MATH 401.

Maximum of 3 hours of MATH 300 or CSCE 222/ECEN 222 may be used in this degree program.

Maximum of 3 hours of MATH 411 or STAT 414 may be used in this degree program.

Maximum of 4 hours of MATH 417, MATH 437, or CSCE 442 may be used in this degree program.

If a grade of D or F is earned in any of the following courses, MATH 151/MATH 171, MATH 152/MATH 172, MATH 221/MATH 251/MATH 253, MATH 300, MATH 323 or MATH 308, this course must be immediately retaken and a grade of C or better earned. The department will allow at most two Ds in upper-level (325-499) courses. If a third D is earned, one of the three courses in which a D was earned must be retaken and a grade of C or better earned.

Students desiring teacher certification should consult the requirements for certification before registering for electives.

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49)y (<https://catalog.tamu.edu/undergraduate/general-information/degree-information/international-cultural-diversity-requirements/>) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a general elective can be used to satisfy this requirement. See academic advisor.

Mathematics - BA, Teaching Emphasis

The curriculum in the Bachelor of Arts in Mathematics, Mathematics Teaching Emphasis affords students to undertake a traditional liberal arts education in mathematics while pursuing requirements for teaching certification.

Students in this program investigate a broad array of techniques in mathematics and pursue electives in related fields that demonstrate how mathematics is fundamental to the world at large.

The main goal for the Mathematics Teaching Emphasis is to prepare students to each at the high school level, and the degree include coursework towards teaching certification as well as a semester of clinical teaching. Students are expected to participate in the AggieTEACH program and enroll in the Secondary Education (SEED) Minor. A student will typically seek admission to the AggieTEACH program after completing their first year.

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 104	Composition and Rhetoric	3
or ENGL 103	or Introduction to Rhetoric and Composition	
MATH 171	Calculus I	4
University Core Curriculum (p. 26) ¹		3

Freshman Science elective ²	4
General elective ^{3,4}	1

Semester Credit Hours 15

Spring

ARSC 201	Self-Directed Experiences with Adolescents	1
MATH 172	Calculus II	4
University Core Curriculum (p. 26) ¹		3
University Core Curriculum (p. 26) ¹		3
Freshman Science elective ²		4
General elective ^{3,4}		1

Semester Credit Hours 16

Second Year

Fall

MATH 221	Several Variable Calculus	4
MATH 300	Foundations of Mathematics	3
STAT 211	Principles of Statistics I	3
Select one of the following:		4
CSCE 110	Programming I	
CSCE 111	Introduction to Computer Science Concepts and Programming	
CSCE 206	Structured Programming in C	
General elective ^{3,4}		2

Semester Credit Hours 16

Spring

INST 222	Foundations of Education in a Multicultural Society	3
MATH 308	Differential Equations	3
MATH 323	Linear Algebra	3
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
University Core Curriculum (p. 26) ¹		3

Semester Credit Hours 15

Third Year

Fall

MATH 409	Analysis on the Real Line	3
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences	4
TEFB 322	Teaching and Schooling in Modern Society	3
University Core Curriculum (p. 26) ¹		3
Math elective ^{5,6}		3

Semester Credit Hours 16

Spring

MATH 415 or MATH 433	Modern Algebra I or Applied Algebra	3
MATH 467	Modern Geometry	3
RDNG 372 or RDNG 465	Reading and Writing across the Middle Grades Curriculum or Reading in the Middle and Secondary Grades	3

TEFB 324	Teaching Skills II	3
General elective ⁴		3

Semester Credit Hours 15

Fourth Year

Fall

INST 210	Understanding Special Populations	3
MATH 403	Mathematics and Technology	3
TEFB 407	Mathematics in the Middle and Senior School	3
University Core Curriculum (p. 26) ¹		3
MATH elective ^{5,6}		3

Semester Credit Hours 15

Spring

TEED 425	Supervised Clinical Teaching	12

Semester Credit Hours 12

Total Semester Credit Hours 120

¹ Of the 18 hours shown as University Core Curriculum (p. 26), 3 must be from language, philosophy and culture, 3 from creative arts, 6 from American history, 6 from Government/Political Science.

² Select 4 hours from ASTR 111, BIOL 111, BIOL 112, CHEM 119, CHEM 120, CHEM 107/CHEM 117, PHYS 207/PHYS 227.

The remaining 4 hours may be selected from ASTR 111, ATMO 201/ATMO 202, BIOL 111, BIOL 112, CHEM 119, CHEM 120, CHEM 107/CHEM 117, GEOL 101/GEOL 102, OCNG 251/OCNG 252, PHYS 207/PHYS 227.

³ MATH 170 is highly recommended for math majors co-enrolled in MATH 150, MATH 171, or MATH 172. MATH 170 may be taken twice for credit.

⁴ Select from any 100-499 course not used elsewhere, (except ALED 125; ASCC 102; ASTR 109/PHYS 109, ASTR 119/PHYS 119; BMEN 153; KINE 199; LAND 101; MATH 102 - 148 (p. 1135), MATH 151 - 168 (p. 1135), MATH 304, MATH 309, MATH 311, MATH 365, MATH 366, MATH 367, MATH 375, MATH 376; PBSI 301, PHYS 109/ASTR 109, PHYS 119/ASTR 119, PHYS 201, PHYS 202, PHYS 205; STAT 201, STAT 301, STAT 302, STAT 303).

⁵ Three hours of math elective courses are to be from MATH 325, MATH 407-499 (p. 1135). Students who plan to attend graduate school in mathematics are encouraged to take MATH 416 and MATH 446.

⁶ Three hours of math elective courses chosen from MATH 325, MATH 407-499 (p. 1135), CSCE 210-470 (p. 985) (except CSCE 222/ECEN 222, CSCE 285, CSCE 289, CSCE 291, CSCE 402); or ISEN 320-430 (p. 1095). Students who plan to attend graduate school in mathematics are encouraged to take MATH 416 and MATH 446.

Maximum of 3 hours of MATH 300 or CSCE 222/ECEN 222 may be used in this degree program.

Maximum of 3 hours of MATH 411 or STAT 414 may be used in this degree program.

Maximum of 4 hours of MATH 417, MATH 437, or CSCE 442 may be used in this degree program.

If a grade of D or F is earned in any of the following courses, MATH 151/MATH 171, MATH 152/MATH 172, MATH 221/MATH 251/MATH 252, this course must be immediately retaken and a grade of C or better earned. The department will allow at most two Ds in upper-level (MATH 325-499 (p. 1135)) courses. If a third D is earned, one of the three

courses in which a D was earned must be retaken and a grade of C or better earned.

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) (<https://catalog.tamu.edu/undergraduate/general-information/degree-information/international-cultural-diversity-requirements/>) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a general elective can be used to satisfy this requirement. See academic advisor.

This degree requires that a student be admitted into the AggieTEACH program and complete the Secondary Education (SEED) minor. Courses for the SEED minor have already been incorporated in the planned coursework above.

Mathematics - 5-Year Bachelor of Arts and Master of Science in Mathematics

The curriculum in the Bachelor of Arts in Mathematics 5-year combined program affords students to undertake a traditional liberal arts education in mathematics.

The combined degree program enables ambitious and academically talented mathematics majors at Texas A&M University to earn both a bachelor's degree and a master's degree within a period of five years after entering Texas A&M. Students in this program investigate a broad array of techniques in mathematics and pursue electives in related fields that demonstrate how mathematics is fundamental to the world at large. The degree is well suited for students interested in pursuing mathematics and some other area, and a minor field of study is required for this degree.

Among the various advantages of the program, upon its completion a student will be in an exceptionally strong position to enter:

- The professional industrial job marketplace;
- A career in secondary education;
- A doctoral program in mathematics, or in a related discipline, at Texas A&M or another university.

The related disciplines include computer science, engineering, physics, statistics, genetics, economics, business administration, education, and biology.

Eligibility for entering a doctoral program in one of these disciplines would depend in part on the undergraduate and graduate external options and areas of emphasis that were reflected in a student's individual degree plan.

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 104 or ENGL 103	Composition and Rhetoric or Introduction to Rhetoric and Composition	3
MATH 171	Calculus I	4
University Core Curriculum (p. 26) ¹		3

Freshman Science elective ²		4
General elective ^{3,4}		1
Semester Credit Hours		15
Spring		
MATH 172	Calculus II	4
Select one of the following:		4
CSCE 110	Programming I	
CSCE 111	Introduction to Computer Science Concepts and Programming	
CSCE 206	Structured Programming in C	
University Core Curriculum (p. 26) ¹		3
Freshman Science elective ²		4
General elective ^{3,4}		1
Semester Credit Hours		16
Second Year		
Fall		
MATH 221	Several Variable Calculus	4
MATH 300	Foundations of Mathematics	3
STAT 211	Principles of Statistics I	3
University Core Curriculum (p. 26) ¹		3
University Core Curriculum (p. 26) ¹		3
Semester Credit Hours		16
Spring		
MATH 308	Differential Equations	3
MATH 323	Linear Algebra	3
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
University Core Curriculum (p. 26) ¹		3
Minor elective ⁵		3
Semester Credit Hours		15
Third Year		
Fall		
MATH 409	Analysis on the Real Line	3
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences	4
Minor elective ⁵		3
General elective ⁴		3
Semester Credit Hours		13
Spring		
Select one of the following:		3
MATH 415	Modern Algebra I	
MATH 423	Linear Algebra II	
MATH 433	Applied Algebra	
Select 3 hours from the following:		3
CSCE 210-470 (p. 985) ⁶		
ISEN 320-430 (p. 1095)		
MATH 403-499 (p. 1135)		
STAT 335-482 (p. 1248)		
Minor electives ⁵		6

General elective ⁴	3
Semester Credit Hours	15
Fourth Year	
Fall	
Select 6 hours from the following: ⁷	6
MATH 603-628 (p. 1135)	
MATH 630-639 (p. 1135)	
MATH 641-644 (p. 1135)	
MATH 647-684 (p. 1135)	
University Core Curriculum (p. 26) ¹	3
Minor elective ⁵	3
General elective ⁴	3
Semester Credit Hours	15
Spring	
Select 3 hours from the following:	3
MATH 325 The Mathematics of Interest	
MATH 403-499 (p. 1135)	
University Core Curriculum (p. 26)	3
Minor elective ³	3
General elective ⁴	6
Semester Credit Hours	15
Total Semester Credit Hours	120
Fifth Year	
Fall	
	Semester Credit Hours
Graduate Degree ⁸	36
Semester Credit Hours	36
Total Semester Credit Hours	36

MATH 691). Up to six hours of graduate courses may double count. MATH 601 is prohibited for all graduate degree plans. Except for the MS teaching track, no distance class may be used on the degree plan nor may MATH 696 appear. For the MS teaching track, students must take four distance courses: MATH 629, MATH 645, MATH 646 and MATH 696. All five tracks require at least 24 credit hours of mathematics of which at most six may be undergraduate. Depending on the MS track, courses outside of mathematics may be required or optional. For additional information, reference the department website and select the track of interest.

Maximum of 3 hours of MATH 300 or CSCE 222/ECEN 222 may be used in this degree program.

Maximum of 3 hours of MATH 411 or STAT 414 may be used in this degree program.

Maximum of 4 hours of MATH 417, MATH 437 or CSCE 442 may be used in this degree program.

If a grade of D or F is earned in any of the following courses, MATH 151/MATH 171, MATH 152/MATH 172, MATH 221/MATH 251/MATH 253, MATH 300, MATH 323 or MATH 308, this course must be immediately retaken and a grade of C or better earned. The department will allow at most two Ds in upper-level (325-499) courses. If a third D is earned, one of the three courses in which a D was earned must be retaken and a grade of C or better earned.

Students desiring teacher certification should consult the requirements for certification before registering for electives.

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a general elective can be used to satisfy this requirement. See academic advisor.

Mathematics - BS

The curriculum in the Bachelor of Science in Mathematics explores mathematical problems and their interplay with science and engineering.

Students in this program investigate a broad array of techniques in pure mathematics and pursue electives in science and related fields that demonstrate the crucial underpinnings of mathematics in our understanding of information, science, and technology.

A student completing this program is prepared to enter employment with analytical and quantitative tools relevant to technological industries or modern financial markets. Furthermore, with the appropriate electives chosen, the student is prepared to enter quantitatively oriented graduate schools, including PhD programs in Mathematics. All advising for this degree option is done through the Undergraduate Program Office in the Department of Mathematics.

¹ Of the 21 hours shown as University Core Curriculum (p. 26), 3 must be from language, philosophy and culture, 3 from creative arts, 3 from social and behavioral sciences, 6 from American history, 6 from Government/Political Science.

² Select 4 hours from: ASTR 111, BIOL 111, BIOL 112, CHEM 119, CHEM 120, CHEM 107/CHEM 117, PHYS 207/PHYS 227. The remaining 4 hours may be selected from: ASTR 111, ATMO 201/ATMO 202, BIOL 111, BIOL 112, CHEM 119, CHEM 120, CHEM 107/CHEM 117, GEOL 101/GEOL 102, OCNG 251/OCNG 252, PHYS 207/PHYS 227.

³ MATH 170 is highly recommended for math majors co-enrolled in MATH 150, MATH 151, MATH 152, MATH 171 or MATH 172.

⁴ Select from any 100-499 course not used elsewhere, (except ALED 125; ASCC 102; ASTR 109/PHYS 109, ASTR 119/PHYS 119; BMEN 153; KINE 199; LAND 101; MATH 102-148, 151-168 (p. 1135), MATH 304, MATH 309, MATH 311, MATH 365, MATH 366, MATH 367, MATH 375, MATH 376; PBSI 301, PHYS 109/ASTR 109, PHYS 119/ASTR 119, PHYS 201, PHYS 202, PHYS 205; STAT 201, STAT 301 - 303 (p. 1248)).

⁵ A 15-18-hour minor field of study should be chosen in conference with a departmental advisor.

⁶ Except CSCE 222/ECEN 222, CSCE 285, CSCE 289, CSCE 291.

⁷ This 6 hours will be applied towards both BA and MS degrees in Mathematics.

⁸ The overall program hours (156 hours) includes 36 hours for a non-thesis option or 32 hours for a thesis option (up to six of which are

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 104 or ENGL 103	Composition and Rhetoric or Introduction to Rhetoric and Composition	3
MATH 171	Calculus I	4
University Core Curriculum (p. 26) ¹		3
Freshman Science elective ²		4
General elective ^{3,4}		1
Semester Credit Hours		15

Spring

MATH 172	Calculus II	4
Select one of the following:		4
CSCE 110	Programming I	
CSCE 111	Introduction to Computer Science Concepts and Programming	
CSCE 206	Structured Programming in C	
University Core Curriculum (p. 26) ¹		3
Freshman Science elective ²		4
General elective ^{3,4}		1
Semester Credit Hours		16

Second Year

Fall		
MATH 221	Several Variable Calculus	4
MATH 300	Foundations of Mathematics	3
University Core Curriculum (p. 26) ¹		3
Science elective ⁵		4
Semester Credit Hours		14

Spring

MATH 308	Differential Equations	3
MATH 323	Linear Algebra	3
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences	4
University Core Curriculum (p. 26) ¹		3
University Core Curriculum (p. 26) ¹		3
Semester Credit Hours		16

Third Year

Fall		
MATH 409	Analysis on the Real Line	3
MATH 415	Modern Algebra I	3
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
University Core Curriculum (p. 26) ¹		3
Science elective ⁵		3
Semester Credit Hours		15

Spring

MATH 410 or MATH 446	Multivariate Real Analysis or Analysis on Metric Spaces	3
MATH 416 or MATH 472	Modern Algebra II or Elliptic Curve Cryptography	3
Select one of the following:		4
OCNG 451	Mathematical Modeling of Ocean Climate	
PHYS 207 & PHYS 227	Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences	
University Core Curriculum (p. 26) ¹		3
Semester Credit Hours		13

Fourth Year

Fall		
MATH 411 or STAT 414	Mathematical Probability or Mathematical Statistics I	3
MATH elective ⁶		3
Science elective ⁵		3
General elective ⁴		3
General elective ⁴		4
Semester Credit Hours		16

Spring

MATH elective ⁶		9
General elective ⁴		6
Semester Credit Hours		15
Total Semester Credit Hours		120

¹ Of the 21 hours shown as University Core Curriculum (p. 26), 3 must be from language, philosophy and culture, 3 from creative arts, 3 from social and behavioral sciences, 6 from American history, 6 from Government/Political Science.

² Select 4 hours from: ASTR 111, BIOL 111, BIOL 112, CHEM 119, CHEM 120, CHEM 107/CHEM 117. The remaining 4 hours may be selected from: ASTR 111, ATMO 201/ATMO 202, BIOL 111, BIOL 112, CHEM 119, CHEM 120, CHEM 107/CHEM 117, GEOL 101/GEOL 102, OCNG 251/OCNG 252.

³ MATH 170 is highly recommended for math majors co-enrolled in MATH 150, MATH 151, MATH 152, MATH 171 or MATH 172.

⁴ Select from any 100-499 course not used elsewhere, (except ALED 125; ASCC 102; ASTR 109/PHYS 109, ASTR 119/PHYS 119; BMEN 153; KINE 199; LAND 101; MATH 102-148 (p. 1135), MATH 151-168 (p. 1135), MATH 304, MATH 309, MATH 311, MATH 365, MATH 366, MATH 367, MATH 375, MATH 376; PBSI 301, PHYS 101-125 (p. 1205), PHYS 201, PHYS 202, PHYS 205; STAT 201, STAT 301-303 (p. 1248);).

⁵ Four (4) hours must be selected from ATMO 335, ATMO 336, ATMO 435; ASTR 111; BICH 401-489 (p. 947); BIOL 111, BIOL 112, BIOL 200-470 (p. 951); CHEM 119, CHEM 120, CHEM 222-474 (p. 964); CSCE 110, CSCE 111, CSCE 206, CSCE 221; GENE 301-452 (p. 1053); OCNG 251, OCNG 252, OCNG 310, OCNG 320, OCNG 330, OCNG 340, OCNG 411, OCNG 425, OCNG 443, OCNG 451, OCNG 453; PHYS 221, PHYS 222, PHYS 302-305, PHYS 307-314 (p. 1205), PHYS 324-428 (p. 1205). Six (6) hours must be selected from ATMO 335, ATMO 336, ATMO 435; BICH 401-489 (p. 947); BIOL 200-470 (p. 951); CHEM 222-474 (p. 964); CSCE 120, CSCE 221, CSCE 320/STAT 335, CSCE 411, CSCE 421; GENE 301-452 (p. 1053); OCNG 251-252, (p. 1182) OCNG 310, OCNG 320, OCNG 330, OCNG 340, OCNG 411, OCNG 425, OCNG 443, OCNG 451, OCNG 453; PHYS 221,

(p. 1205) PHYS 222, PHYS 302-305, 307-314, 324-428 (p. 1205); STAT 211, STAT 212, STAT 335/CSCE 320, STAT 408, STAT 421.

⁶ Twelve hours must be selected from MATH 407-499 (p. 1135). Students are required to take at least one of the following: MATH 427, MATH 431, MATH 436, MATH 439. Students are encouraged to take MATH 412, MATH 414, MATH 442, or MATH 470. Students who plan to attend graduate school are encouraged to take MATH 447. Departmental permission is required to take MATH 485 or MATH 491.

Maximum of 3 hours of MATH 300 or CSCE 222/ECEN 222 may be used in this degree program.

Maximum of 3 hours of MATH 411 or STAT 414 may be used in this degree program.

Maximum of 4 hours of MATH 417, MATH 437 or CSCE 442 may be used in this degree program.

If a grade of D or F is earned in any of the following courses, MATH 151/MATH 171, MATH 152/MATH 172, MATH 221/MATH 251/MATH 253, MATH 300, MATH 323 or MATH 308, this course must be immediately retaken and a grade of C or better earned. The department will allow at most two D's in upper-level (325-499) courses. If a third D is earned, one of the three courses in which a D was earned must be retaken and a grade of C or better earned.

Students desiring teacher certification should consult the requirements for certification before registering for electives.

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a general elective can be used to satisfy this requirement. See academic advisor.

Mathematics - 5-Year Bachelor of Science and Master of Science in Mathematics

The curriculum in the Bachelor of Science in Mathematics 5-year combined program explores mathematical problems and their interplay with science and engineering.

The combined degree program enables ambitious and academically talented mathematics majors at Texas A&M University to earn both a bachelor's degree and a master's degree within a period of five years after entering Texas A&M. Students in this program investigate a broad array of techniques in pure mathematics and pursue electives in science and related fields that demonstrate the crucial underpinnings of mathematics in our understanding of information, science, and technology.

Among the various advantages of the program, upon its completion a student will be in an exceptionally strong position to enter:

- The professional industrial job marketplace;
- A career in secondary education;
- A doctoral program in mathematics, or in a related discipline, at Texas A&M or another university.

The related disciplines include computer science, engineering, physics, statistics, genetics, economics, business administration, education, and biology.

Eligibility for entering a doctoral program in one of these disciplines would depend in part on the undergraduate and graduate external options and areas of emphasis that were reflected in a student's individual degree plan.

Program Requirements

First Year		Semester Credit Hours
Fall		
ENGL 104 or ENGL 103	Composition and Rhetoric or Introduction to Rhetoric and Composition	3
MATH 171	Calculus I	4
University Core Curriculum (p. 26) ¹		3
Freshman Science elective ²		4
General elective ^{3,4}		1
Semester Credit Hours		15
Spring		
MATH 172	Calculus II	4
Select one of the following:		4
CSCE 110	Programming I	
CSCE 111	Introduction to Computer Science Concepts and Programming	
CSCE 206	Structured Programming in C	
University Core Curriculum (p. 26) ¹		3
Freshman Science elective ²		4
General elective ^{3,4}		1
Semester Credit Hours		16
Second Year		
Fall		
MATH 221	Several Variable Calculus	4
MATH 300	Foundations of Mathematics	3
University Core Curriculum (p. 26) ¹		3
Science elective ⁵		4
Semester Credit Hours		14
Spring		
MATH 308	Differential Equations	3
MATH 323	Linear Algebra	3
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences	4
University Core Curriculum (p. 26) ¹		3
University Core Curriculum (p. 26) ¹		3
Semester Credit Hours		16
Third Year		
Fall		
MATH 409	Analysis on the Real Line	3
MATH 415	Modern Algebra I	3

Select one of the following:	3
COMM 203 Public Speaking	
COMM 205 Communication for Technical Professions	
COMM 243 Argumentation and Debate	
University Core Curriculum (p. 26) ¹	3
Science elective ⁵	3

Semester Credit Hours	15

Spring

MATH 410 Multivariate Real Analysis	3
or MATH 446 or Analysis on Metric Spaces	
MATH 416 Modern Algebra II	3
or MATH 472 or Elliptic Curve Cryptography	
Select one of the following:	4
OCNG 451 Mathematical Modeling of Ocean Climate	
PHYS 207 Electricity and Magnetism for Engineering	
& PHYS 227 and Science and Electricity and Magnetism Laboratory for the Sciences	
University Core Curriculum (p. 26) ¹	3

Semester Credit Hours	13

Fourth Year**Fall**

MATH 411 Mathematical Probability	3
or STAT 414 or Mathematical Statistics I	
Select one of the following:	3
MATH 427 Introduction to Number Theory	
MATH 431 Structures and Methods of Combinatorics	
MATH 436 Introduction to Topology	
MATH 439 Differential Geometry of Curves and Surfaces	
Science elective ⁵	3
General elective ⁴	3
General elective ⁴	4

Semester Credit Hours	16

Spring

Select 3 hours from the following:	3
MATH 325 The Mathematics of Interest	
MATH 407-499 (p. 1135)	
Select 6 hours from the following: ⁶	6
MATH 603-628 (https://catalog.tamu.edu/graduate/course-descriptions/math/)	
MATH 630-639 (https://catalog.tamu.edu/graduate/course-descriptions/math/)	
MATH 641-644 (https://catalog.tamu.edu/graduate/course-descriptions/math/)	
MATH 647-684 (https://catalog.tamu.edu/graduate/course-descriptions/math/)	
General elective ⁴	6
Semester Credit Hours	15
Total Semester Credit Hours	120

Fifth Year**Fall**

Graduate Degree ⁷	32 or 36
Semester Credit Hours	32-36
Total Semester Credit Hours	32-36

¹ Of the 21 hours shown as University Core Curriculum (p. 26), 3 must be from language, philosophy and culture, 3 from creative arts, 3 from social and behavioral sciences, 6 from American history, 6 from Government/Political Science.

² Select 4 hours from: ASTR 111, BIOL 111, BIOL 112, CHEM 119, CHEM 120, CHEM 107/CHEM 117. The remaining 4 hours may be selected from: ASTR 111, ATMO 201/ATMO 202, BIOL 111, BIOL 112, CHEM 119, CHEM 120, CHEM 107/CHEM 117, GEOL 101/GEOL 102, OCNG 251/OCNG 252.

³ MATH 170 is highly recommended for math majors co-enrolled in MATH 150, MATH 151, MATH 152, MATH 171 or MATH 172.

⁴ Select from any 100-499 course not used elsewhere, (except ALED 125; ASCC 102; ASTR 109/PHYS 109, ASTR 119/PHYS 119; BMEN 153; KINE 199; LAND 101; MATH 102-148, MATH 151-168 (<http://catalog.tamu.edu/undergraduate/course-descriptions/math/>), MATH 304, MATH 309, MATH 311, MATH 365, MATH 366, MATH 367, MATH 375, MATH 376; PHYS 109/ASTR 109, PBSI 301; PHYS 119/ASTR 119, PHYS 201, PHYS 202, PHYS 205; STAT 201, STAT 301 - 303 (<http://catalog.tamu.edu/undergraduate/course-descriptions/stat/>)).

⁵ Four (4) hours must be selected from ATMO 335, ATMO 336, ATMO 435; ASTR 111; BICH 401-489 (p. 947); BIOL 111, 112, 200-470, 318-438 (p. 951); CHEM 119, 120, 222-474 (p. 964); CSCE 110, CSCE 111, CSCE 206, CSCE 221; GENE 301-452 (p. 1053); OCNG 251-252, (p. 1182)OCNG 310, OCNG 320, OCNG 330, OCNG 340, OCNG 411, OCNG 425, OCNG 443, OCNG 451, OCNG 453; PHYS 221, (p. 1205)PHYS 222, PHYS 302-305, 307-314, 324-428 (p. 1205). Six (6) hours must be selected from ATMO 335, ATMO 336, ATMO 435; BICH 401-489 (p. 947); BIOL 200-470 (p. 951); CHEM 222-474 (p. 964); CSCE 120, CSCE 320/STAT 335, CSCE 411, CSCE 421; GENE 301-452 (p. 1053); OCNG 251-252, (p. 1182) OCNG 310, OCNG 320, OCNG 330, OCNG 340, OCNG 411, OCNG 425, OCNG 443, OCNG 451, OCNG 453; PHYS 221, PHYS 222, PHYS 302-305, 307-314, 324-428 (p. 1205); STAT 211, STAT 212, STAT 335/CSCE 320, STAT 408, STAT 421.

⁶ For students in the MS Non-Thesis Track, these 6 hours will be used towards both the BS and MS degrees in Mathematics. For students in the MS Thesis Track, 2 of these hours will be used towards both the BS and MS degrees in Mathematics the remaining 4 hours to be selected from MATH 407-499 (p. 1135).

⁷ 36 hours for a non-thesis option or 32 hours for a thesis option (up to six of which are MATH 691). Up to six hours of graduate courses may double count for the Non-Thesis Track and up to two hours of graduate courses may double count for the Thesis Track. MATH 601 is prohibited for all graduate degree plans. Except for the MS teaching track, no distance class may be used on the degree plan nor may MATH 696 appear. For the MS teaching track, students must take four distance courses: MATH 629, MATH 645, MATH 646 and MATH 696. All five tracks require at least 24 credit hours of mathematics of which at most six may be undergraduate. Depending on the MS track, courses outside of mathematics may be required or optional. For additional

information, reference the department website and select the track of interest.

Maximum of 3 hours of MATH 300 or CSCE 222/ECEN 222 may be used in this degree program.

Maximum of 3 hours of MATH 411 or STAT 414 may be used in this degree program.

Maximum of 4 hours of MATH 417, MATH 437 or CSCE 442 may be used in this degree program.

If a grade of D or F is earned in any of the following courses, MATH 151/MATH 171, MATH 152/MATH 172, MATH 221/MATH 251/MATH 253, MATH 300, MATH 323 or MATH 308, this course must be immediately retaken and a grade of C or better earned. The department will allow at most two D's in upper-level (325-499) courses. If a third D is earned, one of the three courses in which a D was earned must be retaken and a grade of C or better earned.

Students desiring teacher certification should consult the requirements for certification before registering for electives.

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a general elective can be used to satisfy this requirement. See academic advisor.

The program includes a total of 152 hours (Thesis Track) or 156 hours (Non-Thesis Track). The Thesis track allows up to 2 hours of graduate coursework to be applied toward both the Bachelor of Science in Mathematics and the Master of Science in Mathematics face-to-face program. The Non-Thesis track allows up to 6 hours of graduate coursework to be applied toward both the Bachelor of Science in Mathematics and the Master of Science in Mathematics face-to-face program.

University Studies - BS, Mathematics for Teaching Concentration

The BS in University Studies, Mathematics for Teaching area of concentration consists of courses that are designed to give students desiring a secondary-school teaching credential a solid foundation in mathematics.

The courses chosen for this program encompass the mathematical areas tested by the State of Texas and TExES secondary mathematics examination. These are the courses currently required for the secondary mathematics teaching field at Texas A&M University.

Program Requirements

Code	Title	Semester Credit Hours
MATH 300	Foundations of Mathematics ¹	3
MATH 304	Linear Algebra ¹	3
	or MATH 32 or Linear Algebra	
MATH 375	Intermediate Real Analysis ¹	3
MATH 376	Intermediate Abstract Algebra ¹	3
MATH 403	Mathematics and Technology ¹	3
MATH 467	Modern Geometry ¹	3

STAT 211	Principles of Statistics I ¹	3
University and College Requirements		
PHYS 206	Newtonian Mechanics for Engineering and Science	3
POLS 206	American National Government ²	3
POLS 207	State and Local Government ²	3
Select one of the following:		4
MATH 147	Calculus I for Biological Sciences	
MATH 151	Engineering Mathematics I	
MATH 171	Calculus I	
Select one of the following:		4
MATH 148	Calculus II for Biological Sciences	
MATH 152	Engineering Mathematics II	
MATH 172	Calculus II	
American history (p. 30)		6
Creative arts (p. 30)		3
Communication (p. 27)		6
Language, philosophy and culture (p. 28)		3
Life and physical sciences (p. 27)		6
Social and behavioral sciences (p. 31)		3
Minor 1		15-18
Minor 2		15-18
General Electives ³		19-25
Total Semester Credit Hours		120

¹ Must make a grade of C or better.

² Completion of four semesters of upper-level ROTC may be substituted for three hours of the requirement.

³ Select from any 100-499 course not used elsewhere, (except ALED 125; ASCC 102; ASTR 109/PHYS 109, ASTR 119/PHYS 119; BMEN 153; KINE 199; LAND 101; MATH 102-148, MATH 151-168 (p. 1135), MATH 304, MATH 309, MATH 311, MATH 365, MATH 366, MATH 367, MATH 375, MATH 376; PBSI 301, PHYS 109/ASTR 109, PHYS 119/ASTR 119, PHYS 201, PHYS 202, PHYS 205; STAT 201, STAT 301 - 303 (p. 1248).)

Maximum of 3 hours of MATH 300 or CSCE 222/ECEN 222 may be used in this degree program.

Maximum of 3 hours of MATH 411 or STAT 414 may be used in this degree program.

Maximum of 4 hours of MATH 417, MATH 437 or CSCE 442 may be used in this degree program.

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 49) courses. A course satisfying a Core category, a college/department requirement, or a general elective can be used to satisfy this requirement. See academic advisor.

Mathematics - Minor

The Minor in Mathematics program enables non-mathematics majors to complete a course of study that highlights fundamental techniques and applications of mathematics.

The mathematics minor involves middle-level and upper-level coursework in mathematics, aimed at a broad view of topics.

Students wishing to earn a minor in mathematics do not need to visit the Mathematics Department to do so. They should see their advisor, and inform them of their intention to earn a minor in mathematics, and to have that information entered into COMPASS.

Students who are majoring in engineering or one of the sciences, may be able to obtain a second (double) major in mathematics. If that is of interest to you, contact the Mathematics Undergraduate Program Office.

Program Requirements

Non-math majors can obtain a minor in mathematics by meeting the following requirements:

Code	Title	Semester Credit Hours
Select one from the following:		4
MATH 148	Calculus II for Biological Sciences	
MATH 152	Engineering Mathematics II	
MATH 172	Calculus II	
Select 9 hours from the following:		9
MATH 221	Several Variable Calculus ¹	
MATH 251	Engineering Mathematics III ¹	
MATH 253	Engineering Mathematics III ¹	
MATH 300-499	(p. 1135) ^{2, 3, 4}	
MATH 400-499	(p. 1135) ⁴	3
Total Semester Credit Hours		16

¹ Only one of MATH 221, MATH 251, or MATH 253 can be taken to satisfy the minor, due to the course content.

² Only one of MATH 304, MATH 307, MATH 309, MATH 311 or MATH 323 can be taken to satisfy the minor, due to the course content.

³ Only one of MATH 307 or MATH 308 can be taken to satisfy the minor, due to the course content.

⁴ All 300-400 level MATH courses MUST be taken at Texas A&M University. No transfer work will be accepted.

Students must make a grade of C or better in all courses.

MATH 142, MATH 168, MATH 365, MATH 366, MATH 367, MATH 396, MATH 403, MATH 419, and MATH 485 may not be used to satisfy the requirements. MATH 485 will receive approval only under exceptional circumstances.

Department of Oceanography Studies in Oceanography

Oceanography is an interdisciplinary science that focuses on the oceans, their contents and their boundaries. Undergraduate degree programs include BS in Oceanography and BA in Ocean Studies. In addition, qualified undergraduate students may participate in a 15-credit minor in Oceanography.

The BS in Oceanography provides students with an interdisciplinary education and training in one of three areas of ocean science: Ocean Observing Science and Technology (OOST), Ocean Climate (OC), Marine Ecosystems Processes (MEP) and Marine Chemistry and Geochemistry

(MCG). All students will gain skill in handling, evaluating and analyzing large datasets using computer programming.

The BA in Ocean Studies provides students with an interdisciplinary understanding of the oceans and allows them to pair it with a minor from another field to tailor the degree to their needs and the needs of the evolving workforce. All students will develop critical thinking and problem-solving skills.

The Department of Oceanography also has a combined 5-year Bachelor's/ Master of Ocean Science and Technology Program in conjunction with Atmospheric Sciences, Oceanography, and Geology. These combined programs offer motivated and exceptional students the opportunity to achieve aspirations in an efficient program at Texas A&M, completing a Bachelor's degree in one of these majors: Meteorology (BS), Geology (BS), Oceanography (BS), and the Master of Ocean Science and Technology (MOST) degree in 5 years. There are only two courses used for dual credit in this program. There is a total of 150 hours of coursework. The concurrent degree program enables these motivated students to coordinate the required BS coursework (114 undergraduate credit hours plus 6 dual credit graduate courses) and MOST coursework (36 credit hours including the 6 dual credit graduate courses) to complete the required credit hours for each degree without diminishing scope or quality of work within 5 years.

Faculty

Belabbassi, Leila, Lecturer
Oceanography
PHD, Texas A&M University, 2006

Campbell, Lisa, Research Professor
Oceanography
PHD, State University of New York at Stony Brook, 1985

Chang, Ping, Professor
Oceanography
PHD, Princeton University, 1988

Dimarco, Steven F, Professor
Oceanography
PHD, The University of Texas at Dallas, 1991

Fitzsimmons, Jessica N, Professor
Oceanography
PHD, Massachusetts Institute of Technology, 2013

Henrichs, Darren W, Instructional Assistant Professor
Oceanography
PHD, Texas A&M University, 2012

Hu, Sarah, Assistant Professor
Oceanography
PHD, University of Southern California, 2018

Jones, Spencer, Assistant Professor
Oceanography
PHD, University of California, San Diego, 2018

Knap, Anthony H, Research Professor
Oceanography
PHD, University of South Hampton, 1978

Knapp, Angela, Professor
Oceanography
DOC, Princeton University, 2006

Liu, Yina, Assistant Professor
Oceanography
PHD, Texas A&M University, 2013

Potter, Henry, Associate Professor
Oceanography
PHD, University of Miami, 2014

Slowey, Niall C, Professor
Oceanography
PHD, Massachusetts Institute of Technology, 1991

Sylvan, Jason B, Professor
Oceanography
PHD, Rutgers University, 2008

Thomas, Deborah J, Professor
Oceanography
PHD, University of North Carolina at Chapel Hill, 2002

Thornton, Daniel C, Professor
Oceanography
PHD, Queen Mary Westfield College, University of London, 1996

Wang, Jinbo, Associate Professor
Oceanography
PHD, Massachusetts Institute of Technology, 2011

Wiederwohl, Chrissy, Instructional Professor
Oceanography
PHD, Texas A&M University, 2012

Yvon-Lewis, Shari A, Professor
Oceanography
PHD, University of Miami, 1994

Zhang, Shuang, Assistant Professor
Oceanography
PHD, Yale University, 2017

Majors

- Bachelor of Arts in Ocean Studies (p. 451)
- Bachelor of Science in Oceanography (p. 446)
- Bachelor of Science in Oceanography and Master of Ocean Science and Technology, 5-Year Degree Program (p. 448)

Minors

- Oceanography Minor (p. 452)

Oceanography - BS

This major provides students with an interdisciplinary education and training in one of four areas of ocean science: Marine Ecosystem Processes (MEP), Marine Chemistry and Geochemistry (MCG), Ocean Observing Systems and Technology (OOST), Ocean Climate (OC).

The BS in Oceanography curriculum: 1) Provides students with an interdisciplinary understanding of the oceans and the processes affecting them for use in careers in marine science or other related fields; 2)

Provides students with the skills to retrieve, evaluate, and analyze large oceanographic datasets such as those generated from long term oceanographic studies and observing systems; and 3) Emphasizes critical thinking and problem solving skills.

The BS in Oceanography has four themes: Ocean Observing Science and Technology (OOST), Ocean Climate (OC), Marine Ecosystems Processes (MEP) and Marine Chemistry and Geochemistry (MCG). All four themes share common requirements but allow for specialization depending on a student's interest. The OOST theme provides more emphasis in statistics and ocean observing systems; all students will gain skill in handling, evaluating and analyzing large datasets. The OC theme provides more emphasis in advanced math skills that can be applied to understanding ocean climate interactions; all students will gain skill in handling, evaluating and analyzing large datasets. The MEP theme provides more emphasis in biological and ecological processes; all students will gain skill in understanding and applying a biological framework to understanding the ocean. The MCG theme provides more emphasis on marine chemistry and geochemistry; all students will gain skill in understanding and applying a chemical and geochemical framework to understanding the ocean.

Many graduates will obtain jobs in a variety of fields including marine technical support, energy and transportation industries, insurance industries, hazard mitigation, marine operations, homeland security, oil spill response, etc. Students planning on attending graduate school are encouraged to also complete a minor in a STEM field.

For additional information, please visit <https://ocean.tamu.edu/>.

Program Requirements

First Year

Fall		Semester Credit Hours
CHEM 119	Fundamentals of Chemistry I	4
ENGL 104	Composition and Rhetoric	3
MATH 151	Engineering Mathematics I ¹	4
OCNG 101	Succeeding in Oceanography	1
OCNG 251 & OCNG 252	The Blue Planet - Our Oceans and The Blue Planet - Our Oceans Laboratory	4
Semester Credit Hours		16
Spring		
BIOL 111	Introductory Biology I	4
CHEM 120	Fundamentals of Chemistry II	4
MATH 152	Engineering Mathematics II ¹	4
American history (p. 30)		3
Semester Credit Hours		15

Second Year

Fall		
BIOL 112	Introductory Biology II	4
OCNG 203	Communicating Oceanography	3
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences	4

STAT 211	Principles of Statistics I	3
Semester Credit Hours		14
Spring		
COMM 203 or COMM 205	Public Speaking or Communication for Technical Professions	3
OCNG 330	Geological Oceanography	4
PHYS 207 & PHYS 227	Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences	4
American history (p. 30)		3
Semester Credit Hours		14
Third Year		
Fall		
OCNG 310	Physical Oceanography	4
OCNG 320	Biological Oceanography	4
OCNG 456 or OCNG 469	MATLAB Programming for Ocean Sciences or Python for Geosciences	3
Theme requirement ^{2,3}		3-4
Semester Credit Hours		14
Spring		
OCNG 303	Professional Communication in Oceanography	3
OCNG 340	Chemical Oceanography	4
OCNG 443	Oceanographic Field and Laboratory Methods	3
Theme Requirement ^{2,3}		3-4
Government/Political science (p. 31)		3
Semester Credit Hours		16
Fourth Year		
Fall		
OCNG 470	Data Analysis Methods in Geosciences	4
Social and behavioral sciences (p. 31)		3
Technical elective ⁴		3
Theme elective ²		6
Semester Credit Hours		16
Spring		
OCNG 461	Advanced Oceanographic Data Analysis and Communication	3
Creative arts (p. 30)		3
Government/Political science (p. 31)		3
Language, philosophy and culture (p. 28)		3
Theme elective ^{2,5}		1-3
Semester Credit Hours		15
Total Semester Credit Hours		120

¹ A grade of C or better is required.

² Select one of the following themes: Marine Ecological Processes, Marine Chemistry & Geochemistry, Ocean Climate, Ocean Observing Science and Technology.

³ If Marine Chemistry and Geochemistry theme is chosen, this will be 4 credits instead of 3 credits.

⁴ Select from ATMO 300-499 (p. 940); BIOL 213, BIOL 214, BIOL 300-499 (p. 951); BICH 300-499 (p. 947); CHEM 300-499 (p. 964);

CVEN 221; GENE 300-499 (p. 1053); GEOG 361, GEOG 370/MARS 370, GEOG 390; GEOL 442/GEOG 442; MATH 251; MATH 300-499 (p. 1135); PHYS 221; PHYS 300-499 (p. 1205); OCEN 300-499 (p. 1179); OCNG 300-499 (p. 1182); STAT 212, STAT 400-499 (p. 1248).

⁵ If Marine Chemistry and Geochemistry theme is chosen, this will be 1 credit instead of 3 credits.

Code	Title	Semester Credit Hours
Marine Ecosystem Processes Theme		
BIOL 214	Genes, Ecology and Evolution	3
BIOL 357	Ecology	3
Select 9 hours from the following:		9
BIOL 213	Molecular Cell Biology	
BIOL 335	Invertebrate Zoology	
BIOL 349	Bioinformatics	
BIOL 351	Fundamentals of Microbiology	
BIOL 440	Marine Biology	
CHEM 383	Chemistry of Environmental Pollution	
GENE 302	Principles of Genetics	
GEOG 410/ OCNG 412	Global Change	
OCNG 350	Marine Pollution	
OCNG 425	Microbial Oceanography	
OCNG 453	Hydrothermal Vents and Mid-Ocean Ridges	
OCNG 456	MATLAB Programming for Ocean Sciences	
OCNG 469	Python for Geosciences	
OCNG 491	Research (limit to 3 credits)	
Total Semester Credit Hours		15

Code	Title	Semester Credit Hours
Marine Chemistry and Geochemistry Theme		
Select 4 hours from the following:		4
CHEM 227	Organic Chemistry I & CHEM 237 and Organic Chemistry Laboratory	
CHEM 257	Organic Chemistry I - Structure and Function	
Select 4 hours from the following:		4
CHEM 228	Organic Chemistry II & CHEM 237 and Organic Chemistry Laboratory	
CHEM 258	Organic Chemistry II - Reactivity and Applications	
Select 7 hours from the following:		7
ATMO 363	Introduction to Atmospheric Chemistry and Air Pollution	
CHEM 315	Fundamentals of Quantitative Analysis	
CHEM 362	Descriptive Inorganic Chemistry	
CHEM 383	Chemistry of Environmental Pollution	
CHEM 415	Analytical Chemistry	

CHEM 483	Green Chemistry
GEOL 443/ GEOG 443	Global Biogeochemical Cycles
GEOL 451	Introduction to Geochemistry
OCNG 350	Marine Pollution
OCNG 425	Microbial Oceanography
OCNG 453	Hydrothermal Vents and Mid-Ocean Ridges
OCNG 456	MATLAB Programming for Ocean Sciences
OCNG 469	Python for Geosciences
OCNG 491	Research (limit to 3 credits)

Total Semester Credit Hours 15

Code	Title	Semester Credit Hours

Ocean Climate Theme

MATH 251	Engineering Mathematics III	3
MATH 308	Differential Equations	3
Select 9 hours from the following:		9
ATMO 201	Weather and Climate	
ATMO 203	Weather Forecasting Laboratory	
ATMO 210	Climate Change	
ATMO 324	Physical and Regional Climatology	
ATMO 441	Satellite Meteorology and Remote Sensing	
GEOG 442/ GEOL 442	Past Climates	
MATH 304	Linear Algebra	
OCNG 451	Mathematical Modeling of Ocean Climate	
OCNG 456	MATLAB Programming for Ocean Sciences	
OCNG 469	Python for Geosciences	
OCNG 491	Research (limit to 3 credits)	
PHYS 221	Optics and Thermal Physics	
STAT 212	Principles of Statistics II	

Total Semester Credit Hours 15

Code	Title	Semester Credit Hours

Ocean Observing Science and Technology Theme

STAT 212	Principles of Statistics II	3
OCNG 404	Ocean Observing Systems	3
Select 9 hours from the following:		9
ATMO 201	Weather and Climate	
ATMO 203	Weather Forecasting Laboratory	
ATMO 251	Weather Observation and Analysis	
GEOG 361	Remote Sensing in Geosciences	
OCNG 350	Marine Pollution	
OCNG 456	MATLAB Programming for Ocean Sciences	
OCNG 469	Python for Geosciences	
OCNG 491	Research (limit to 3 credits)	

STAT 407 Principles of Sample Surveys

Total Semester Credit Hours

15

Oceanography - 5-Year Bachelor of Science and Master of Ocean and Science Technology

This accelerated 5-year program allows students to earn both a Bachelor of Science in Oceanography and a Master of Ocean Science and Technology, equipping them with interdisciplinary knowledge and advanced data analysis skills for various careers in marine science and related industries.

The Department of Oceanography offers a 5-year combination degree program that allows a Bachelor of Science in Oceanography major to enter the Master of Ocean Science and Technology at the start of their senior year (typically year four) at Texas A&M University. This enables students to receive their Oceanography undergraduate degree (BS) and a Master of Ocean Science and Technology (MOST) graduate degree in five years.

The BS in Oceanography curriculum: 1) Provides students with an interdisciplinary understanding of the oceans and the processes affecting them for use in careers in marine science or other related fields; 2) Provides students with the skills to retrieve, evaluate, and analyze large oceanographic datasets such as those generated from long term oceanographic studies and observing systems; and 3) Emphasizes critical thinking and problem solving skills.

The BS in Oceanography has four themes: Ocean Observing Science and Technology (OOST), Ocean Climate (OC), Marine Ecosystems Processes (MEP) and Marine Chemistry and Geochemistry (MCG). All four themes share common requirements but allow for specialization depending on a student's interest. The OOST theme provides more emphasis in statistics and ocean observing systems; all students will gain skill in handling, evaluating and analyzing large datasets. The OC theme provides more emphasis in advanced math skills that can be applied to understanding ocean climate interactions; all students will gain skill in handling, evaluating and analyzing large datasets. The MEP theme provides more emphasis in biological and ecological processes; all students will gain skill in understanding and applying a biological framework to understanding the ocean. The MCG theme provides more emphasis on marine chemistry and geochemistry; all students will gain skill in understanding and applying a chemical and geochemical framework to understanding the ocean.

The Master of Ocean Science and Technology (MOST) is a non-thesis degree. It provides students with education and training from scientists who are active researchers and educators working at the cutting edge of ocean sciences throughout the global ocean, from the Gulf to the waters around Antarctica.

The curriculum is designed to: 1) Provide students with a basic understanding of the major concepts in oceanography that can be applied in their Ocean Sciences careers, 2) Provide students with the skills and tools to evaluate and analyze data, particularly large datasets of the type generated by ocean observing systems, and 3) Facilitate critical thinking and problem solving.

Many graduates will obtain jobs in a variety of fields including marine technical support, energy and transportation industries, insurance

industries, hazard mitigation, marine operations, homeland security, oil spill response, etc.

For additional information, please visit <https://ocean.tamu.edu/>.

Program Requirements

First Year

		Semester Credit Hours
Fall		
CHEM 119	Fundamentals of Chemistry I	4
ENGL 104	Composition and Rhetoric	3
MATH 151	Engineering Mathematics I ¹	4
OCNG 101	Succeeding in Oceanography	1
OCNG 251 & OCNG 252	The Blue Planet - Our Oceans and The Blue Planet - Our Oceans Laboratory	4
Semester Credit Hours		16

Spring		
BIOL 111	Introductory Biology I	4
CHEM 120	Fundamentals of Chemistry II	4
MATH 152	Engineering Mathematics II ¹	4
American history (p. 30)		3
Semester Credit Hours		15

Second Year

Fall		
BIOL 112	Introductory Biology II	4
OCNG 203	Communicating Oceanography	3
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences	4
STAT 211	Principles of Statistics I	3
Semester Credit Hours		14

Spring		
COMM 203 or COMM 205	Public Speaking or Communication for Technical Professions	3
OCNG 330	Geological Oceanography	4
PHYS 207 & PHYS 227	Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences	4
American history (p. 30)		3
Theme requirement ^{2,3}		3-4
Semester Credit Hours		17

Third Year

Fall		
OCNG 310	Physical Oceanography	4
OCNG 456 or OCNG 469	MATLAB Programming for Ocean Sciences ⁴ or Python for Geosciences	3
Government/Political science (p. 31)		3
Theme requirement ^{2,3}		3-4

Theme elective ^{2,5}	2-3

Semester Credit Hours		16
Spring		
OCNG 303	Professional Communication in Oceanography	3
OCNG 320	Biological Oceanography	4
OCNG 340	Chemical Oceanography	4
OCNG 443	Oceanographic Field and Laboratory Methods	3
Semester Credit Hours		14

Fourth Year

Fall		
OCNG 655	Experimental Design and Analysis in Oceanography ⁶	3
Creative arts (p. 30)		3
Government/Political science (p. 31)		3
Social and behavioral sciences (p. 31)		3
Theme elective ^{2,5}		2-3
Semester Credit Hours		15

Spring		
OCNG 657	Data Methods and Graphical Representation in Oceanography	3
Select one of the following:		3
OCNG 620	Biological Oceanography	
OCNG 630	Geological Oceanography	
OCNG 640	Chemical Oceanography	
Language, philosophy and culture (p. 28)		3
Technical elective ⁷		4
Theme elective ²		3
Semester Credit Hours		16

Fifth Year

Fall		
OCNG 604	Ocean Observing Systems	3
OCNG 608	Physical Oceanography	3
OCNG 656 or OCNG 669	MATLAB Programming for Ocean Sciences ⁴ or Python for Geosciences	3
Advanced specialized OCNG graduate course		3
Advanced specialized OCNG graduate course		3
Semester Credit Hours		15

Spring		
OCNG 603	Communicating Ocean Science	3
OCNG 661	Advanced Oceanographic Data Analysis and Communication ⁶	3
Advanced specialized OCNG graduate course		3
Advanced specialized OCNG graduate course		3
Semester Credit Hours		12
Total Semester Credit Hours		150

¹ A grade of C or better is required.

² Select one of the following tracks: Marine Ecological Processes, Marine Chemistry and Geochemistry, Ocean Climate, Ocean Observing Science and Technology

³ If Marine Chemistry and Geochemistry track is chosen, this will be 4 credits instead of 3 credits

⁴ Students will not be permitted to receive credit for both the 400- and 600-level versions of certain courses because the content and learning outcomes are too similar (OCNG 404/OCNG 604; OCNG 470/OCNG 655)

⁵ If Marine Chemistry & Geochemistry track is chosen, this will be 2 credits instead of 3 credits.

⁶ Applied toward both the Bachelor of Science in Oceanography and the Master of Ocean Science and Technology.

⁷ Select from ATMO 300-499 (p. 940); BIOL 213, BIOL 214, BIOL 300-499 (p. 951); BICH 300-499 (p. 947); CHEM 300-499 (p. 964); CVEN 221; GENE 300-499 (p. 1053); GEOG 442/GEOL 442, GEOG 361, GEOG 370/MARS 370, GEOG 390; MATH 251; MATH 300-499 (p. 1135); PHYS 221; PHYS 300-499 (p. 1205); OCEN 300-499 (p. 1179); OCNG 300-499 (p. 1182); STAT 212, STAT 400-499 (p. 1248).

Any of the required courses may be taken during the Summer Sessions to diminish the heavy semester loads during Years 2 and 3.

The program includes a total of 156 hours with 6 hours being applied toward both the Bachelor of Science in Oceanography and the Master of Ocean Science and Technology.

Code	Title	Semester Credit Hours
Marine Ecosystem Processes Theme		
BIOL 214	Genes, Ecology and Evolution	3
BIOL 357	Ecology	3
Select 9 hours from the following:		9
BIOL 213	Molecular Cell Biology	
BIOL 335	Invertebrate Zoology	
BIOL 349	Bioinformatics	
BIOL 351	Fundamentals of Microbiology	
BIOL 440	Marine Biology	
CHEM 383	Chemistry of Environmental Pollution	
GEOG 410/ OCNG 412	Global Change	
GENE 302	Principles of Genetics	
OCNG 350	Marine Pollution	
OCNG 425	Microbial Oceanography	
OCNG 453	Hydrothermal Vents and Mid-Ocean Ridges	
OCNG 456	MATLAB Programming for Ocean Sciences	
OCNG 469	Python for Geosciences	
OCNG 491	Research (limit to 3 credits)	
Total Semester Credit Hours		15

Code	Title	Semester Credit Hours
Marine Chemistry and Geochemistry Theme		
Select 4 hours from the following:		4
CHEM 227	Organic Chemistry I & CHEM 237and Organic Chemistry Laboratory	

CHEM 257	Organic Chemistry I - Structure and Function	
Select 4 hours from the following:		4
CHEM 228	Organic Chemistry II & CHEM 237and Organic Chemistry Laboratory	
CHEM 258	Organic Chemistry II - Reactivity and Applications	
Select 7 hours from the following:		7
ATMO 363	Introduction to Atmospheric Chemistry and Air Pollution	
CHEM 315	Fundamentals of Quantitative Analysis	
CHEM 362	Descriptive Inorganic Chemistry	
CHEM 383	Chemistry of Environmental Pollution	
CHEM 415	Analytical Chemistry	
CHEM 483	Green Chemistry	
GEOG 443/ GEOL 443	Global Biogeochemical Cycles	
GEOL 451	Introduction to Geochemistry	
OCNG 350	Marine Pollution	
OCNG 425	Microbial Oceanography	
OCNG 453	Hydrothermal Vents and Mid-Ocean Ridges	
OCNG 456	MATLAB Programming for Ocean Sciences	
OCNG 469	Python for Geosciences	
OCNG 491	Research (limit to 3 credits)	
Total Semester Credit Hours		15

Code	Title	Semester Credit Hours
Ocean Climate Theme		
MATH 251	Engineering Mathematics III	3
MATH 308	Differential Equations	3
Select 9 hours from the following:		9
ATMO 201	Weather and Climate	
ATMO 203	Weather Forecasting Laboratory	
ATMO 210	Climate Change	
ATMO 324	Physical and Regional Climatology	
ATMO 441	Satellite Meteorology and Remote Sensing	
GEOG 442/ GEOL 442	Past Climates	
MATH 304	Linear Algebra	
OCNG 451	Mathematical Modeling of Ocean Climate	
OCNG 456	MATLAB Programming for Ocean Sciences	
OCNG 469	Python for Geosciences	
OCNG 491	Research (limit to 3 credits)	
PHYS 221	Optics and Thermal Physics	
STAT 212	Principles of Statistics II	
Total Semester Credit Hours		15

Code	Title	Semester Credit Hours
Ocean Observing Science and Technology Theme		
STAT 212	Principles of Statistics II	3
OCNG 404	Ocean Observing Systems	3
Select 9 hours from the following:		9
ATMO 201	Weather and Climate	
ATMO 203	Weather Forecasting Laboratory	
ATMO 251	Weather Observation and Analysis	
GEOG 361	Remote Sensing in Geosciences	
OCNG 350	Marine Pollution	
OCNG 456	MATLAB Programming for Ocean Sciences	
OCNG 469	Python for Geosciences	
OCNG 491	Research (limit to 3 credits)	
STAT 407	Principles of Sample Surveys	
Total Semester Credit Hours		15

Ocean Studies - BA

The Bachelor of Arts in Ocean Studies provides students with an interdisciplinary understanding of the oceans.

The ocean covers just over 70% of the earth's surface and societal dependence (e.g. transportation of goods, role in weather and hazards, primary source of food for many parts of the world, etc.) on the ocean is only increasing. Students will combine their oceanographic knowledge with a university approved minor to enhance their expertise in critical areas of the expanding Blue Economy.

The Bachelor of Arts in Ocean Studies curriculum will 1) provide students with an interdisciplinary understanding of the oceans; 2) provide students with the communication skills to articulate the problems and the solutions to issues relating to the stewardship of one of earth's greatest resources, the ocean; and, 3) emphasize critical thinking and problem-solving skills.

Program Requirements

First Year

Fall		Semester Credit Hours
CHEM 119	Fundamentals of Chemistry I	4
ENGL 104	Composition and Rhetoric	3
MATH 140	Mathematics for Business and Social Sciences	3
OCNG 101	Succeeding in Oceanography	1
OCNG 251	The Blue Planet - Our Oceans	3
OCNG 252	The Blue Planet - Our Oceans Laboratory	1
Semester Credit Hours		15
Spring		
CHEM 120	Fundamentals of Chemistry II	4
MATH 142	Business Calculus	3-4
or MATH 151	or Engineering Mathematics I	
Select from the following:		4
PHYS 201	College Physics	

PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences	
American history (p. 30)		3
Semester Credit Hours		14

Second Year

Fall

BIOL 107 or BIOL 111	Zoology or Introductory Biology I	4
OCNG 203	Communicating Oceanography	3
STAT 303 or STAT 211	Statistical Methods or Principles of Statistics I	3
General elective ¹		5-6
Semester Credit Hours		16

Spring

COMM 203 or COMM 205	Public Speaking or Communication for Technical Professions	3
OCNG 330	Geological Oceanography	4
OCNG 340	Chemical Oceanography	4
American history (p. 30)		3
Semester Credit Hours		14

Third Year

Fall

OCNG 320	Biological Oceanography	4
Creative arts (p. 30)		3
Minor ²		6
Oceanography elective ³		3
Semester Credit Hours		16

Spring

OCNG 303	Professional Communication in Oceanography	3
OCNG 443	Oceanographic Field and Laboratory Methods	3
Government/Political science (p. 31)		3
Minor ²		3
Technical elective ⁴		3
Semester Credit Hours		15

Fourth Year

Fall

Social and behavioral sciences (p. 31)		3
Minor ²		6
Oceanography elective ³		6
Semester Credit Hours		15

Spring

OCNG 461	Advanced Oceanographic Data Analysis and Communication	3
Government/Political science (p. 31)		3
Language, philosophy and culture (p. 28)		3
Oceanography elective ³		3

Technical elective ⁴	3
Semester Credit Hours	15
Total Semester Credit Hours	120

¹ Select any courses from 100-499 not used elsewhere except AERS 100-499 (p. 900); ASCC 100-499 (p. 937); ENGL 103; KINE 199; MATH 102, MATH 142, MATH 150, MATH 151, MATH 171; MLSC 100-499 (p. 1151); NVSC 100-499 (p. 1178); SOMS 100-499 (p. 1237); STAT 211, STAT 302, STAT 303.

² All students must complete a university approved minor for this degree.

³ Select from any OCNG 300-499 (p. 1182) class not required for the degree, GEOL 442/GEOG 442, GEOL 443/GEOG 443.

⁴ Select from ATMO 300-499 (p. 940); BESC 314, BESC 320, BESC 357, BESC 367, BESC 401, BESC 402, BESC 403, BESC 431; BIOL 111, BIOL 112, BIOL 206, BIOL 213, BIOL 214, BIOL 300-499 (p. 951); CHEM 200-499 (p. 964); ECCB 300/ENTO 300, ECCB 304, ECCB 403, ECCB 448; GEOG 312, GEOG 330, GEOG 352/GEOL 352, GEOG 361, GEOG 390, GEOG 392; STAT 300-499 (p. 1248); OCNG 300-499 (p. 1182); RWFM 309/VTPB 301, RWFM 404, RWFM 405, RWFM 408, RWFM 443, RWFM 447.

Oceanography - Minor

Oceanography is an interdisciplinary science that focuses on the oceans, their contents and their boundaries.

Degree programs include BA in Ocean Studies, BS in Oceanography, MS in Oceanography, PhD in Oceanography and Master of Ocean Science and Technology (MOST), a non-thesis master's degree. In addition, qualified undergraduate students may participate in a 15-credit minor in Oceanography. The following majors may not minor in Oceanography: BA Ocean Studies, BS Oceanography, BS Marine Science, and all combination Master of Ocean Science and Technology programs.

Program Requirements

Code	Title	Semester Credit Hours
OCNG 251	The Blue Planet - Our Oceans	3
OCNG 252	The Blue Planet - Our Oceans Laboratory	1
OCNG 300-499 (p. 1182)		3
Select two of the following:		8
OCNG 310	Physical Oceanography	
OCNG 320	Biological Oceanography	
OCNG 330	Geological Oceanography	
OCNG 340	Chemical Oceanography	
Total Semester Credit Hours		15

Department of Philosophy

The Greek philosopher Socrates once said that the unexamined life is not worth living. For more than 2,000 years, philosophy has been the source of the most intensely reflective, influential and argued versions of that examination. The concerns of philosophy range from the arts, the methods and foundations of the sciences, politics, education, and religion to the complex questions relating to the meaning of reality, truth, values and the significance of human history. The study of philosophy is an essential dimension of a well-educated person.

Philosophy seeks to establish standards of evidence, provide rational methods of resolving conflicts, and create techniques for evaluating ideas and arguments. Philosophy develops the capacity to see the world from the perspectives of other individuals and other cultures; it enhances one's ability to perceive the relationships among the various fields of study; and it deepens one's sense of the meaning and variety of human experience.

Toward these ends, the program in philosophy at Texas A&M is structured to provide students with the skills necessary to appreciate more fully the central concerns of human existence and develop abilities in problem-solving, communication, persuasion, writing, and critical thinking.

Students, along with parents and friends, often assume that the only undergraduates who major in philosophy are those who intend to pursue graduate degrees in philosophy, theology and law. However, the breadth of skills developed makes the study of philosophy appropriate for students entering professional fields such as medicine, business and education, and for those preparing for graduate work in the humanities or the social sciences.

It should be stressed that the non-academic value of a field of study must not be viewed mainly in terms of its contribution to obtaining one's first job after graduation. Students are understandably preoccupied with getting their first job, but even from a narrow vocational point of view it would be short-sighted to concentrate on that at the expense of developing potential for success and advancement once hired. Factors leading to initial employment are not necessarily those that lead to promotions or beyond a first position. This is because the needs of many employers alter with changes in social and economic patterns. It is therefore crucial to see beyond the specifics of a job description.

As this suggests, there are people trained in philosophy in just about every field. They have gone into not only such professions as teaching, medicine, and law, but also into computer science, management, publishing, sales, government service, criminal justice, public relations, and other fields.

Faculty

Bermudez, Jose Luis, Professor
Philosophy
PhD, Cambridge University, 1992

Climenhaga, Nevin, Assistant Professor
Philosophy
PHD, Notre Dame University, 2017

Conway, Daniel W, Professor
Philosophy
PHD, University of California at San Diego, 1985

Deere, Don Thomas, Assistant Professor
Philosophy
PHD, DePaul University, 2016

Ellis, Thomas H, Instructional Assistant Professor
Philosophy
MA, Texas A&M University, 2009

George, Theodore D, Professor
Philosophy
PHD, Villanova University, 2000

Hanson-Park, Jared, Visiting Assistant Professor
Philosophy
PHD, University of Miami, 2022

Islekel, Ege Selin, Assistant Professor
Philosophy
PHD, DuPaul University, 2018

Jaima, Amir R, Associate Professor
Philosophy
PHD, State University of New York at Stony Brook, 2014

Koepsell, David Richard, Instructional Associate Professor
Philosophy
JD, University at Buffalo, 1995
PHD, University at Buffalo, 1997

Lavender, Jordan, Assistant Professor
Philosophy
PHD, University of Notre Dame, 2022

Menzel, Christopher P, Professor
Philosophy
PHD, University of Notre Dame, 1984

Miller, Glen, Instructional Professor
Philosophy
PHD, University of North Texas, 2015

Palmer, Clare A, Professor
Philosophy
PHD, University of Oxford, 1993

Peterson, Martin B, Professor
Philosophy
PHD, Kungliga Tekniska högskolan Royal Institute of Technology, 2003

Radzik, Linda C, Professor
Philosophy
PHD, The University of Arizona, 1997

Raymond, Dwayne F, Instructional Associate Professor
Philosophy
PHD, University of Western Ontario, 2006

Rivera, Omar, Associate Professor
Philosophy
PHD, The Pennsylvania State University, 2007

Sansom, Roger B, Associate Professor
Philosophy
PHD, University of North Carolina at Chapel Hill, 2002

Sweet, Kristi, Professor
Philosophy
PHD, Loyola University, Chicago, 2006

Wilson, Aaron, Visiting Instructional Assistant Professor
Philosophy
PHD, University of Miami, 2014

Zhou, Lianghua, Assistant Professor
Philosophy
PHD, University of Michigan, 2024

Majors

- Bachelor of Arts in Philosophy (p. 453)
- Bachelor of Arts in Philosophy and Master of Arts in Philosophy, 5-Year Degree Program (p. 455)
- Bachelor of Arts in Society, Ethics, and Law (p. 456)

Minors

- Philosophy Minor (p. 457)

Certificates

- Philosophy Pre-Law Certificate (p. 458)

Philosophy - BA

This program cultivates critical thinking and problem-solving skills, empowering students to analyze complex issues and excel in various fields like law and business, preparing them for a rapidly changing world

Curiosity matters! Philosophers and those who are philosophically minded have long asked key questions, evaluated possibilities and arrived at those answers that have shaped and reshaped who we are, how we do things, and how we understand the world in which we live. The study of philosophy is not the study of antiquated views. It is not the study and use of a single method. The study of philosophy transforms intellectual curiosity into a potent, flexible set of skills by inculcating the ability to identify unstated assumptions, to take a critical attitude towards the information that others accept, and to evaluate and articulate the reasons that compel us to do and believe things. Philosophy is what college is all about: delving deeply into subjects that matter to you, while cultivating skills that will carry you the rest of your life.

Educational economists, such as G. Duncan, remind us that jobs that pay well are increasingly requiring employees to be able to solve unexpected problems as team members. In a world that is typified by unpredictable and complex professions, professionals who can cross intellectual boundaries and make connections between previously discrete domains of knowledge are primed to resolve unexpected problems; they are primed to succeed. While there is no single path to success, there is a set of skills that can help solve unexpected problems. Creativity researchers have identified two key factors: breadth of learning and an aptitude for broad conceptual thinking. You cannot combine what you don't know and you cannot combine if you have not cultivated an ability to move freely among conceptual categories. Philosophy is among the best intellectual activities for cultivating creative, critical thinking. Indeed, philosophy students typically score among the top in entrance exams for graduate school (GRE), and professional schools for law (LSAT) and business (GMAT) within national rankings.

The Department of Philosophy supports breadth of learning and broad conceptual thinking while offering a degree program with maximum flexibility. At its core are a limited number of requirements including three courses in the history of philosophy. These courses enable students to step outside of their own world-view and learn how to understand and critique unfamiliar perspectives. Students also take a course in formal logic in fulfillment of one of their core math requirements. Formal logic requires that students use one of the highest forms of reasoning in the taxonomy of learning: creative thinking. There is no algorithm for constructing a formal proof. Students who study formal logic learn a system, and use that system to create their own proofs.

In addition to history and logic, students are free to select among a range of courses that allow them to better understand the limits of knowledge, the limits of scientific thinking, the theories behind our legal and political system, the foundations of ethics, and more. In addition to traditional course work, high-achieving students in philosophy can undertake a sustained research project in the form of an honor's thesis, serve as Editor for our undergraduate journal, or complete internships either within the department or in other professional settings.

Students pursuing the BA in Philosophy have the option of pursuing early admission to Texas A&M's School of Law. Under this plan, students can complete both degrees in 6. Participation requires formal application to and admission by the School of Law during year 3. Admission is fully at the discretion of the School of Law. Careful planning is key, so interested students should work closely with an advisor from their first semester of study.

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 104	Composition and Rhetoric	3
Select one of the following:		3
PHIL 111	Contemporary Moral Issues	
PHIL 205	Technology and Human Values	
PHIL 208	Philosophy of Education	
PHIL 251	Introduction to Philosophy	
PHIL 252/ AFST 252	Introduction to Hip-Hop Philosophy	
PHIL 282	Ethics in a Digital Age	
PHIL 283	Latin American Philosophy	
Foreign language ¹		4
Government/Political science (p. 31)		3
Mathematics (p. 27)		3
Semester Credit Hours		16
Spring		
PHIL 240	Introduction to Logic	3
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
Foreign language ¹		4
Government/Political science (p. 31)		3
Life and physical sciences (p. 27)		3
Semester Credit Hours		16
Second Year		
Fall		
American history (p. 30)		3
Foreign language ¹		3
Language, philosophy and culture (p. 28) ²		3
Life and physical sciences (p. 27)		3
Social and behavioral sciences (p. 31)		3

General elective ³		1
Semester Credit Hours		16
Spring		
American history (p. 30)		3
Foreign language ¹		3
Life and physical sciences (p. 27)		3
Social and behavioral sciences (p. 31)		3
Philosophy elective ⁴		3
Semester Credit Hours		15
Third Year		
Fall		
Select one of the following:		3
HUMA 304/ RELS 304	Asian Religions	
PHIL 410	Classical Philosophy	
PHIL 411	Medieval Philosophy	
Creative arts (p. 30)		3
Literature directed elective (p. 261)		3
Philosophy elective ⁴		3
General elective ³		3
Semester Credit Hours		15
Spring		
Select one of the following:		3
PHIL 414	Nineteenth Century Philosophy	
PHIL 415	American Philosophy	
PHIL 416	Recent British and American Philosophy	
PHIL 417	Phenomenology	
PHIL 418	Existentialism	
Language, philosophy and culture or creative arts (p. 28) ²		3
Literature directed elective (p. 261)		3
Philosophy elective ⁴		3
General elective ³		3
Semester Credit Hours		15
Fourth Year		
Fall		
PHIL 412 or PHIL 413	Seventeenth-Century Philosophy or Eighteenth-Century Philosophy	3
Philosophy elective ⁴		3
General elective ³		3
General elective ³		3
General elective ³		3
Semester Credit Hours		15
Spring		
Philosophy elective ⁴		3
Philosophy elective ⁴		3
General elective ³		3
General elective ³		3
Semester Credit Hours		12
Total Semester Credit Hours		120

¹ Complete 14 hours of a foreign language (p. 261) through the intermediate level. If you choose to enroll in a language you have

studied previously without receiving college credit, you must first take a placement test. See academic advisor.

² Philosophy courses cannot be used to meet this requirement.

³ Select from any 100-499 course not used elsewhere. Maximum of 3 hours of PHIL 484 may be used as general electives.

⁴ To be selected in consultation with an advisor PHIL 100-499 (p. 1198). At least four of the courses must be 300-400 level. Maximum of 3 hours of PHIL 484 may be used as Philosophy electives.

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

30 credits minimum. A grade of C or higher is required for a course to be counted in the major field.

Philosophy - 5-Year Bachelor of Arts and Master of Arts in Philosophy

This combination program enables motivated students to efficiently complete both the Bachelor of Arts in Philosophy and the non-thesis Master of Arts in Philosophy degrees in five years.

The Department of Philosophy offers a 5-Year Bachelor of Arts and Master of Arts in Philosophy. The combined program includes a non-thesis version of the Master's curriculum. Interested students should apply in the first semester of their junior year in order to begin graduate work in their senior year. Students should work closely with their academic advisor to ensure a smooth transition.

This program provides a valuable option for students contemplating doctoral-level study in Philosophy or related fields. It is also recommended for students who, through a combination of credit by examination, dual credit, or community college credit, approach the end of their official undergraduate studies before having had the time to fully take advantage of the wealth of opportunities available at Texas A&M. Taking one more year to earn a Master's credential will enable students to pursue more demanding and creative philosophical projects while exploring their career options.

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 104	Composition and Rhetoric	3
Select one of the following:		3
PHIL 111	Contemporary Moral Issues	
PHIL 205	Technology and Human Values	
PHIL 208	Philosophy of Education	
PHIL 251	Introduction to Philosophy	
PHIL 252/ AFST 252	Introduction to Hip-Hop Philosophy	
PHIL 282	Ethics in a Digital Age	
PHIL 283	Latin American Philosophy	
Foreign language ¹		4

Government/Political science (p. 31)	3
Mathematics (p. 27)	3

Semester Credit Hours 16

Spring

PHIL 240	Introduction to Logic	3
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
Foreign language ¹		4
Government/Political science (p. 31)		3
Life and physical sciences (p. 27)		3

Semester Credit Hours 16

Summer

Life and physical sciences (p. 27)	3
Social and behavioral sciences (p. 31)	3

Semester Credit Hours 6

Second Year

Fall

American history (p. 30)	3
Foreign language ¹	3
Language, philosophy and culture (p. 28) ²	3
Philosophy elective ⁴	3
General elective ³	3
General elective ³	1

Semester Credit Hours 16

Spring

American history (p. 30)	3
Foreign language ¹	3
Life and physical sciences (p. 27)	3
Social and behavioral sciences (p. 31)	3
Philosophy elective ⁴	3

Semester Credit Hours 15

Third Year

Fall

Select one of the following:		3
HUMA 304/ RELS 304	Asian Religions	
PHIL 410	Classical Philosophy	
PHIL 411	Medieval Philosophy	
Creative arts (p. 30)		3
Literature directed elective (p. 261)		3
General elective ³		3
General elective ³		3

Semester Credit Hours 15

Spring

PHIL 412 or PHIL 413	Seventeenth-Century Philosophy or Eighteenth-Century Philosophy	3
Language, philosophy and culture or creative arts (p. 28) ²		3
Literature directed elective (p. 261)		3

Philosophy elective ⁴	3
General elective ³	3
Semester Credit Hours	15
Fourth Year	
Fall	
Select one of the following:	3
PHIL 414 Nineteenth Century Philosophy	
PHIL 415 American Philosophy	
PHIL 416 Recent British and American Philosophy	
PHIL 417 Phenomenology	
PHIL 418 Existentialism	
Graduate Philosophy elective ^{5, 6}	3
General elective ³	3
General elective ³	3
General elective ³	3
Semester Credit Hours	15
Spring	
Philosophy elective ⁴	3
Graduate Philosophy elective ^{5, 6}	3
Graduate Philosophy elective ⁶	3
Graduate Philosophy elective ⁶	3
Semester Credit Hours	12
Fifth Year	
Fall	
Graduate Philosophy elective ⁶	3
Graduate Philosophy elective ⁶	3
Graduate Philosophy elective ⁶	3
Graduate Philosophy elective ⁶	3
Semester Credit Hours	12
Spring	
Graduate Philosophy elective ⁶	3
Graduate Philosophy elective ⁶	3
Graduate Philosophy elective ⁶	3
Graduate Philosophy elective ⁶	3
Semester Credit Hours	12
Total Semester Credit Hours	150

¹ Complete 14 hours of a foreign language (p. 261) through the intermediate level. If you choose to enroll in a language you have studied previously without receiving college credit, you must first take a placement test. See academic advisor.

² Philosophy courses cannot be used to meet this requirement.

³ Select from any 100-499 course not used elsewhere. Maximum of 3 hours of PHIL 484 may be used as general electives.

⁴ In consultation with an advisor select from PHIL 300-499 (p. 1198).

Maximum of 3 hours of PHIL 484 may be used as Philosophy electives.

⁵ For students in the MA Non-Thesis Track, these 6 hours will count towards both the Philosophy elective on the BA and MA degree plans. For students in the MA Thesis Track, 0 hours will be used to complete both the BA and MA degree plans and these 6 hours will be selected in consultation with an undergraduate academic advisor.

⁶ Select from PHIL 600-699 (<https://catalog.tamu.edu/graduate/course-descriptions/phil/>), except for PHIL 684 and PHIL 691. No more than 6 hours of PHIL 685 (Directed Studies) may be used. Students in a

non-Thesis Option MA program cannot take PHIL 691. See graduate advisor.

A grade of C or higher is required for a course to be counted in the undergraduate major field.

The program includes a total of 150 hours (Thesis Track) or 156 hours (Non-Thesis Track). The Thesis track allows up to 0 hours of graduate coursework to be applied toward both the Bachelor of Arts in Philosophy and the Master of Arts in Philosophy. The Non-Thesis track allows up to 6 hours of graduate coursework to be applied toward both the Bachelor of Arts in Philosophy and the Master of Arts in Philosophy.

College and University Requirements

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

Society, Ethics, and Law - BA

The Bachelor of Arts in Society, Ethics, and Law (SEAL) is designed for students preparing for careers in law, community service, or related fields.

Extensive coursework in moral, social, political, and legal philosophy is combined with courses utilizing historical and social science methodologies to explore relevant topics.

The SEAL major closely attends to the American Bar Association's (ABA) recommendations that undergraduates "pursue an area of study that interests and challenges you, while taking advantage of opportunities to develop your research and writing skills." More specifically, the ABA advises students to cultivate the following "Core Skills, Values, Knowledge, and Experience": problem solving; critical reading; writing and editing; oral communication and listening; research; relationship-building and collaboration; background knowledge about the historical and social development of the United States and the diversity of cultures within and beyond the U.S.; public service and promotion of justice; and exposure to the law.

SEAL students are directed to use their core courses to take logic (Math core) and oral communication. SEAL majors take two courses in ethics, two courses in social and political thought, two courses in philosophy of law, a two-course sequence in the history of law, two social science courses, either epistemology or philosophy of language, and technical writing. SEAL majors must also complete an internship. A minor is not required; however SEAL majors are encouraged to consider how a minor might contribute to the development of another distinctive skill set.

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 104	Composition and Rhetoric	3
PHIL 111	Contemporary Moral Issues	3
POLS 206	American National Government	3

Foreign language ¹	4
Mathematics (p. 27)	3
Semester Credit Hours	16
Spring	
COMM 203 Public Speaking or COMM 243 or Argumentation and Debate	3
PHIL 240 Introduction to Logic	3
POLS 207 State and Local Government	3
Foreign language ¹	4
Life and physical sciences (p. 27)	3
Semester Credit Hours	16
Second Year	
Fall	
ENGL 210 Technical and Professional Writing	3
American history (p. 30)	3
Foreign language ¹	3
Life and physical sciences (p. 27)	3
Language, philosophy and culture (p. 28)	3
General elective ²	1
Semester Credit Hours	16
Spring	
PHIL 332 Social and Political Philosophy	3
American history (p. 30)	3
Foreign language ¹	3
Life and physical sciences (p. 27)	3
Social and behavioral sciences (p. 31)	3
Semester Credit Hours	15
Third Year	
Fall	
PHIL 334 Philosophy of Law	3
Creative arts (p. 30)	3
Ethics elective ³	3
Social Science elective ⁴	3
General elective ²	3
Semester Credit Hours	15
Spring	
PHIL 484 Professional Internship ⁵	3
Select one of the following:	3
PHIL 283 Latin American Philosophy	
PHIL 352/ Africana Philosophy AFST 352	
PHIL 409 Studies in Gender and Philosophy	
Literature directed elective (p. 261)	3
General elective ²	3
General elective ²	3
Semester Credit Hours	15
Fourth Year	
Fall	
HIST 447 Law and Society in the United States through Reconstruction	3
Select one of the following:	3
PHIL 351 Theory of Knowledge	

PHIL 424 Philosophy of Language	
PHIL 451 Probability, Decision Theory and Game Theory - How Should I Choose	
PHIL 452 Social Choice, Polarization and Democracy - How Should We Choose	
Literature directed elective (p. 261)	3
General elective ²	3
General elective ²	3
Semester Credit Hours	15
Spring	
HIST 448 American Law Since 1865	3
PHIL 336 Advanced Topics in Philosophy of Law ⁶	3
Social Science elective ⁴	3
General elective ²	3
Semester Credit Hours	12
Total Semester Credit Hours	120

¹ Complete 14 hours of a foreign language (<https://catalog.tamu.edu/undergraduate/arts-and-sciences/arts-requirements/>) through the intermediate level. If you choose to enroll in a language you have studied previously without receiving college credit, you must first take a placement test. See academic advisor.

² Select from any 100-499 course not used elsewhere. No more than 3 hours of PHIL 484 may be used. Only 14 hours of KINE 199; AERS 100-499 (p. 900); MLSC 100-499 (p. 1151); NVSC 100-499 (p. 1178); SOMS 100-499 (p. 1237) may be used towards general electives.

³ Select from PHIL 205, PHIL 282, PHIL 314, PHIL 315, PHIL 376/ FILM 376, PHIL 381, PHIL 465/RELS 465, PHIL 470, PHIL 480, or PHIL 482.

⁴ Select from COMM 302, COMM 307/JOUR 301, COMM 317/JOUR 317, CSCE 402, MGMT 209, POLS 306, POLS 320, POLS 340/PSAA 340, POLS 353, POLS 355, POLS 462/WGST 462, SOCI 304, SOCI 317/ AFST 317, SOCI 328, SOCI 338, SOCI 412, SOCI 413, SOCI 421/ WGST 421, SOCI 422, SOCI 445, or an approved version of PHIL 491.

⁵ Students must complete an approved internship involving 150 hours of work in a professional setting. See academic advisor.

⁶ Students may substitute PHIL 491 Research with departmental approval.

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

Philosophy - Minor

This minor offers students the flexibility to explore various philosophical topics or delve into specific areas of interest, cultivating critical thinking and problem-solving skills applicable to a wide range of academic and professional pursuits.

Curiosity matters! Philosophers and those who are philosophically minded have long asked key questions, evaluated possibilities and arrived at those answers that have shaped and reshaped who we are, how we do things, and how we understand the world in which we live. The study of philosophy is not the study of antiquated views. It is not the study and use of a single method. The study of philosophy transforms intellectual curiosity into a potent, flexible set of skills by inculcating the ability to

identify unstated assumptions, to take a critical attitude towards the information that others accept, and to evaluate and articulate the reasons that compel us to do and believe things. Philosophy is what college is all about: delving deeply into subjects that matter to you, while cultivating skills that will carry you the rest of your life.

Educational economists, such as G. Duncan, remind us that jobs that pay well are increasingly requiring employees to be able to solve unexpected problems as team members. In a world that is typified by unpredictable and complex professions, professionals who can cross intellectual boundaries and make connections between previously discrete domains of knowledge are primed to resolve unexpected problems; they are primed to succeed. While there is no single path to success, there is a set of skills that can help solve unexpected problems. Creativity researchers have identified two key factors: breadth of learning and an aptitude for broad conceptual thinking. You cannot combine what you don't know and you cannot combine if you have not cultivated an ability to move freely among conceptual categories. Philosophy is among the best intellectual activities for cultivating creative, critical thinking.

Students may earn a minor in Philosophy by taking 15 credit hours, of which 6 may be earned at the 100-200 level. This allows students maximum flexibility in choosing among our diverse set of courses. Students pursuing the minor are free to sample from the great breadth of philosophical topics (from philosophy of science to philosophy of art) or to dive deep on particular topics of interest (such as ethics, logic and metaphysics, or the history of philosophical thought).

Program Requirements

Code	Title	Semester Credit Hours
PHIL 300-499 (p. 1198) ¹		9-15
PHIL 100-299 (p. 1198) ²		0-6
Total Semester Credit Hours		15

¹ Any course except PHIL 484, which may be used with departmental approval only.

² Up to six semester credit hours may be selected from PHIL 100-299 (p. 1198).

Students must make a grade of C or better in all courses.

Philosophy Pre-Law - Certificate

Aligned with American Bar Association recommendations, this Pre-Law Certificate cultivates essential legal skills, including problem-solving, critical reading, writing and editing, oral communication and listening, and research, preparing students for success in law school and legal careers.

The Department of Philosophy offers a Pre-law Certificate that is primarily guided by the published recommendations of the *American Bar Association* (A.B.A.).¹ The A.B.A. encourages prospective law students to pursue classes that cultivate a set of skills that will enhance the study of law. To this end, Philosophy's Pre-law Certification requires that students take classes that typically cultivate the A.B.A.'s recommended skill set:

1. Problem Solving involves "courses and other experiences that will engage [students] in critical thinking about important issues, challenge ... beliefs and improve ... tolerance for uncertainty and criticism."¹

2. Critical Reading involves "close reading and critical analysis of complex textual material."¹
3. Writing and Editing involves "preparing original pieces of substantial length and revising written work in response to constructive criticism. [...] Language is the most important tool of a lawyer, and lawyers must learn how to express themselves clearly and concisely."¹
4. Oral Communication and Listening involves "the ability to speak clearly and persuasively... and excellent listening skills."¹
5. Research involves "undertaking a project that requires significant library research and the analysis of large amounts of information obtained from that research."¹

Students pursuing the certificate must enroll through an advisor before completing 105 credit hours.

¹ https://www.americanbar.org/groups/legal_education/resources/pre_law.html

Program Requirements

Code	Title	Semester Credit Hours
COMM 203	Public Speaking ¹	3
	or COMM 243or Argumentation and Debate	
PHIL 240	Introduction to Logic ¹	3
PHIL 491	Research ^{2,3}	0
Select two of the following: ¹		6
PHIL 332	Social and Political Philosophy	
PHIL 334	Philosophy of Law	
PHIL 336	Advanced Topics in Philosophy of Law	
PHIL 470	Animal Welfare, Ethics and Law	
Total Semester Credit Hours		12

¹ Must earn a grade of C or higher.

² Must be taken after or concurrent with the completion of the other credit hours for the certificate. Students must submit a philosophical writing sample, which may be a piece of writing previously submitted for one of the courses listed above.

³ Students must sign up for the certificate through an advisor before completing 105 credit hours.

Department of Physics and Astronomy

Physics seeks to understand the fundamental workings of nature, from the constituents of matter deep within the nuclei of atoms, to the most distant galaxies of our expanding universe, to everyday phenomena of emergent complexity, self-organization and chaos. The resulting basic physical knowledge provides a firm foundation for innovations and is often the driving force of advanced technology. Computers, global positioning systems (GPS), the internet, lasers, magnetic resonance imaging (MRI) and other medical diagnostic tools, and space flight, along with many others, were all made possible by key advances in physics.

Physicists have a curiosity that thrives on the challenge of solving problems. Consistent with this, the physics program at Texas A&M strives to teach analytical thinking and quantitative problem-solving skills. This enables students to work productively in physics, in areas closely related

to physics, and in a wide variety of areas outside of physics proper. Physicists can be found in almost any discipline that requires complex problem-solving skills. Some engage in cutting-edge research to increase our basic knowledge of the universe. Some apply new-found knowledge to make practical advances in the fields of computer science, medical science, and engineering. Still, others use their knowledge to advocate, advise, inform, instruct and administrate as lawyers, consultants, journalists/writers, teachers, and managers.

The Department of Physics and Astronomy offers two undergraduate degree programs, a Bachelor of Arts and a Bachelor of Science, as well as minors in Astrophysics and Physics. The Bachelor of Science degree includes tracks in Astrophysics, Business, Computational Science, Materials Physics, Physics and Mathematics Teaching, and Physical Science Teaching, in addition to a no-track option. The Department of Physics and Astronomy also offers Master of Science degrees in Astronomy and Physics, and Doctor of Philosophy degrees in Applied Physics, Astronomy, and Physics.

The faculty members of the department carry out theoretical and experimental research in the areas of astronomy and astrophysics, atomic, molecular and optical physics, computational physics, cosmology, high-energy and elementary particle physics, condensed matter physics and materials science, nuclear physics, quantum optics, and physics education. During the course of their undergraduate experience at Texas A&M, physics majors have the opportunity to work with faculty in all of these areas.

Faculty

Abanov, Artem G, Associate Professor
Physics & Astronomy
PHD, Texas A&M University, 1998

Adsley, Philip, Assistant Professor
Physics & Astronomy
PHD, University of York, 2013

Agnolet, Glenn, Professor
Physics & Astronomy
PHD, Cornell University, 1983

Allen, Roland E, Professor
Physics & Astronomy
PHD, The University of Texas at Austin, 1969

Bassichis, William H, Professor
Physics & Astronomy
PHD, Case Western Reserve University, 1963

Becker, Katrin, Professor
Physics & Astronomy
PHD, University of Bonn, 1994

Belyanin, Alexey, Professor
Physics & Astronomy
PHD, Institute of Applied Physics Russian Academy of Sciences, 1995

Bicer, Aysenur, Instructional Assistant Professor
Physics & Astronomy
PHD, Texas A&M University, 2018

Borzenets, Ivan, Assistant Professor
Physics & Astronomy
PHD, Duke University, 2012

Brown, Peter J, Research Associate Professor
Physics & Astronomy
PHD, Pennsylvania State University, 2009

Chin, Siu A, Professor
Physics & Astronomy
PHD, Stanford University, 1975

Cooperstein, Stephane, Assistant Professor
Physics & Astronomy
PHD, Princeton University, 2019

Depoy, Darren L, Professor
Physics & Astronomy
PHD, University of Hawaii at Manoa, 1987

Dutta, Bhaskar, Professor
Physics & Astronomy
PHD, Oklahoma State University, 1995

Erukhimova, Tatiana L, Instructional Professor
Physics & Astronomy
PHD, Institute of Applied Physics, Russian Academy of Sciences, 1999

Eusebi, Ricardo, Professor
Physics & Astronomy
PHD, University of Rochester, 2006

Farooqi, Mohammed Junaid, Instructional Assistant Professor
Physics & Astronomy
PHD, The University of Texas at San Antonio, 2018

Finkelstein, Alexander, Professor
Physics & Astronomy
PHD, Lauda Institute for Theoretical Physics, 1972

Ford, Albert L, Professor
Physics & Astronomy
PHD, The University of Texas at Austin, 1972

Fries, Rainer J, Professor
Physics & Astronomy
PHD, University of Regensburg, Germany, 2001

Holt, Jeremy W, Associate Professor
Physics & Astronomy
PHD, Stony Brook University, 2008

Holt, Nathan, Lecturer
Physics & Astronomy
PHD, Texas A&M University, 2016

Hu, Bai-Shan, Research Assistant Professor
Physics & Astronomy
PHD, Peking University, 2017

Huffenberger, Kevin Michael, Professor
Physics & Astronomy
PHD, Princeton University, 2006

Kamon, Teruki, Professor
Physics & Astronomy
PHD, University of Tsukuba, 1986

Karthein, Jamie, Research Assistant Professor
Physics & Astronomy
PHD, University of Houston, 2021

Karthein, Jonas, Assistant Professor
Physics & Astronomy
PHD, Ruprecht-Karls-Universität Heidelberg, 2020

Kaya, Ali, Instructional Assistant Professor
Physics & Astronomy
PHD, Texas A&M University, 2001

Kelly, Kevin, Assistant Professor
Physics & Astronomy
PHD, Northwestern University, 2018

Kennicutt, Robert Charles, Professor
Physics & Astronomy
PHD, University of Washington, 1978

Khmelenko, Vladimir V, Research Professor
Physics & Astronomy
PHD, Institute of Chemical Physics, 1984

Ko, Che-Ming, Professor
Physics & Astronomy
PHD, State University of New York at Stony Brook, 1973

Kocharovskaya, Olga A, Distinguished Professor
Physics & Astronomy
PHD, Institute of Applied Physics, Russian Academy of Sciences, 1986

Kocharovsky, Vitaly V, Professor
Physics & Astronomy
PHD, Institute of Applied Physics, Russian Academy of Sciences, 1986

Kolomenski, Alexandre, Research Professor
Physics & Astronomy
PHD, P N Lebedev Physics Institute of the Russian Academy of Sciences, 1980

Kordell, Michael, Lecturer
Physics & Astronomy
PHD, Wayne State Univ, 2017

Lee, David M, Professor
Physics & Astronomy
PHD, Yale University, 1959

Mahapatra, Rupak K, Professor
Physics & Astronomy
PHD, University of Minnesota, 2000

Marshall, Jennifer L, Associate Professor
Physics & Astronomy
PHD, Ohio State University, 2006

May, Larry W, Instructional Assistant Professor
Physics & Astronomy
PHD, Texas A&M University, 2015

Melconian, Dan, Professor
Physics & Astronomy
PHD, Simon Fraser University, 2006

Mioduszewski, Saskia, Professor
Physics & Astronomy
PHD, University of Tennessee, 1999

Mirabolfathi, Nader, Research Associate Professor
Physics & Astronomy
PHD, University of Paris XI, 2002

Nodurft, Dawson T, Instructional Associate Professor
Physics & Astronomy
PHD, Texas A&M University, 2019

Papovich, Casey J, Professor
Physics & Astronomy
PHD, Johns Hopkins University, 2002

Pokrovsky, Valery, Distinguished Professor
Physics & Astronomy
PHD, Tomsk State University, 1957

Pope, Christopher N, Distinguished Professor
Physics & Astronomy
PHD, University of Cambridge, 1980

Rapp, Ralf F, Professor
Physics & Astronomy
PHD, Rheinische Friedrich-Wilhelma University, Bonn, 1996

Rodriguez Nieva, Joaquin, Assistant Professor
Physics & Astronomy
PHD, Massachusetts Institute of Technology, 2016

Rogachev, Grigory V, Professor
Physics & Astronomy
PHD, National Research Centre, 1999

Ross, Joseph H, Professor
Physics & Astronomy
PHD, University of Illinois at Urbana-Champaign, 1986

Safonov, Alexei N, Professor
Physics & Astronomy
PHD, University of Florida, 2001

Schuessler, Hans A, Professor
Physics & Astronomy
PHD, Universität Heidelberg, 1964

Scully, Marlan O, Distinguished Professor
Physics & Astronomy
PHD, Yale University, 1966

Sezgin, Ergin, Professor
Physics & Astronomy
PHD, State University of New York at Stony Brook, 1980

Sinova, Jairo, Senior Professor
Physics & Astronomy
PHD, Indiana University, 1999

Smith, Krista, Associate Professor
Physics & Astronomy
PHD, University of Maryland, 2017

Sokolov, Alexei V, Professor
Physics & Astronomy
PHD, Stanford University, 2001

Spilker, Justin, Assistant Professor
Physics & Astronomy
PHD, University of Arizona, 2017

Strigari, Louis E, Professor
Physics & Astronomy
PHD, Ohio State University, 2005

Svidzinsky, Anatoly A, Research Professor
Physics & Astronomy
PHD, Stanford University, 2001

Teizer, Winfried, Professor
Physics & Astronomy
PHD, University of Massachusetts - Amherst, 1998

Toback, David, Professor
Physics & Astronomy
PHD, University of Chicago, 1997

Unruh, William George, Research Professor
Physics & Astronomy
PHD, Princeton University, 1971

Walsh, Jonelle L, Associate Professor
Physics & Astronomy
PHD, University of California at Irvine, 2011

Wang, Lifan, Professor
Physics & Astronomy
PHD, University of Science and Technology of China, 1993

Xu, Shenglong, Assistant Professor
Physics & Astronomy
PHD, University of California, San Diego, 2017

Yi, Zhenhuan, Research Assistant Professor
Physics & Astronomy
PHD, Texas A&M University, 2016

Youngs, Mike, Instructional Assistant Professor
Physics & Astronomy
PHD, Michigan State University, 2013

Zheltikov, Alexey M, Professor
Physics & Astronomy
PHD, Lomonosov Moscow State University, 1990

Zubairy, M. Suhail, Professor
Physics & Astronomy
PHD, University of Rochester, 1979

Majors

- Bachelor of Arts in Physics (p. 461)
- Bachelor of Science in Physics (p. 462)
- Bachelor of Science in Physics, Astrophysics Track (p. 463)

- Bachelor of Science in Physics, Business Track (p. 464)
- Bachelor of Science in Physics, Computational Science Track (p. 465)
- Bachelor of Science in Physics, Semiconductors and Modern Materials Track (p. 469)
- Bachelor of Science in Physics, Physical Science Teaching Track (p. 466)
- Bachelor of Science in Physics, Physics and Mathematics Teaching Track (p. 468)

Minors

- Astrophysics Minor (p. 470)
- Physics Minor (p. 471)

Physics - BA

The Bachelor of Arts curriculum provides the student with a firm foundation in physics and with the flexibility to choose from a large number of elective courses, thus permitting the student to explore other interests.

Some of the program's elective courses are chosen to satisfy the requirements of a minor field of study. The student can, therefore, customize his or her program of study in preparation for a career in any science-related or science-required field, from intellectual property law and science reporting to physics teaching. Although not required for the BA program, students have the opportunity to become directly involved in any of the active research programs in the Department of Physics and Astronomy.

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 104 or ENGL 103	Composition and Rhetoric or Introduction to Rhetoric and Composition	3
MATH 171	Calculus I ¹	4
PHYS 101	Freshman Physics Orientation ¹	1
PHYS 150	Introduction for Programming for Physics ¹	3
American history (p. 30) ²		3
Semester Credit Hours		14

Spring

ASTR 102	Observational Astronomy	1
MATH 172	Calculus II ¹	4
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences ¹	4
American history (p. 30) ²		3
Language, philosophy and culture (p. 28) ²		3
Semester Credit Hours		15

Second Year

Fall		
MATH 221	Several Variable Calculus ¹	4

MATH 308	Differential Equations ¹	3
PHYS 207 & PHYS 227	Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences ¹	4
PHYS 221	Optics and Thermal Physics ¹	3
Semester Credit Hours		14
Spring		
PHYS 225	Electronic Circuits and Applications	3
PHYS 309	Modern Physics ¹	3
PHYS 331	Theoretical Methods for Physicists I ¹	3
General elective ³		7
Semester Credit Hours		16
Third Year		
Fall		
PHYS 302	Advanced Mechanics I	3
PHYS 304	Advanced Electricity and Magnetism I	3
PHYS 332	Theoretical Methods for Physicists II	3
POLS 206	American National Government	3
Social and behavioral science (p. 31) ²		3
Semester Credit Hours		15
Spring		
PHYS 327	Experimental Physics I ⁴	2
PHYS 328	Experimental Physics II ⁴	1
PHYS 412	Quantum Mechanics I	3
POLS 207	State and Local Government	3
Communication (p. 27) ⁵		3
General elective ³		3
Semester Credit Hours		15
Fourth Year		
Fall		
Science or technical elective ⁶		3
General electives ³		13
Semester Credit Hours		16
Spring		
Creative arts (p. 30) ²		3
Physics elective ⁷		3
General electives ³		9
Semester Credit Hours		15
Total Semester Credit Hours		120

¹ A physics major must complete the foundation courses (PHYS 101, PHYS 150, ASTR 102/PHYS 206/PHYS 226, PHYS 207/PHYS 227, PHYS 221, PHYS 309, PHYS 331, MATH 171, MATH 172, MATH 221, MATH 308) with a grade of C or better and have a 2.0 cumulative GPA before taking non-foundation upper-level physics courses.

² Any course in this category from the approved University Core Curriculum list of courses.

³ A minor is required and, along with other free electives, should be chosen in consultation with the student's advisor. Three hours must be in the area of International and Cultural Diversity (p. 49), and three hours must be in the area of Cultural Discourse (p. 48). These may be in addition to other University Core Curriculum courses, or if a course in this category satisfies another area of the Core, it can be used to meet both requirements. Electives may be selected from any 100-499 course

not used elsewhere, except ENGL 103; MATH 100-148, MATH 165-166, MATH 365, MATH 366 (p. 1135); PHYS 201, PHYS 202.

⁴ PHYS 327 is an approved W course. PHYS 328 is an approved C course.

⁵ Any approved Communication course, except PERF 407.

⁶ Any upper-division course in geo/life/physical sciences, mathematics/statistics, or engineering (except 485/491).

⁷ Select from ASTR 314, PHYS 401, PHYS 414, PHYS 416, PHYS 489, MATH 460, or any graduate offering in PHYS or ASTR.

Physics - BS

The Bachelor of Science curriculum is more rigorous in its physics and mathematics course requirements than the Bachelor of Arts. An important part of the BS program is student participation in experimental or theoretical research guided by faculty.

Currently this program has a no-track option and five track options. The BS in Physics (no-track) is designed primarily for students who wish to pursue an advanced degree in physics or employment as a professional physicist in an industrial setting. The department also offers tracks in Astrophysics, Business, Computational Science, Physics and Mathematics Teaching and Physical Science Teaching for those who plan to seek employment or advanced degrees in these fields. Each track results in the BS in Physics degree and has the same core physics courses and the same total number of hours. Because physics forms the basis of many other sciences such as astronomy, chemistry, material science, oceanography, nanoengineering and geophysics, the BS program is excellent preparation for advanced degrees in these fields. In addition, physicists are increasingly applying their talents to molecular biology, biochemistry and medicine. An important part of the BS program is student participation in experimental or theoretical research guided by faculty.

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 104 or ENGL 103	Composition and Rhetoric or Introduction to Rhetoric and Composition	3
MATH 171	Calculus I ¹	4
PHYS 101	Freshman Physics Orientation ¹	1
PHYS 150	Introduction for Programming for Physics ¹	3
American history (p. 30) ²		3

Semester Credit Hours **14**

Spring

ASTR 102	Observational Astronomy ¹	1
MATH 172	Calculus II ¹	4
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences ¹	4
American history (p. 30) ²		3
Language, philosophy and culture (p. 28) ²		3

Semester Credit Hours **15**

Second Year**Fall**

MATH 221	Several Variable Calculus ¹	4
MATH 308	Differential Equations ¹	3
PHYS 207 & PHYS 227	Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences ¹	4
PHYS 221	Optics and Thermal Physics ¹	3
Semester Credit Hours		14

Spring

PHYS 225	Electronic Circuits and Applications	3
PHYS 309	Modern Physics ¹	3
PHYS 331	Theoretical Methods for Physicists I ¹	3
POLS 207	State and Local Government	3
Communication (p. 27) ³		3
Semester Credit Hours		15

Third Year**Fall**

PHYS 302	Advanced Mechanics I	3
PHYS 304	Advanced Electricity and Magnetism I	3
PHYS 332	Theoretical Methods for Physicists II	3
Creative arts (p. 30) ²		3
Social and behavioral science (p. 31) ²		3
Semester Credit Hours		15

Spring

PHYS 303	Advanced Mechanics II	3
PHYS 305	Advanced Electricity and Magnetism II	3
PHYS 327	Experimental Physics I ⁴	2
PHYS 328	Experimental Physics II ⁴	1
PHYS 412	Quantum Mechanics I	3
POLS 206	American National Government	3
Semester Credit Hours		15

Fourth Year**Fall**

PHYS 408	Thermodynamics and Statistical Mechanics	3
PHYS 414 or PHYS 416	Quantum Mechanics II or Physics of the Solid State	3
PHYS 426	Physics Laboratory	2
Select one of the following: ⁵		3
ASTR 291	Research	
ASTR 491	Research	
PHYS 291	Research	
PHYS 491	Research	
Physics elective ⁶		3
Semester Credit Hours		14

Spring

PHYS 401	Computational Physics ⁷	3
PHYS 425	Physics Laboratory	2
Select one of the following: ⁵		1
ASTR 291	Research	
ASTR 491	Research	

PHYS 291	Research	
PHYS 491	Research	
Science or technical elective ⁸		3
General electives ⁹		9
Semester Credit Hours		18
Total Semester Credit Hours		120

¹ A Physics major must complete the foundation courses (PHYS 101, PHYS 150, ASTR 102, PHYS 206/PHYS 226, PHYS 207/PHYS 227, PHYS 221, PHYS 309, PHYS 331, MATH 171, MATH 172, MATH 221, MATH 308) with a grade of C or better and have a 2.0 cumulative GPA before taking non-foundation upper-level Physics courses.

² Any course in this category from the approved University Core Curriculum list of courses.

³ Any approved Communication course, except PERF 407.

⁴ PHYS 327 is an approved W course. PHYS 328 is an approved C course.

⁵ A combination of PHYS 291, PHYS 491, ASTR 291 and ASTR 491 must equal 4 hours. Students with a U1 or U2 classification should take PHYS 291/ASTR 291. Students with a U3 or U4 classification should take PHYS 491 /ASTR 491.

⁶ Select from ASTR 314, PHYS 414/PHYS 416, PHYS 489, MATH 460, or any graduate offering in PHYS or ASTR.

⁷ To register for PHYS 401 a student must be able to program in a high level language.

⁸ Any upper-division course in geo/life/physical sciences, mathematics/statistics, or engineering (except 485/491).

⁹ Electives should be chosen in consultation with the student's academic advisor. Three hours must be in the area of International and Cultural Diversity, and three hours must be in the area of Cultural Discourse. These may be in addition to other University Core Curriculum courses, or, if a course in this category satisfies another area of the Core, it can be used to meet both requirements. Electives may be selected from any 100-499 course not used elsewhere, except ENGL 103; MATH 100-148, 165-166, 365-366 (p. 1135); PHYS 201, PHYS 202.

Physics - BS, Astrophysics Track

The BS Physics, Astrophysics track will provide students with a solid foundation in basic physics combined with knowledge of fascinating astrophysical objects and phenomena.

This program will prepare students for graduate studies in Astronomy, Astrophysics, and related fields. Students will also learn quantitative problem-solving skills, experimental research skills, and expertise in computer simulations that are highly valued in any field and any industry.

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 104 or ENGL 103	Composition and Rhetoric or Introduction to Rhetoric and Composition	3
MATH 171	Calculus I ¹	4
PHYS 101	Freshman Physics Orientation ¹	1
PHYS 150	Introduction for Programming for Physics ¹	3

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 104 or ENGL 103	Composition and Rhetoric or Introduction to Rhetoric and Composition	3
MATH 171	Calculus I ¹	4
PHYS 101	Freshman Physics Orientation ¹	1
PHYS 150	Introduction for Programming for Physics ¹	3
American history (p. 30) ²		3

Semester Credit Hours 14

Spring

ASTR 102	Observational Astronomy ¹	1
MATH 172	Calculus II ¹	4
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences ¹	4
American history (p. 30) ²		3
Language, philosophy and culture (p. 28) ²		3

Semester Credit Hours 15

Second Year

Fall		
MATH 221	Several Variable Calculus ¹	4
MATH 308	Differential Equations ¹	3
PHYS 207 & PHYS 227	Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences ¹	4
PHYS 221	Optics and Thermal Physics ¹	3

Semester Credit Hours 14

Spring

MGMT 209	Principles of Business Regulations and Law	3
PHYS 225	Electronic Circuits and Applications	3
PHYS 309	Modern Physics ¹	3
PHYS 331	Theoretical Methods for Physicists I ¹	3
Creative arts (p. 30) ²		3

Semester Credit Hours 15

Third Year

Fall		
ECON 202	Principles of Economics	3
PHYS 302	Advanced Mechanics I	3
PHYS 304	Advanced Electricity and Magnetism I	3
PHYS 332	Theoretical Methods for Physicists II	3
POLS 206	American National Government	3

Semester Credit Hours 15

Spring

ACCT 209	Survey of Accounting Principles	3

PHYS 303 or PHYS 305	Advanced Mechanics II or Advanced Electricity and Magnetism II	3
PHYS 327	Experimental Physics I ³	2
PHYS 328	Experimental Physics II ³	1
PHYS 412	Quantum Mechanics I	3
POLS 207	State and Local Government	3

Semester Credit Hours 15

Fourth Year

Fall		
MGMT 309	Survey of Management	3
MKTG 409	Principles of Marketing	3
PHYS 408	Thermodynamics and Statistical Mechanics	3
Communication (p. 27) ⁴		3
General elective ⁵		4

Semester Credit Hours 16

Spring

FINC 409	Survey of Finance Principles	3
Economics or Statistics elective ⁶		3
Science or Technical elective ⁷		3
General elective ⁵		7

Semester Credit Hours 16

Total Semester Credit Hours 120

¹ A physics major must complete the foundation courses (PHYS 101, PHYS 150, ASTR 102, PHYS 206/PHYS 226, PHYS 207/PHYS 227, PHYS 221, PHYS 309, PHYS 331, MATH 171, MATH 172, MATH 221, MATH 308) with a grade of C or better and have a 2.0 cumulative GPA before taking non-foundation upper-level physics courses.

² Any course in this category from the approved University Core Curriculum list of courses.

³ PHYS 327 is an approved W course. PHYS 328 is an approved C course.

⁴ Any approved Communication course, except PERF 407.

⁵ Electives should be chosen in consultation with the student's advisor. Three hours must be in the area of International and Cultural Diversity, and three hours must be in the area of Cultural Discourse. These may be in addition to other University Core Curriculum requirements, or, if a course in this category satisfies another area of the Core, it can be used to meet both requirements. Electives may be selected from any 100-499 course not used elsewhere, except ENGL 103; MATH 100-148, 165-166, 365-366 (p. 27); PHYS 201, PHYS 202.

⁶ Select from ECON 203, ECON 323, STAT 211.

⁷ Any upper-division course in geo/life/physical sciences, mathematics/statistics, or engineering (except 485/491).

Physics - BS, Computational Science Track

This BS Physics, Computational Science Track equips students with advanced computer simulation and data analysis skills, preparing them for cutting-edge research and high-demand careers in multiple industries.

Physics and other sciences increasingly rely on advanced computer simulations and data analysis to develop realistic mathematical models of complex phenomena or process huge amounts of data coming

from particle accelerators and astronomical surveys. The BS Physics, Computational Science Track will provide students with the skills to pursue advanced studies in this area or directly enter the workforce in virtually any industry, as the demand for experts with advanced computer skills will only grow with time.

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 104 or ENGL 103	Composition and Rhetoric or Introduction to Rhetoric and Composition	3
MATH 171	Calculus I ¹	4
PHYS 101	Freshman Physics Orientation ¹	1
PHYS 150	Introduction for Programming for Physics ¹	3
American history (p. 30) ²		3

Semester Credit Hours 14

Spring

ASTR 102	Observational Astronomy ¹	1
MATH 172	Calculus II ¹	4
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences ¹	4
American history (p. 30) ²		3
Language, philosophy and culture (p. 28) ²		3

Semester Credit Hours 15

Second Year

Fall		
MATH 221	Several Variable Calculus ¹	4
MATH 308	Differential Equations ¹	3
PHYS 207 & PHYS 227	Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences ¹	4
PHYS 221	Optics and Thermal Physics ¹	3

Semester Credit Hours 14

Spring

CSCE 120	Program Design and Concepts	3
PHYS 225	Electronic Circuits and Applications	3
PHYS 309	Modern Physics ¹	3
PHYS 331	Theoretical Methods for Physicists I ¹	3
Communication (p. 27) ³		3

Semester Credit Hours 15

Third Year

Fall		
CSCE 222/ ECEN 222	Discrete Structures for Computing	3
PHYS 302	Advanced Mechanics I	3
PHYS 304	Advanced Electricity and Magnetism I	3
PHYS 332	Theoretical Methods for Physicists II	3

POLS 206	American National Government	3
Semester Credit Hours		15

Spring

CSCE 221	Data Structures and Algorithms	4
PHYS 303 or PHYS 305	Advanced Mechanics II or Advanced Electricity and Magnetism II	3
PHYS 327	Experimental Physics I ⁴	2
PHYS 328	Experimental Physics II ⁴	1
PHYS 412	Quantum Mechanics I	3
POLS 207	State and Local Government	3

Semester Credit Hours 16

Fourth Year

Fall		
CSCE 312	Computer Organization	4
PHYS 408	Thermodynamics and Statistical Mechanics	3
Social and behavioral science (p. 31) ²		3
General elective ⁵		5

Semester Credit Hours 15

Spring

PHYS 401	Computational Physics ⁶	3
Creative arts (p. 30) ²		3
Science or Technical elective ⁷		3
General elective ⁵		7

Semester Credit Hours 16

Total Semester Credit Hours 120

¹ A physics major must complete the foundation courses (PHYS 101, PHYS 150, ASTR 102, PHYS 206/PHYS 226, PHYS 207/PHYS 227, PHYS 221, PHYS 309, PHYS 331, MATH 171, MATH 172, MATH 221, MATH 308) with a grade of C or better and have a 2.0 cumulative GPA before taking non-foundation upper-level physics courses.

² Any course in this category from the approved University Core Curriculum list of courses.

³ Any approved Communication course, except PERF 407.

⁴ PHYS 327 is an approved W course. PHYS 328 is an approved C course.

⁵ Electives should be chosen in consultation with the student's advisor. Three hours must be in the area of International and Cultural Diversity, and three hours must be in the area of Cultural Discourse. These may be in addition to other University Core Curriculum courses, or, if a course in this category satisfies another area of the Core, it can be used to meet both requirements. Electives may be selected from any 100-499 course not used elsewhere, except ENGL 103; MATH 100-148, 165-166, 365-366 (p. 1135); PHYS 201, PHYS 202.

⁶ To register for PHYS 401 a student must be able to program in a high level language.

⁷ Any upper-division course in geo/life/physical sciences, mathematics/statistics, or engineering (except 485/491).

Physics - BS, Physical Science Teaching Track

This BS in Physics, Physical Science Teaching Track, provides students with a strong physics foundation and Texas teaching certification, while

also developing critical thinking and problem-solving skills valued in various industries.

The BS in Physics, Physical Science Teaching Track, will provide students with a solid foundation in physics and the courses required for the aggieTEACH – Arts & Sciences Program (<https://aggietechartsci.tamu.edu/>)(application required). Upon completion of this degree and one semester of clinical teaching, students will hold a Texas Physical Science (grades 6-12) certification. Although this degree is designed for students who want to teach, the physics courses also build a strong foundation in critical thinking and quantitative problem-solving skills that are attractive to many areas of industry.

Program Requirements

First Year

Fall		Semester Credit Hours
ARSC 201	Self-Directed Experiences with Adolescents	1
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition or Composition and Rhetoric	3
MATH 171	Calculus I ¹	4
PHYS 101	Freshman Physics Orientation ¹	1
PHYS 150	Introduction for Programming for Physics ¹	3
American history (p. 30) ²		3
Semester Credit Hours		15

Spring

ASTR 102	Observational Astronomy ¹	1
MATH 172	Calculus II ¹	4
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences ¹	4
American history (p. 30) ²		3
Language, philosophy and culture (p. 28) ²		3
Semester Credit Hours		15

Second Year

Fall		Semester Credit Hours
MATH 221	Several Variable Calculus ¹	4
MATH 308	Differential Equations ¹	3
PHYS 207 & PHYS 227	Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences ¹	4
PHYS 221	Optics and Thermal Physics ¹	3
Semester Credit Hours		14

Spring

PHYS 225	Electronic Circuits and Applications	3
PHYS 309	Modern Physics ¹	3
PHYS 331	Theoretical Methods for Physicists I ¹	3
Select one of the following:		3
INST 222	Foundations of Education in a Multicultural Society ³	
SOCI 317/ AFST 317	Racial and Ethnic Relations	

TEFB 273	Introduction to Culture, Community, Society and Schools	
Communication (p. 27) ⁴		3

Semester Credit Hours 15

Third Year

Fall		Semester Credit Hours
INST 210	Understanding Special Populations ⁵	3
PHYS 302	Advanced Mechanics I	3
PHYS 304	Advanced Electricity and Magnetism I	3
PHYS 332	Theoretical Methods for Physicists II	3
POLS 206	American National Government	3
Semester Credit Hours		15

Spring

PHYS 303 or PHYS 305	Advanced Mechanics II or Advanced Electricity and Magnetism II	3
PHYS 327	Experimental Physics I ⁶	2
PHYS 328	Experimental Physics II ⁶	1
PHYS 412	Quantum Mechanics I	3
TEFB 322	Teaching and Schooling in Modern Society	3
RDNG 465 or RDNG 372	Reading in the Middle and Secondary Grades or Reading and Writing across the Middle Grades Curriculum	3
Semester Credit Hours		15

Fourth Year

Fall		Semester Credit Hours
PHYS 408	Thermodynamics and Statistical Mechanics	3
POLS 207	State and Local Government	3
TEFB 324	Teaching Skills II ⁷	3
Select one of the following:		4
CHEM 119	Fundamentals of Chemistry I	
CHEM 107 & CHEM 117	General Chemistry for Engineering Students and General Chemistry for Engineering Students Laboratory	
General elective ⁸		3
Semester Credit Hours		16

Spring

CHEM 120	Fundamentals of Chemistry II	4
TEFB 406	Science in the Middle and Secondary School	3
Creative arts (p. 30) ²		3
Science or technical elective ⁹		3
General Elective ⁸		2
Semester Credit Hours		15
Total Semester Credit Hours		120

¹ A Physics major must complete the foundation courses (ASTR 102, PHYS 101, PHYS 150, PHYS 206/PHYS 226, PHYS 207/PHYS 227, PHYS 221, PHYS 309 PHYS 331, MATH 171, MATH 172, MATH 221, MATH 308) with a grade of C or better and have a 2.0 cumulative GPA before taking non-foundation upper-level physics courses.

² Any course in this category from the approved University Core Curriculum (<https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/>) list of courses.

³ INST 222 is an approved Social and Behavioral Science, International and Cultural Diversity and Cultural Discourse class.

⁴ Any approved Communication (p. 27) course, except PERF 407.

⁵ INST 210 is an approved Social and Behavioral Science and Cultural Discourse class.

⁶ PHYS 327 is an approved W course. PHYS 328 is an approved C course.

⁷ Students must apply, and be admitted, to aggieTEACH - Science, before beginning this class. Students are required to have 2.75 overall GPA and a 2.5 GPA in content areas.

⁸ Electives should be chosen in consultation with the student's advisor. Electives may be selected from any 100-499 course not used elsewhere, except ENGL 103; MATH 100-148, 165-166, 365-366 (p. 1135); PHYS 201, PHYS 202.

⁹ Any upper-division course in geo/life/physical sciences, mathematics/statistics, or engineering (except 485/491).

Physics - BS, Physics and Mathematics Teaching Track

This BS Physics, Physics and Mathematics Teaching Track provides students with a strong physics and mathematics foundation and Texas Physics/Mathematics teaching certification, while also developing critical thinking and quantitative problem-solving skills valued in various industries

The BS Physics, Physics and Mathematics Teaching Track, will provide students with a solid foundation in physics and the courses required for the aggieTEACH – Arts & Sciences Program (<https://aggieteacharts.tamu.edu/>) (application required). Upon completion of this degree and one semester of clinical teaching, students will hold a Texas Physics/Mathematics (grades 7-12) certification. Although this degree is designed for students who want to teach, the physics courses also build a strong foundation in critical thinking and quantitative problem-solving skills that are attractive to many areas of industry.

Program Requirements

First Year

Fall		Semester Credit Hours
ARSC 201	Self-Directed Experiences with Adolescents	1
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition or Composition and Rhetoric	3
MATH 171	Calculus I ¹	4
PHYS 101	Freshman Physics Orientation ¹	1
PHYS 150	Introduction for Programming for Physics ¹	3
American history (p. 30) ²		3
Semester Credit Hours		15
Spring		
ASTR 102	Observational Astronomy ¹	1
MATH 172	Calculus II ¹	4

PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences ¹	4
Select one of the following:		3
INST 222	Foundations of Education in a Multicultural Society ³	
SOCI 317/ AFST 317	Racial and Ethnic Relations	
TEFB 273	Introduction to Culture, Community, Society and Schools	
American history (p. 30) ²		3

Semester Credit Hours 15

Second Year

Fall

MATH 221	Several Variable Calculus ¹	4
MATH 308	Differential Equations ¹	3
PHYS 207 & PHYS 227	Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences ¹	4
PHYS 221	Optics and Thermal Physics ¹	3

Semester Credit Hours 14

Spring

PHYS 225	Electronic Circuits and Applications	3
PHYS 309	Modern Physics ¹	3
PHYS 331	Theoretical Methods for Physicists I ¹	3
Select one of the following:		3
MATH 304	Linear Algebra	
MATH 311	Topics in Applied Mathematics I	
MATH 323	Linear Algebra	
Communication (p. 27) ⁴		3

Semester Credit Hours 15

Third Year

Fall

INST 210	Understanding Special Populations ⁵	3
PHYS 302	Advanced Mechanics I	3
PHYS 304	Advanced Electricity and Magnetism I	3
PHYS 332	Theoretical Methods for Physicists II	3
POLS 206	American National Government	3

Semester Credit Hours 15

Spring

PHYS 303 or PHYS 305	Advanced Mechanics II or Advanced Electricity and Magnetism II	3
PHYS 327	Experimental Physics I ⁶	2
PHYS 328	Experimental Physics II ⁶	1
PHYS 412	Quantum Mechanics I	3
RDNG 465 or RDNG 372	Reading in the Middle and Secondary Grades or Reading and Writing across the Middle Grades Curriculum	3
TEFB 322	Teaching and Schooling in Modern Society	3

Semester Credit Hours 15

Fourth Year**Fall**

MATH 467 or MATH 367	Modern Geometry or Structure of Mathematics III	3
PHYS 408	Thermodynamics and Statistical Mechanics	3
TEFB 324	Teaching Skills II ⁷	3
Creative arts (p. 30) ²		3
Language, philosophy and culture (p. 28) ²		3
General elective ⁸		1
Semester Credit Hours		16

Spring

MATH 376 or MATH 415	Intermediate Abstract Algebra or Modern Algebra I	3
POLS 207	State and Local Government	3
STAT 211 or STAT 303	Principles of Statistics I or Statistical Methods	3
TEFB 407 or TEFB 406	Mathematics in the Middle and Senior School or Science in the Middle and Secondary School	3
Science or Technical Elective ⁹		3
Semester Credit Hours		15
Total Semester Credit Hours		120

¹ A Physics major must complete the foundation courses (ASTR 102, PHYS 101, PHYS 150, PHYS 206/PHYS 226, PHYS 207/PHYS 227, PHYS 221, PHYS 309, PHYS 331, MATH 171, MATH 172, MATH 221, MATH 308) with a grade of C or better and have a 2.0 cumulative GPA before taking non-foundation upper-level physics courses.

² Any course in this category from the approved University Core Curriculum (<https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/>) list of courses.

³ INST 222 is an approved Social and Behavioral Science, International and Cultural Diversity and Cultural Discourse class.

⁴ Any approved Communication (p. 27) course, except PERF 407.

⁵ INST 210 is an approved Social and Behavioral Science and Cultural Discourse class.

⁶ PHYS 327 is an approved W course. PHYS 328 is an approved C course.

⁷ Students must apply, and be admitted, to aggieTEACH - Science, before beginning this class. Students are required to have 2.75 overall GPA and a 2.5 GPA in content areas.

⁸ Electives should be chosen in consultation with the student's advisor. Electives may be selected from any 100-499 course not used elsewhere, except ENGL 103; MATH 100-148, 165-166, 365-366 (p. 1135); PHYS 201, PHYS 202

⁹ Any upper-division course in geo/life/physical sciences, mathematics/statistics, or engineering (except 485/491). Note: students seeking secondary certification through this degree must take MATH 403 for this elective.

Physics - BS, Semiconductors and Modern Materials Track

This BS Physics program track provides a comprehensive foundation for students interested in shaping the future of technology through a deep understanding of materials and their applications.

Materials form the basis of society and drive the modern technological revolution. The BS Physics, Semiconductors and Modern Materials Track is a highly interdisciplinary track designed to equip students with a solid foundation in physics, chemistry, computational skills, and technologies necessary for advanced studies of materials or immediately joining the workforce in any industry.

Program Requirements

First Year**Fall**

		Semester Credit Hours
ENGL 104 or ENGL 103	Composition and Rhetoric or Introduction to Rhetoric and Composition	3
MATH 171	Calculus I ¹	4
PHYS 101	Freshman Physics Orientation ¹	1
PHYS 150	Introduction for Programming for Physics ¹	3
American history (p. 30) ²		3
Semester Credit Hours		14

Spring

ASTR 102	Observational Astronomy ¹	1
CHEM 107 & CHEM 117	General Chemistry for Engineering Students and General Chemistry for Engineering Students Laboratory	4
MATH 172	Calculus II ¹	4
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences ¹	4
Semester Credit Hours		13

Second Year**Fall**

MATH 221	Several Variable Calculus ¹	4
MATH 308	Differential Equations ¹	3
PHYS 207 & PHYS 227	Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences ¹	4
PHYS 221	Optics and Thermal Physics ¹	3
Semester Credit Hours		14

Spring

MSEN 222/ MEEN 222	Materials Science	3
PHYS 225	Electronic Circuits and Applications	3
PHYS 309	Modern Physics ¹	3
PHYS 331	Theoretical Methods for Physicists I ¹	3

American history (p. 30) ²	3
Semester Credit Hours	15
Third Year	
Fall	
PHYS 302 Advanced Mechanics I	3
PHYS 304 Advanced Electricity and Magnetism I	3
PHYS 332 Theoretical Methods for Physicists II	3
POLS 206 American National Government	3
Materials physics directed elective ³	3
Semester Credit Hours	15
Spring	
PHYS 303 Advanced Mechanics II	3
or PHYS 305 or Advanced Electricity and Magnetism II	
PHYS 327 Experimental Physics I ⁴	2
PHYS 328 Experimental Physics II ⁴	1
PHYS 412 Quantum Mechanics I	3
Social and behavioral science (p. 31) ²	3
Materials physics directed elective ³	3
Semester Credit Hours	15
Fourth Year	
Fall	
PHYS 408 Thermodynamics and Statistical Mechanics	3
Creative arts (p. 30) ²	3
Language, philosophy and culture (p. 28) ²	3
Materials physics directed elective ³	3
General elective ⁵	4
Semester Credit Hours	16
Spring	
POLS 207 State and Local Government	3
Communication (p. 27) ⁶	3
Materials physics directed elective ³	3
Science or technical elective ⁷	3
General elective ⁵	6
Semester Credit Hours	18
Total Semester Credit Hours	120

¹ A physics major must complete the foundation courses (ASTR 102, PHYS 101, PHYS 150, PHYS 206/PHYS 226, PHYS 207/PHYS 227, PHYS 221, PHYS 309, PHYS 331, MATH 171, MATH 172, MATH 221, MATH 308) with a grade of C or better and have a 2.0 cumulative GPA before taking non-foundation upper-level physics courses.

² Any course in this category from the approved University Core Curriculum (p. 26) list of courses.

³ Select from BAEN 354, CHEM 466, CHEM 468, ECEN 370, ECEN 440, MEEN 360, MEEN 455, MEEN 458, MEEN 471, MSEN 210, MSEN 250, MSEN 260, MSEN 305, MSEN 320, MSEN 325, MSEN 415, MSEN 420, MSEN 430, MSEN 458, MSEN 470, MSEN 472, NUEN 465, PHYS 416, PHYS 419. A minimum of 6 hours must be selected from MSEN 210, MSEN 250, MSEN 260, MSEN 305, MSEN 320, MSEN 325, MSEN 415, MSEN 420, MSEN 430, MSEN 458, MSEN 470, MSEN 472.

⁴ PHYS 327 is an approved writing intensive (W) course. PHYS 328 is an approved communication intensive (C) course.

⁵ Electives should be chosen in consultation with the student's advisor. Three hours must be in the area of International and Cultural Diversity (p. 49), and 3 hours must be in the area of Cultural Discourse (p. 48). These may be in addition to other University Core Curriculum (p. 26) courses, or, if a course in this category satisfies another area of the Core, it can be used to meet both requirements. Electives may be selected from any 100-499 course not used elsewhere, except ENGL 103, MATH 100-148, 165-166, 365-366 (p. 1135), PHYS 201, PHYS 202.

⁶ Any approved Communication course, except PERF 407.

⁷ Any upper-division course in geo/life/physical sciences, mathematics/statistics, or engineering (except 485/491).

Astrophysics - Minor

This minor is intended for anyone interested in the mathematical basis of astronomy and is especially relevant for engineering and physics students who will need a basic understanding of the physics of the Universe in their future careers.

Astrophysics encompasses physical law at the largest scales; from planets in the Solar System and planets around other stars to the evolution of galaxies and the stars that populate them, massive black holes in the center of galaxies, and the origin, growth, and ultimate fate of the Universe. Astrophysics unifies discoveries from many sciences including physics, chemistry, and biology using techniques in statistics, data mining, and applied mathematics.

The minor in Astrophysics helps to prepare students for entry into the competitive science, technology, engineering, and mathematics (STEM) workplace. Students develop technical skills and problem-solving experiences that expand the tools used in the modern, high-technology world. This minor is also suitable for students who intend to pursue careers in areas that may benefit from a technical knowledge of astronomy such as science writing, scientific journalism, or science teaching in schools.

To declare an Astrophysics minor, please follow the instructions on the Department of Physics and Astronomy website (<https://physics.tamu.edu/academics/current-undergraduates/minors/>).

Program Requirements

Code	Title	Semester Credit Hours
ASTR 314	Survey of Astronomy ¹	3
ASTR 320	Astrophysical Research Methods	3
PHYS 207 & PHYS 227	Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences ²	4
Directed electives		6
Select two of the following:		
ASTR 401	Stars and Extrasolar Planets	
ASTR 403	Extragalactic Astronomy and Cosmology	
ASTR 420	Advanced Astrophysical Research Methods	
ASTR 491	Research ³	
Total Semester Credit Hours		16

¹ ASTR 314 is the prerequisite for ASTR 320, ASTR 401 and ASTR 403

² All Engineering majors will take ENGR 217/PHYS 217 in place of PHYS 227.

³ No more than three hours of ASTR 491 may be used for this requirement. Three credit hours of ASTR 491 must be taken in a single semester, and approval from the professor must be obtained prior to registering for ASTR 491.

Students must make a grade of C or better in all courses.

Physics - Minor

A Minor in Physics is designed for those who have a strong interest in physics, but don't want to make it a profession.

This program includes a set of classes that will give students a firm foundation in physics and the ability to pursue a more in-depth study in one of the physics areas of their choice. The Minor in Physics will develop analytical thinking and quantitative problem-solving skills that students can apply in any field. It will also give students the basic knowledge to make informed decisions, advise, instruct, or administrate in our modern science- and technology-dominated world.

To declare a Minor in Physics, please follow the instructions on the Department of Physics and Astronomy website (<https://artsci.tamu.edu/physics-astronomy/academics/current-undergraduates/minors.html>).

Program Requirements

Students who wish to complete a minor in physics must satisfy the following requirements:

Code	Title	Semester Credit Hours
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences ¹	4
PHYS 207 & PHYS 227	Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences ¹	4
PHYS 221	Optics and Thermal Physics	3
PHYS 309	Modern Physics	3
300–400 level physics elective (p. 1205) ²		3
Total Semester Credit Hours		17

¹ All Engineering majors will take ENGR 216/PHYS 216 and ENGR 217/PHYS 217 in place of PHYS 226 and PHYS 227.

² Select from PHYS 300-499 (p. 1205) (except PHYS 485 or PHYS 491), or ASTR 314, in consultation with an advisor in the Department of Physics and Astronomy.

Students must make a grade of C or better in all courses.

Department of Psychological and Brain Sciences

The Department of Psychological and Brain Sciences offers three undergraduate degrees and a minor. These include programs of BA in Psychology, BS in Psychology, BS in Behavioral and Cognitive Neuroscience, and a minor in Psychology. All degree programs prepare students to pursue graduate study in related fields and to enter entry level positions for careers.

Psychology majors receive a rigorous program of undergraduate education and training that encourages critical thinking, lifelong learning, and the analysis and integration of information about individuals and groups of people. The curriculum leading to a degree in psychology provides students with an understanding of human behavior and the ability to use scientific methods to answer questions about human behavior. Students are prepared to enter a variety of graduate and professional programs in psychology and related fields (such as law, medical school), as well as to enter entry-level employment in a number of fields (such as business, human resources). BA/BS Degrees: Students majoring in psychology may earn either the Bachelor of Arts or Bachelor of Science degree. The psychology course requirements for the two degrees are identical; they differ with respect to the requirements in other disciplines. For example, the BA degree requires courses in a foreign language and extra humanities hours, whereas the BS degree requires additional hours in the physical and biological sciences. The two degrees are offered to allow students to complete their non-psychology course of study in fields of greatest interest to them. Thus, students who have stronger interests in the natural and life sciences should pursue the BS degree, whereas those with stronger interests in foreign language and the humanities should pursue the BA degree. Both degrees provide students with the necessary curriculum requirements to pursue graduate study in psychology in most institutions, as well as other professional fields such as law. Students planning to apply to medical school or other physical health professional programs are advised to select the BS degree program.

Behavioral and Cognitive Neuroscience majors receive a rigorous program of undergraduate education and training in the life and physical sciences, with an emphasis on the study of how the nervous system impacts behavior and cognitive functions. This interdisciplinary field integrates several disciplines, including psychology, psychiatry, biology, chemistry, and physics. Because the study is interdisciplinary, the neuroscience major involves multiple units, including the Department of Psychological and Brain Sciences, the Department of Biology, and the School of Veterinary Medicine and Biomedical Sciences in collaboration with the Department of Neuroscience and Experimental Therapeutics (NExT) in the School of Medicine in offering this degree, as well as the Texas A&M Institute for Neuroscience (TAMIN). The concentration of this degree that focuses on Behavioral and Cognitive Neuroscience is housed within the Department of Psychological and Brain Sciences. Students will develop competency in foundational coursework in the life and physical sciences, including biology, chemistry, and physics. Based on their individual career aspirations and interests, students will complete coursework in neuroscience that involves psychological and biological processes, as well as translational issues relevant to medical science and/or pharmacology, neural engineering, and biochemistry. Nationwide, there is increasing interest in neuroscience programs and training. In part, this interest is driven by changes in the employment market that focus on technical and medical support jobs. Students completing a BS

in Neuroscience will be well prepared for graduate study, as well as to enter entry-level healthcare and technical occupations.

Honors: Students who qualify for the University Honors Program should contact the Department of Psychological and Brain Sciences about the department's own honors program which places an emphasis on small classes and independent research experience.

Minors: A non-psychology minor is optional for psychology majors. A psychology minor is available for non-psychology majors. For more information about psychology undergraduate programs, please visit the Department of Psychological and Brain Sciences website (<https://artsci.tamu.edu/psychological-brain-sciences/>).

Faculty

Albanese, Brian, Assistant Professor
Psychological & Brain Sciences
PHD, Florida State University, 2020

Alexander, Gerianne, Professor
Psychological & Brain Sciences
PHD, McGill University, 1991

Alwood, Hilary, Lecturer
Psychological & Brain Sciences
MA, Baylor University, 2021

Anderson, Brian A, Professor
Psychological & Brain Sciences
PHD, John Hopkins University, 2014

Arthur, Winfred E, Professor
Psychological & Brain Sciences
PHD, The University of Akron, 1988

Atoba, Olabisi, Instructional Associate Professor
Psychological & Brain Sciences
PHD, Texas A&M University, 2017

Bergman, Mindy E, Professor
Psychological & Brain Sciences
PHD, University of Illinois at Urbana-Champaign, 2001

Bernard, Jessica A, Professor
Psychological & Brain Sciences
PHD, University of Michigan, 2012

Bolanos, Carlos A, Professor
Psychological & Brain Sciences
PHD, Northeastern University, 2000

Brooker, Rebecca, Professor
Psychological & Brain Sciences
PHD, Pennsylvania State University, 2011

Calles-Ramirez, Ivette Marie, Instructional Associate Professor
Psychological & Brain Sciences
PHD, Texas A&M University, 2018

Cuthbert, Kristy, Clinical Assistant Professor
Psychological & Brain Sciences
PHD, Boston University, 2022

Dowd, Sara M, Lecturer
Psychological & Brain Sciences
PHD, Texas A&M University, 2021

Edens, John F, Professor
Psychological & Brain Sciences
PHD, Texas A&M University, 1996

Edens, Pamela S, Instructional Associate Professor
Psychological & Brain Sciences
PHD, Texas A&M University, 1997

Eitan, Shoshana, Associate Professor
Psychological & Brain Sciences
PHD, Weizmann Institute of Science, 1997

Fields, Sherecce A, Professor
Psychological & Brain Sciences
PHD, University of South Florida, 2008

Gaylord Harden, Noni, Professor
Psychological & Brain Sciences
PHD, The University of Memphis, 2003

Graham, Carlyn, Assistant Professor
Psychological & Brain Sciences
PHD, The Pennsylvania State University, 2023

Grau, James W, Professor
Psychological & Brain Sciences
PHD, University of Pennsylvania, 1985

Heffer, Robert W, Clinical Professor
Psychological & Brain Sciences
PHD, Louisiana State University and A&M College, 1988

Hicks, Joshua A, Professor
Psychological & Brain Sciences
PHD, University of Missouri at Columbia, 2009

Howard, Daniel L, Professor
Psychological & Brain Sciences
PHD, Vanderbilt University, 1992

Hughes, Ian, Assistant Professor
Psychological & Brain Sciences
PHD, Bowling Green State University, 2023

Hull, Rachel G, Senior Lecturer
Psychological & Brain Sciences
PHD, Texas A&M University, 2003

Jackson, Cheryl, Lecturer
Psychological & Brain Sciences
PHD, Kansas State University, 2007

Jackson, Sarah, Assistant Professor
Psychological & Brain Sciences
PHD, University of Texas Medical Branch, 2016

Lench, Heather C, Professor
Psychological & Brain Sciences
PHD, University of California Irvine, 2007

Leunes, Arnold D, Senior Professor
Psychological & Brain Sciences
PHD, North Texas State College, 1969

Lindquist, Isaac Alan, Visiting Assistant Professor
Psychological & Brain Sciences
PHD, University of Nebraska at Omaha, 2023

MacNamara, Annmarie E, Associate Professor
Psychological & Brain Sciences
PHD, Stony Brook University, 2013

Mathur, Vani A, Associate Professor
Psychological & Brain Sciences
PHD, Northwestern University, 2012

Midgette, Allegra Joie, Assistant Professor
Psychological & Brain Sciences
PHD, University of California at Berkeley, 2019

Mochinushi, Yumiko, Instructional Associate Professor
Psychological & Brain Sciences
PHD, Florida Institute of Technology, 2019

Moscarello, Justin M, Associate Professor
Psychological & Brain Sciences
PHD, University of California, Santa Barbara, 2010

Orr, Joseph M, Associate Professor
Psychological & Brain Sciences
PHD, University of Michigan, 2011

Payne, Stephanie C, Professor
Psychological & Brain Sciences
PHD, George Mason University, 2000

Schlegel, Rebecca J, Professor
Psychological & Brain Sciences
PHD, University of Missouri at Columbia, 2009

Schmeichel, Brandon J, Professor
Psychological & Brain Sciences
PHD, Florida State University, 2005

Smallman, Rachel E, Associate Professor
Psychological & Brain Sciences
PHD, University of Illinois at Urbana-Champaign, 2010

Smith, Rachel J, Associate Professor
Psychological & Brain Sciences
PHD, University of Pennsylvania, 2008

Smith, Steven M, Professor
Psychological & Brain Sciences
PHD, University of Wisconsin, Madison, 1979

Tang, Catherine, Assistant Professor
Psychological & Brain Sciences
PHD, Washington University - St. Louis, MO, 2021

Trost, Zina, Associate Professor
Psychological & Brain Sciences
PHD, Ohio University, Athens, OH, 2010

Vaid, Jyotsna, Professor
Psychological & Brain Sciences
PHD, McGill University, 1982

Vess, Matthew K, Professor
Psychological & Brain Sciences
PHD, University of Missouri, 2010

Viana, Andres G, Professor
Psychological & Brain Sciences
PHD, Pennsylvania State University, 2011

Vujanovic, Anka A., Professor
Psychological & Brain Sciences
PHD, University of Vermont, 2009

Worthy, Darrell A, Associate Professor
Psychological & Brain Sciences
PHD, The University of Texas at Austin, 2010

Yamauchi, Takashi, Associate Professor
Psychological & Brain Sciences
PHD, Columbia University, 1997

Zhu, Ze Mia, Assistant Professor
Psychological & Brain Sciences
PHD, George Mason University, 2021

Majors

- Bachelor of Science in Behavioral and Cognitive Neuroscience (p. 473)
- Bachelor of Science in Neuroscience, Behavioral and Cognitive Neuroscience (p. 474)
- Bachelor of Arts in Psychology (p. 475)
- Bachelor of Science in Psychology (p. 477)

Minors

- Psychology Minor (p. 479)

Certificates

- Behavioral Health Certificate (p. 479)
- Healthy Development Certificate (p. 479)
- Psychology of Diversity Certificate (p. 480)
- Work and Organizations Certificate (p. 480)

Behavioral and Cognitive Neuroscience - BS

At the upper level, students complete a directed curriculum that will provide them depth of training in behavioral and cognitive neuroscience.

Behavioral and Cognitive Neuroscience is the study of the nervous system and its impact on behavior and cognitive functions. This interdisciplinary field integrates several disciplines, including psychology, psychiatry, biology, chemistry, and computer science. As such, students in this degree will develop competency in foundational coursework in the life and physical sciences, including biology and chemistry.

Nationwide, there is increasing interest in neuroscience programs and training. Students completing a Bachelor of Science in Behavioral and

Cognitive Neuroscience will be well prepared careers focused on human behavior such as speech and language therapy, clinical neuropsychology, public health, and occupational therapy.

Program Requirements

First Year

Fall		Semester Credit Hours
BIOL 111	Introductory Biology I	4
CHEM 119	Fundamentals of Chemistry I	4
ENGL 104	Composition and Rhetoric	3
PBSI 105	Psychology as a Major and Profession ¹	1
PBSI 107	Introduction to Psychology ¹	3
General elective		2
Semester Credit Hours		17

Spring

BIOL 112	Introductory Biology II	4
CHEM 120	Fundamentals of Chemistry II	4
PBSI 235	Introduction to Behavioral and Cognitive Neuroscience ¹	3
Select one of the following:		4
MATH 147	Calculus I for Biological Sciences	
MATH 151	Engineering Mathematics I	
MATH 171	Calculus I	
Semester Credit Hours		15

Second Year

Fall		
PBSI 311	Psychology of Animal Behavior ¹	3
PHYS 201	College Physics	4
POLS 206	American National Government	3
Select one of the following:		3-4
MATH 148	Calculus II for Biological Sciences	
MATH 152	Engineering Mathematics II	
MATH 172	Calculus II	
STAT 201	Elementary Statistical Inference	
General elective		2
Semester Credit Hours		15

Spring

PBSI 332	Neuroscience of Learning and Memory ¹	3
PHYS 202	College Physics	4
POLS 207	State and Local Government	3
Communication (p. 27)		3
General elective		2
Semester Credit Hours		15

Third Year

Fall		
PBSI 336	Drugs and Behavior ¹	3
PBSI 350	Cognitive Neuroscience ¹	3
Select one of the following:		3
STAT 302	Statistical Methods	
STAT 312	Statistics for Biology	
PBSI 301	Elementary Statistics for Psychology	

Creative arts (p. 30)	3
Language, philosophy and culture (p. 28)	3

Semester Credit Hours 15

Spring

Social and behavioral sciences (p. 31) ²	3
American history (p. 30)	3
Prescribed elective ^{1,3}	3
Prescribed elective ^{1,3}	3
Prescribed elective ^{1,3}	3

Semester Credit Hours 15

Fourth Year

Fall		
PBSI 471	Research Writing in Neuroscience ¹	1
American history (p. 30)		3
Prescribed elective ^{1,3}		3
Prescribed elective ^{1,3}		3
Prescribed elective ^{1,3}		3
General elective		2

Semester Credit Hours 15

Spring

PBSI 475	Communicating Neuroscience Concepts ¹	1
Prescribed elective ^{1,3}		3
Prescribed elective ^{1,3}		3
Prescribed elective ^{1,3}		3
Prescribed elective ^{1,3}		3

Semester Credit Hours 13

Total Semester Credit Hours 120

¹ Must make a grade of C or better.

² Except PBSI 107.

³ Select from BICH 410; BIOL 213, BIOL 413, BIOL 485, BIOL 491; CHEM 227, CHEM 228, CHEM 237, CHEM 238; GENE 301; NRSC 200-499 (p. 1167); PBSI 320, PBSI 333, PBSI 336, PBSI 340, PBSI 345, PBSI 360, PBSI 440, PBSI 483, PBSI 484, PBSI 485, PBSI 491; VIBS 401/ NRSC 401. Of the 30 hours from the prescribed electives, 6 hours must be from PBSI 320, PBSI 333, PBSI 336, PBSI 340, PBSI 345, PBSI 360, PBSI 440, PBSI 483, PBSI 484, PBSI 485, PBSI 491. No more than 3 hours PBSI 483, no more than 3 hours of PBSI 484, and no more than 12 hours of PBSI/NRSC/BIOL 483, 484, 485 and 491 combined.

Neuroscience - BS, Behavioral and Cognitive Neuroscience

This Neuroscience program bridges several scientific disciplines, equipping students with a strong foundation for advanced studies and careers in rapidly evolving healthcare and technical fields.

Neuroscience is the study of the nervous system and its impact on behavior and cognitive functions. This interdisciplinary field integrates several disciplines, including psychology, psychiatry, biology, chemistry, and physics. Because the study is interdisciplinary, the Neuroscience major involves multiple units, including the Department of Psychological and Brain Sciences, the Department of Biology, and the College of Veterinary Medicine and Biomedical Sciences in collaboration with the College of Medicine's Department of Neuroscience and Experimental Therapeutics (NExT) in addition to the Texas A&M Institute for

Neuroscience (TAMIN). The concentration of this degree that focuses on Behavioral and Cognitive Neuroscience is housed within the Department of Psychological and Brain Sciences.

Students will develop competency in foundational coursework in the life and physical sciences, including biology, chemistry, and physics. Based on their individual career aspirations and interests, students will complete coursework in neuroscience that involves psychological and biological processes, as well as translational issues relevant to medical science and/or pharmacology, neural engineering, and biochemistry. Nationwide, there is increasing interest in neuroscience programs and training. In part, this interest is driven by changes in the employment market that focus on technical and medical support jobs. Students completing a BS in Neuroscience will be well prepared for graduate study, as well as to enter entry-level healthcare and technical occupations.

Program Requirements

First Year

Fall		Semester Credit Hours
BIOL 111	Introductory Biology I	4
CHEM 119	Fundamentals of Chemistry I	4
PBSI 105	Psychology as a Major and Profession ¹	1
PBSI 107	Introduction to Psychology	3
VIBS 277	Essential Neuroscience - From Molecules to Nervous Systems ¹	3
Semester Credit Hours		15
Spring		
BIOL 112	Introductory Biology II	4
CHEM 120	Fundamentals of Chemistry II	4
PBSI 235	Introduction to Behavioral and Cognitive Neuroscience ¹	3
Select one of the following:		4
MATH 147	Calculus I for Biological Sciences	
MATH 151	Engineering Mathematics I	
MATH 171	Calculus I	
General elective ²		1
Semester Credit Hours		16

Second Year

Fall		
PHYS 201	College Physics	4
Select one of the following:		4
MATH 148	Calculus II for Biological Sciences	
MATH 152	Engineering Mathematics II	
MATH 172	Calculus II	
STAT 201	Elementary Statistical Inference	
American history (p. 30)		3
Prescribed elective ³		3
Semester Credit Hours		14
Spring		
PHYS 202	College Physics	4
American history (p. 30)		3
Concentration elective ⁴		3
Prescribed elective ³		3

Prescribed elective ³		3
Semester Credit Hours		16
Third Year		
Fall		
ENGL 104	Composition and Rhetoric ¹	3
STAT 302 or STAT 312	Statistical Methods or Statistics for Biology	3
Concentration elective ⁴		3
Prescribed elective ³		3
General elective ²		3
Semester Credit Hours		15
Spring		
Communication (p. 27)		3
Government/Political science (p. 31)		3
Concentration elective ⁴		3
Prescribed elective ³		3
General elective ²		3
Semester Credit Hours		15
Fourth Year		
Fall		
Government/Political science (p. 31)		3
Language, philosophy and culture (p. 28)		3
Concentration elective ⁴		3
Concentration elective ⁴		3
Concentration elective ⁴		4
Semester Credit Hours		16
Spring		
Creative arts (p. 30)		3
Concentration elective ⁴		3
Concentration elective ⁴		3
Concentration elective ⁴		4
Semester Credit Hours		13
Total Semester Credit Hours		120

¹ Must make a grade of C or better.

² A minor field of study may fulfill this requirement, but a minor is not required. Only one KINE 199 allowed.

³ Select from PBSI 311, PBSI 320, PBSI 332, PBSI 333, PBSI 336, PBSI 340, PBSI 350, PBSI 360, PBSI 408, PBSI 440.

⁴ Select from BICH 410; BIOL 213, BIOL 413; BIOL 428; BIOL 434/ NRSC 434; BIOL 444/NRSC 444; CHEM 227, CHEM 237, CHEM 228, CHEM 238, CHEM 257, CHEM 258; NRSC 300-499 (p. 1167); PBSI 301, PBSI 302, PBSI 311, PBSI 320, PBSI 332, PBSI 333, PBSI 336, PBSI 340, PBSI 350, PBSI 360, PBSI 440, PBSI 471, PBSI 475, PBSI 483, PBSI 484, PBSI 485, PBSI 491; VIBS 201/NRSC 201; VIBS 401/ NRSC 401 VIBS 407/NRSC 407; VIBS 450.

Psychology - BA

The curriculum leading to a degree in psychology provides students with an understanding of human behavior and the ability to use scientific methods to answer questions about human behavior.

All psychology majors receive a rigorous program of undergraduate education and training that encourages critical thinking, lifelong learning,

and the analysis and integration of information about individuals and groups of people.

Students majoring in psychology may earn either the Bachelor of Arts or Bachelor of Science degree. The psychology course requirements for the two degrees are identical; they differ with respect to the requirements in other disciplines. For example, the BA degree requires courses in a foreign language and extra humanities hours, whereas the BS degree requires additional hours in the physical and biological sciences.

Students interested in studying human behavior, with a humanities-oriented supporting curriculum, pursue a Bachelor of Arts degree. The BA can successfully prepare students interested in graduate and professional programs that stress a humanities background (e.g., counseling, social work, management, law), as well as students interested in employment in business or applied psychology.

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 104	Composition and Rhetoric	3
PBSI 105	Psychology as a Major and Profession	1
PBSI 107	Introduction to Psychology	3
Foreign language ¹		4
Mathematics (p. 27)		3
Social and behavioral sciences (p. 31) ²		3
Semester Credit Hours		17

Spring

PBSI 245	Introduction to Psychological Science Methods	3
Select one of the following:		3
ENGL 103	Introduction to Rhetoric and Composition	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
COMM 203	Public Speaking	
Foreign language ¹		4
Creative arts (p. 30)		3
General elective		2
Semester Credit Hours		15

Second Year

Fall		Semester Credit Hours
PBSI 235	Introduction to Behavioral and Cognitive Neuroscience	3
Foreign language ¹		3
Government/Political science (p. 31)		3
Life and physical sciences (p. 27)		3
Literature directed elective (p. 261)		3
Semester Credit Hours		15

Spring

Select one of the following:		3
PBSI 206/ AFST 206	Black Psychology	
PBSI 208	Stereotypes, Prejudice, and Minority Experience	

PBSI 209/ AFST 209	Psychology of Culture and Diversity	
PBSI 210/ WGST 210	Psychological Aspects of Human Sexuality	
PBSI 300/ WGST 300	Psychology of Women	
PBSI 303	Psychology of Women of Color	
PBSI 432	Diversity and Inclusion in Organizations	
Foreign language ¹		3
Government/Political science (p. 31)		3
Mathematics (p. 27)		3
General elective		3
Semester Credit Hours		15

Third Year

Fall

PBSI 301	Elementary Statistics for Psychology	4
Select one of the following:		3
PBSI 225	Lifespan Development	
PBSI 305	Psychology of Adjustment	
PBSI 306	Psychological Disorders	
PBSI 307	Developmental Psychology	
PBSI 315	Social Psychology	
PBSI 319	History and Systems of Psychology	
PBSI 323	Psychology of Adolescence	
PBSI 330	Personality	
PBSI 352	Organizational Psychology	
PBSI 353	Personnel Psychology	
PBSI 365	Psychology of Aging	
American history (p. 30)		3
Language, philosophy and culture (p. 28)		3
Life and physical sciences (p. 27)		3

Semester Credit Hours

16

Spring

PBSI 302	Research Methods and Design in Psychology	4
Select one of the following:		3
PBSI 311	Psychology of Animal Behavior	
PBSI 320	Sensation-Perception	
PBSI 332	Neuroscience of Learning and Memory	
PBSI 333	Biology of Psychological Disorders	
PBSI 336	Drugs and Behavior	
PBSI 340	Psychology of Learning	
PBSI 345	Human Cognitive Processes	
PBSI 350	Cognitive Neuroscience	
PBSI 360	Health Psychology and Behavioral Medicine	
American history (p. 30)		3
Language, philosophy and culture or creative arts (p. 28)		3
Psychology elective ³		3

Semester Credit Hours

16

Fourth Year

Fall

Select one of the following:		3

PBSI 311	Psychology of Animal Behavior	
PBSI 320	Sensation-Perception	
PBSI 332	Neuroscience of Learning and Memory	
PBSI 333	Biology of Psychological Disorders	
PBSI 336	Drugs and Behavior	
PBSI 340	Psychology of Learning	
PBSI 345	Human Cognitive Processes	
PBSI 350	Cognitive Neuroscience	
PBSI 360	Health Psychology and Behavioral Medicine	
Language, philosophy and culture (p. 28)		3
Social and behavioral sciences (p. 31) ²		3
Psychology elective ³		3
General elective		3
Semester Credit Hours		15
Spring		
Select from the following:		3
PBSI 305	Psychology of Adjustment	
PBSI 306	Psychological Disorders	
PBSI 307	Developmental Psychology	
PBSI 315	Social Psychology	
PBSI 319	History and Systems of Psychology	
PBSI 323	Psychology of Adolescence	
PBSI 330	Personality	
PBSI 352	Organizational Psychology	
PBSI 353	Personnel Psychology	
PBSI 365	Psychology of Aging	
Literature directed elective (p. 261)		3
Life and physical sciences (p. 27)		3
General elective		2
Semester Credit Hours		11
Total Semester Credit Hours		120

¹ Complete 14 hours of a foreign language (p. 261) through the intermediate level. If you choose to enroll in a language you have studied previously without receiving college credit, you must first take a placement test. See academic advisor.

² Courses in psychology may not be used to satisfy this requirement.

³ Select from PBSI 100-499 (p. 1184), No more than a combined maximum of 6 hours of PBSI 484, PBSI 485 are permitted.

A grade of C or higher is required if a course is to be counted in the major field. A student must complete a minimum of 36 hours of 300- and 400-level courses at Texas A&M.

No course can be counted in more than one category.

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a core category, a college/departments requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

Psychology - BS

The curriculum leading to a degree in psychology provides students with an understanding of human behavior and the ability to use scientific methods to answer questions about human behavior.

All psychology majors receive a rigorous program of undergraduate education and training that encourages critical thinking, lifelong learning, and the analysis and integration of information about individuals and groups of people.

Students majoring in psychology may earn either the Bachelor of Arts or Bachelor of Science degree. The psychology course requirements for the two degrees are identical; they differ with respect to the requirements in other disciplines. For example, the BA degree requires courses in a foreign language and extra humanities hours, whereas the BS degree requires additional hours in the physical and biological sciences.

Students interested in studying human behavior, with a science-oriented supporting curriculum, pursue a Bachelor of Science degree. The BS can successfully prepare students interested in further study in a science-oriented psychology graduate program (such as neuroscience) or medical school, or other health-related graduate and professional programs (e.g., pharmacy, physical therapy), as well as students interested in entry-level positions in business or applied psychology.

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 104	Composition and Rhetoric	3
PBSI 105	Psychology as a Major and Profession	1
PBSI 107	Introduction to Psychology	3
American history (p. 30)		3
Mathematics (p. 27)		3
Social and behavioral sciences (p. 31) ¹		3
Semester Credit Hours		16

Spring

PBSI 245	Introduction to Psychological Science Methods	3
Select one of the following:		3
COMM 203	Public Speaking	
ENGL 103	Introduction to Rhetoric and Composition	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
American history (p. 30)		3
Creative arts (p. 30)		3
General elective		3
Semester Credit Hours		15

Second Year

Fall		
PBSI 235	Introduction to Behavioral and Cognitive Neuroscience	3
Government/Political science (p. 31)		3
Life and physical sciences (p. 27)		3
Literature directed elective (p. 261)		3

General elective	3
Semester Credit Hours	15
Spring	
Select one of the following:	3
PBSI 206/ AFST 206	Black Psychology
PBSI 208	Stereotypes, Prejudice, and Minority Experience
PBSI 209/ AFST 209	Psychology of Culture and Diversity
PBSI 210/ WGST 210	Psychological Aspects of Human Sexuality
PBSI 300/ WGST 300	Psychology of Women
PBSI 303	Psychology of Women of Color
PBSI 432	Diversity and Inclusion in Organizations
Government/Political science (p. 31)	3
Life and physical sciences (p. 27)	3
Mathematics (p. 27)	3
General elective	3
Semester Credit Hours	15
Third Year	
Fall	
PBSI 301	Elementary Statistics for Psychology
Select one of the following:	3
PBSI 225	Lifespan Development
PBSI 305	Psychology of Adjustment
PBSI 306	Psychological Disorders
PBSI 307	Developmental Psychology
PBSI 315	Social Psychology
PBSI 319	History and Systems of Psychology
PBSI 323	Psychology of Adolescence
PBSI 330	Personality
PBSI 352	Organizational Psychology
PBSI 353	Personnel Psychology
PBSI 365	Psychology of Aging
Language, philosophy and culture (p. 28)	3
Life and physical sciences (p. 27)	3
Literature directed elective (p. 261)	3
Semester Credit Hours	16
Spring	
PBSI 302	Research Methods and Design in Psychology
Select one of the following:	3
PBSI 311	Psychology of Animal Behavior
PBSI 320	Sensation-Perception
PBSI 332	Neuroscience of Learning and Memory
PBSI 333	Biology of Psychological Disorders
PBSI 336	Drugs and Behavior
PBSI 340	Psychology of Learning
PBSI 345	Human Cognitive Processes
PBSI 350	Cognitive Neuroscience

PBSI 360	Health Psychology and Behavioral Medicine
Language, philosophy and culture or creative arts (p. 28)	3
Additional Science elective ²	3
General elective	1
Semester Credit Hours	14
Fourth Year	
Fall	
Select one of the following:	3
PBSI 311	Psychology of Animal Behavior
PBSI 320	Sensation-Perception
PBSI 332	Neuroscience of Learning and Memory
PBSI 333	Biology of Psychological Disorders
PBSI 336	Drugs and Behavior
PBSI 340	Psychology of Learning
PBSI 345	Human Cognitive Processes
PBSI 350	Cognitive Neuroscience
PBSI 360	Health Psychology and Behavioral Medicine
Social and behavioral sciences (p. 31) ¹	3
Additional Science elective ²	3
Psychology elective ³	3
General elective	2
Semester Credit Hours	14
Spring	
Select one of the following:	3
PBSI 305	Psychology of Adjustment
PBSI 306	Psychological Disorders
PBSI 307	Developmental Psychology
PBSI 315	Social Psychology
PBSI 319	History and Systems of Psychology
PBSI 323	Psychology of Adolescence
PBSI 330	Personality
PBSI 352	Organizational Psychology
PBSI 353	Personnel Psychology
PBSI 365	Psychology of Aging
Additional Science elective ²	3
Additional Science elective ²	3
Psychology elective ³	3
General elective	3
Semester Credit Hours	15
Total Semester Credit Hours	120

¹ Courses in psychology may not be used to satisfy this requirement.

² See departmental advisor for approved list

³ Select from PBSI 100-499 (p. 1184), No more than a combined maximum of 6 hours of PBSI 484, PBSI 485 are permitted.

A grade of C or higher is required if a course is to be counted in the major field.

No course can be counted in more than one category.

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a core category, a college/department requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

Psychology - Minor

This minor provides valuable insights into human behavior and develops essential interpersonal skills, enhancing students' ability to succeed in people-centered careers across multiple fields.

A minor in Psychology can be a valuable supplement to education in almost any field. Students select from a variety of courses that enhance understanding of animal or human behavior, the skills to intervene to change behavior and to create environments that support healthy behavior, and critical thinking skills related to asking and answering questions about human behavior. This knowledge prepares students to pursue a variety of careers where interacting with people is a central job component.

A Psychology minor is available for non-psychology majors. The minor must be declared before the student has completed 90 credit hours.

Program Requirements

Code	Title	Semester Credit Hours
PBSI 107	Introduction to Psychology	3
PBSI 200 to 499 (p. 1184) ^{1,2}		3
PBSI 300 to 499 (p. 1184) ^{1,2}		9
Total Semester Credit Hours		15

¹ Only 3 total hours from PBSI 484, PBSI 485 and PBSI 491 can count toward the minor.

² Registration in PBSI 301 and PBSI 302 is limited to PSYC majors only.

At least 9 semester credit hours of PBSI courses above the 200-level must be taken at Texas A&M.

Students must make a grade of C or better in all courses.

Behavioral Health - Certificate

This certificate provides specialized knowledge and practical skills within the major, enhancing student expertise and career prospects through focused coursework in areas like human development and mental health.

The Department of Psychological and Brain Sciences offers embedded certificates as part of the major. The certificates are considered embedded because they require no additional coursework—beyond specific courses in the major itself—to earn the certificate. All certificates require 15 credits (5 courses). The certificates are designed to (a) bring greater depth and structure to the major, (b) provide students with guidance as to courses that build on each other, and (c) ultimately increase the employability of our students.

The required courses in this certificate reflect foundational component areas of psychology that focus on (a) human growth and development, both physically and psychologically and (b) positive and negative mental health, with an emphasis on mental health and developmental disorders.

The prescribed electives include courses that focus on a variety of aspects of health and well-being and five of the six courses include practical applications of psychology, including the deployment and interpretation of psychological tests, therapeutic techniques, creation and monitoring of plans for personal growth and change, and the creation and application of reward systems.

Program Requirements

Code	Title	Semester Credit Hours
PBSI 306	Psychological Disorders	3
PBSI 307	Developmental Psychology	3
Select three of the following:		9
PBSI 305	Psychology of Adjustment	
PBSI 336	Drugs and Behavior	
PBSI 360	Health Psychology and Behavioral Medicine	
PBSI 414	Behavior Principles	
PBSI 425	Psychology of Emotion	
PBSI 440	Hormones and Behavior	
PBSI 445	Psychological and Social Determinants of Health Disparities	
PBSI 450	Clinical Psychology	
PBSI 470	Psychological Testing and Measurement	
Total Semester Credit Hours		15

Student must make a minimum of a 3.0 GPA across the courses used to meet the certificate requirements.

Healthy Development - Certificate

This certificate provides specialized knowledge and practical skills within the major, enhancing student expertise and career prospects through focused coursework in areas like human development, interpersonal dynamics and therapeutic techniques.

The Department of Psychological and Brain Sciences offers embedded certificates as part of the major. The certificates are considered embedded because they require no additional coursework—beyond specific courses in the major itself—to earn the certificate. The certificates are designed to (a) bring greater depth and structure to the major, (b) provide students with guidance as to courses that build on each other, and (c) ultimately increase the employability of our students.

The required courses in this certificate reflect foundational component areas of psychology that focus on (a) human growth and development, both physically and psychologically and (b) interpersonal behaviors and intrapersonal processes that affect our understanding of and relationships with others. The prescribed electives fall into two sets. The first set focuses on healthy and atypical development at different life stages, including adolescence, old age, and childhood. The second is a skills-based set of courses through which successful students will develop skills in healthy adjustment, behavioral modification, or therapeutic techniques.

Program Requirements

Code	Title	Semester Credit Hours
PBSI 307	Developmental Psychology	3
PBSI 315	Social Psychology	3
Select two of the following:		6
PBSI 225	Lifespan Development	
PBSI 323	Psychology of Adolescence	
PBSI 365	Psychology of Aging	
PBSI 407	Behavioral Disorders of Children	
Select one of the following:		3
PBSI 305	Psychology of Adjustment	
PBSI 414	Behavior Principles	
PBSI 450	Clinical Psychology	
Total Semester Credit Hours		15

Student must make a minimum of a 3.0 GPA across the courses used to meet the certificate requirements.

Psychology of Diversity - Certificate

This certificate enhances student expertise within the major by focusing on interpersonal dynamics, cognitive processes and the psychological factors related to diverse populations.

The Department of Psychological and Brain Sciences offers embedded certificates as part of the major. The certificates are considered embedded because they require no additional coursework—beyond specific courses in the major itself—to earn the certificate. The certificates are designed to (a) bring greater depth and structure to the major, (b) provide students with guidance as to courses that build on each other, and (c) ultimately increase the employability of our students.

The required courses in this certificate reflect foundational component areas of psychology that focus on (a) interpersonal behaviors and intrapersonal processes that affect our understanding of and relationships with others and (b) human cognitive processes that people use to understand information and categorize people and objects. The prescribed electives include courses that focus on a variety of aspects of diversity. These courses focus on the experiences of understudied and/or underrepresented persons and the psychological processes associated with their interpersonal treatment from others.

Program Requirements

Code	Title	Semester Credit Hours
PBSI 315	Social Psychology	3
PBSI 345	Human Cognitive Processes	3
Select three of the following:		9
PBSI 206/ AFST 206	Black Psychology	
PBSI 208	Stereotypes, Prejudice, and Minority Experience	
PBSI 209/ AFST 209	Psychology of Culture and Diversity	
PBSI 210/ WGST 210	Psychological Aspects of Human Sexuality	

PBSI 300/ WGST 300	Psychology of Women	
PBSI 346	Psychology of Language	
PBSI 432	Diversity and Inclusion in Organizations	
PBSI 445	Psychological and Social Determinants of Health Disparities	
Total Semester Credit Hours		15

Student must make a minimum of a 3.0 GPA across the courses used to meet the certificate requirements.

Work and Organizations - Certificate

This certificate provides focused expertise within the major, exploring individual personalities, interpersonal dynamics and the psychological principles that drive effective workplaces and organizations.

The Department of Psychological and Brain Sciences offers embedded certificates as part of the major. The certificates are considered embedded because they require no additional coursework—beyond specific courses in the major itself—to earn the certificate. All certificates require 15 credits (5 courses). The certificates are designed to (a) bring greater depth and structure to the major, (b) provide students with guidance as to courses that build on each other, and (c) ultimately increase the employability of our students.

The required courses in this certificate reflect foundational component areas of psychology that focus on (a) individual personalities and the behavioral and skill implications of individual traits and (b) interpersonal behaviors and intrapersonal processes that affect our understanding of and relationships with others. The prescribed electives include courses that focus on a variety of aspects of work and organizations, including the psychological underpinnings of workplace practices like hiring and training, organizational behavior, sports, negotiation and conflict, and testing.

Program Requirements

Code	Title	Semester Credit Hours
PBSI 315	Social Psychology	3
PBSI 330	Personality	3
Select three of the following:		9
PBSI 304	Psychology of Sport and Physical Activity	
PBSI 352	Organizational Psychology	
PBSI 353	Personnel Psychology	
PBSI 432	Diversity and Inclusion in Organizations	
PBSI 470	Psychological Testing and Measurement	
Total Semester Credit Hours		15

Students must make a minimum of a 3.0 GPA across the courses used to meet the certificate requirements.

Department of Sociology

The Department of Sociology supports a diverse community of faculty, staff and students working together to research and address real world social issues and problems. Faculty offer courses in race and ethnicity, social class, gender, popular culture, social psychology, organizations, community, environment, criminology, religion, global sociology, medical sociology, demography, and gerontology, among others. Some courses include hands-on service-learning opportunities in which students connect service and/or research in the community with course material. To further complement our courses in these and other areas of sociology, students have opportunities to work one-on-one with professors engaged in sociological research. For sociology majors seeking to enter applied fields, we have a highly praised internship program that offers practical experience in community nonprofit organizations, government agencies, and businesses.

Sociological training prepares students for graduate school and/or employment in a variety of occupations. Employers increasingly look for job candidates to have the critical thinking, writing, and research skills students will develop in our program. Sociology coursework provides students with the ability to live and work effectively in a diverse and global society by better understanding social diversity, cultural trends, inequalities, organizational behavior, and community and world events. Sociology provides an excellent background for students wishing to enter into the helping professions like social services, ministry, nursing, teaching, and law enforcement, and it provides an outstanding foundation for law, marketing, human resources, journalism, government, business management, and entrepreneurialism.

Faculty

Abel, Richard D, Lecturer
Sociology
PHD, Texas A&M University, College Station, TX, 2020

Amaral, Ernesto F. L., Associate Professor
Sociology
PHD, The University of Texas at Austin, 2007

Campbell, Mary E, Professor
Sociology
PHD, University of Wisconsin, Madison, 2004

Duran, Robert, Associate Professor
Sociology
PHD, University of Colorado Boulder, 2006

Evans, Rhonda D, Instructional Assistant Professor
Sociology
PHD, Texas A&M University, 2002

Foster, Holly A, Professor
Sociology
PHD, University of Toronto, 2001

Gatson, Sarah N, Associate Professor
Sociology
PHD, Northwestern University, 1999

Glanville, Jennifer, Professor
Sociology
PHD, University of North Carolina, Chapel Hill, 2001

Hakim, Omar, Professor of the Practice
Sociology
MS, The University of Texas at Austin, 2004

Harden, Troy, Professor of the Practice
Sociology
PHD, De Paul University, 2020

Hernandez, Alexander A, Instructional Associate Professor
Sociology
PHD, Boston College, 2014

Khan, Koyel, Instructional Assistant Professor
Sociology
PHD, University of Connecticut, 2020

Kim, Nadia, Professor
Sociology
PHD, University of Michigan-Ann Arbor, 2003

Lakkimsetti, Chaitanya, Associate Professor
Sociology
PHD, University of Wisconsin, 2010

Lariscy, Joseph, Associate Professor
Sociology
PHD, University of Texas Austin, 2013

Mackin, Robert S, Instructional Professor
Sociology
PHD, University of Wisconsin, Madison, 1998

Maich, Katherine Eva, Assistant Professor
Sociology
PHD, University of California, Berkeley, 2017

Marlow, Thomas, Assistant Professor
Sociology
PHD, Brown University, 2020

Mestrovic, Stjepan G, Professor
Sociology
PHD, Syracuse University, 1982

Morris, Theresa M, Professor
Sociology
PHD, Texas A&M University, 2000

Over, Defne, Assistant Professor
Sociology
PHD, Cornell University, 2017

Pals, Heili, Associate Professor
Sociology
PHD, Stanford University, 2006

Plankey-Videla, Nancy, Associate Professor
Sociology
PHD, University of Wisconsin, Madison, 1998

Prechel, Harland N, Professor
Sociology
PHD, University of Kansas, 1986

Reid, Jonathan, Assistant Professor
Sociology
PHD, Florida State University, 2021

Rubio Goldsmith, Pat, Professor
Sociology
PHD, University of Arizona, 1999

Santana, Emilce, Assistant Professor
Sociology
PHD, Princeton University, 2019

Suzuki, Kazuko, Associate Professor
Sociology
PHD, Princeton University, 2003

Thornton, Patricia H, Professor
Sociology
PHD, Stanford University, 1993

Waren, Warren P, Instructional Associate Professor
Sociology
PHD, Texas A&M University, 2008

Wolf, Joan B, Associate Professor
Sociology
PHD, University of Chicago, 1997

Woods, Timothy S, Instructional Professor
Sociology
PHD, Texas A&M University, 2000

Ye, Liangfei, Assistant Professor
Sociology
PHD, University of Wisconsin, Madison, 2021

Majors

- Bachelor of Arts in Sociology (p. 482)
- Bachelor of Arts in Sociology and Master of Public Service and Administration, 5-Year Degree Program (p. 483)
- Bachelor of Science in Sociology (p. 485)
- Bachelor of Science in Sociology and Master of Public Service and Administration, 5-Year Degree Program (p. 486)

Minors

- Criminology Minor (p. 488)
- Latino/a and Mexican-American Studies Minor (p. 488)
- Sociology Minor (p. 489)

Sociology - BA

A Bachelor of Arts in Sociology provides a solid foundation in the knowledge and skills needed to address real-world social issues and problems, while allowing students to explore a wide range of social topics and issues.

Some courses in this program include hands-on service-learning opportunities in which students connect service and/or research in the community with course material. For sociology majors seeking to enter applied fields, we have a highly praised internship program that offers practical experience in community nonprofit organizations, government agencies, and businesses. To further complement our courses, students

accepted into our honors program have opportunities to work one-on-one with professors engaged in sociological research.

The BA provides an excellent background for students aspiring to attend graduate school or enter a career in nonprofit community services or social work, health care and nursing, law or law enforcement, education, public policy, organizational management and entrepreneurialism, marketing, human resources, and/or journalism.

Marketable Skills Achieved with a BA in Sociology include:

- Being aware of other’s beliefs and behaviors and understanding why they believe and behave as they do
- The ability to address real-world problems and issues by developing realistic and equitable solutions
- Identifying complex problems and ideas and reviewing related information to analyze, develop and evaluate options, and implement solutions
- Communicating effectively in writing and speech as appropriate for the needs of the audience
- Developing and utilizing visual aids, graphs, tables and charts
- Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times
- Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action
- Managing one’s own time and the time of others
- Data analysis and interpretation
- Identifying the underlying patterns and principles of qualitative and quantitative information and explaining what that information means and how it can be used
- Bringing others together and trying to reconcile differences
- Establishing trust and ensuring input from all members of a group
- Working together to produce a shared product

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 104	Composition and Rhetoric ¹	3
American history (p. 30)		3
Foreign language ²		4
Mathematics (p. 27)		3
Sociology elective (p. 1233) ¹		3

Semester Credit Hours 16

Spring

American history (p. 30)		3
Foreign language ²		4
Government/Political science (p. 31)		3
Mathematics (p. 27)		3
Sociology elective (p. 1233) ¹		3

Semester Credit Hours 16

Second Year**Fall**

SOCI 220	Methods of Social Research	3
Foreign language ²		3
Government/Political science (p. 31)		3
Literature directed elective (p. 261)		3
Sociology elective (p. 1233) ¹		3
Semester Credit Hours		15

Spring

SOCI 230	Classical Sociological Theory ¹	3
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
Foreign language ²		3
Life and physical sciences (p. 27)		3
General elective ³		3
Semester Credit Hours		15

Third Year**Fall**

SOCI 420	Advanced Methods of Social Research ¹	3
Language, philosophy and culture (p. 28)		3
Social and behavioral sciences (p. 31) ⁴		3
Literature directed elective (p. 261)		3
General elective ³		3
Semester Credit Hours		15

Spring

SOCI 430	Contemporary Sociological Theory ¹	3
Life and physical sciences (p. 27)		3
Social and behavioral sciences (p. 31) ⁴		3
Sociology elective (p. 1233) ¹		3
General elective ³		3
Semester Credit Hours		15

Fourth Year**Fall**

Creative arts (p. 30)		3
Life and physical sciences (p. 27)		3
Sociology elective (p. 1233) ¹		3
Sociology elective (p. 1233) ¹		3
General elective ³		3
Semester Credit Hours		15

Spring

Language, philosophy and culture or creative arts (p. 28)		3
Sociology elective (p. 1233) ¹		3
General elective ³		3
General elective ³		3
General elective ³		1
Semester Credit Hours		13

Total Semester Credit Hours **120**

¹ A grade of C or better is required.

² Complete 14 hours of a foreign language (p. 261) through the intermediate level. If you choose to enroll in a language you have studied previously without receiving college credit, you must first take a placement test. See academic advisor.

³ Any 100-499 level course may be taken. No more than 6 semester credit hours for SOCI 484 may be applied to the Bachelor of Arts degree in Sociology.

⁴ SOCI courses do not count toward fulfilling this requirement.

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/departments requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

No more than 33 hours in sociology may be applied to the major.

Other courses may qualify. Consult the approved list of courses available in the Undergraduate Student Services Office in the College of Arts and Sciences or from departmental advisors. No more than one course may be counted in more than one category.

Please note that university requirements specify that all students must take at least two courses in their major that are designated as fulfilling a writing requirement (W). See the section on general requirements for baccalaureate degrees for more information.

Minor Field of Study

Sociology majors are not required to select a minor field of study. If chosen, the minor must consist of 15-18 hours, with no more than 9 hours taken at a 100- or 200-level. No more than six hours from the minor may be used to fulfill other requirements. A grade of C or higher is required if a course is to be counted in the minor field.

Sociology - 5-Year Bachelor of Arts and Master of Public Service Administration

This program enables students to receive their Sociology undergraduate degree (BA) and a Master of Public Service and Administration (MPSA) graduate degree in five years.

The Department of Sociology and the Bush School of Government and Public Service offer a 5-year combination degree program that allows Sociology majors to enter the Bush School at the start of their senior year (typically year four) at Texas A&M University.

To be considered for the 5-year combined degree program, Sociology students must have a minimum 3.25 GPA and have completed 102 of the 120 hours of course work required to receive a bachelor's degree. These courses must include all of the specific prerequisites for a Bachelor of Arts degree in Sociology, as well as the courses required by the College of Liberal Arts and by Texas A&M University for an undergraduate degree. Interested students are encouraged to contact an academic advisor for more information.

A Bachelor of Arts in Sociology provides a solid foundation in the knowledge and skills needed to address real-world social issues and

problems, while allowing students to explore a wide range of social topics and issues. Some courses include hands-on service-learning opportunities in which students connect service and/or research in the community with course material. For sociology majors seeking to enter applied fields, we have a highly praised internship program that offers practical experience in community nonprofit organizations, government agencies, and businesses. To further complement our courses, students accepted into our honors program have opportunities to work one-on-one with professors engaged in sociological research.

The Master of Public Service and Administration (MPSA) program develops principled leaders for the public and nonprofit sectors, providing students the tools and knowledge they will need in order to perform effectively and ethically in a time when public servants face new and increased challenges.

The MPSA program is fully accredited by the Network of Schools of Public Policy, Affairs, and Administration. The curriculum provides students with general knowledge and analytical skills in management, leadership, policy analysis, and research methods. MPSA students have ample opportunities to engage in public service and to develop leadership skills both inside and outside the classroom through interaction with high-level public leaders, real-world consulting projects, student organizations, and the School's Public Service Leadership Program. MPSA graduates leave the Bush School ready to make a difference, whether they choose to work in government, non-profit organizations, or the private sector.

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 104	Composition and Rhetoric ¹	3
American history (p. 30)		3
Foreign language ²		4
Mathematics (p. 27)		3
Sociology elective ^{1,3}		3
Semester Credit Hours		16

Spring

American history (p. 30)		3
Foreign language ²		4
Government/Political science (p. 31)		3
Mathematics (p. 27)		3
Sociology elective ^{1,3}		3
Semester Credit Hours		16

Second Year

Fall		Semester Credit Hours
SOCI 220	Methods of Social Research ¹	3
Foreign language ²		3
Government/Political science (p. 31)		3
Life and physical sciences (p. 27)		3
Literature directed elective (p. 261)		3
Sociology elective ^{1,3}		3
Semester Credit Hours		18

Spring

SOCI 230	Classical Sociological Theory ¹	3

Select one of the following: 3

COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
Creative arts (p. 30)		3
Foreign language ²		3
Life and physical sciences (p. 27)		3
General elective ⁴		3

Semester Credit Hours 18

Third Year

Fall

SOCI 420	Advanced Methods of Social Research ¹	3
Language, philosophy and culture (p. 28)		3
Social and behavioral sciences (p. 31) ⁵		3
Literature directed elective (p. 261)		3
General elective ⁴		3
General elective ⁴		3

Semester Credit Hours 18

Spring

SOCI 430	Contemporary Sociological Theory ¹	3
Language, philosophy and culture or creative arts (p. 28)		3
Life and physical sciences (p. 27)		3
Social and behavioral sciences (p. 31) ⁵		3
Sociology elective ^{1,3}		3
General elective ⁴		1

Semester Credit Hours 16

Fourth Year

Fall

BUSH 631	Quantitative Methods in Public Management I ⁶	3
PSAA 601	Foundations of Public Service ⁶	3
PSAA 621	Economic Analysis ⁶	3
PSAA 643	Foundations of the Nonprofit Sector	3

Semester Credit Hours 12

Spring

PSAA 611	Public Policy Formation ⁶	3
Select one of the following: ^{6,7}		3

BUSH 632	Quantitative Methods in Public Management II	
BUSH 635	Quantitative Methods in Public Management II: Policy Analysis Emphasis	
PSAA 630	Program Evaluation in Public and Nonprofit Organizations	
BUSH elective ^{6,7}		3
BUSH elective ⁷		3

Semester Credit Hours 12

Fifth Year

Fall

PSAA 675	Public Service and Administration Capstone Seminar	3
BUSH elective ⁷		3

BUSH elective ⁷	3
BUSH elective ⁷	3
Semester Credit Hours	12
Spring	
PSAA 676 Public Service and Administration Capstone Seminar II	3
BUSH elective ⁷	3
BUSH elective ⁷	3
BUSH elective ⁷	3
Semester Credit Hours	12
Total Semester Credit Hours	150

¹ A grade of C or better is required.

² Complete 14 hours of a foreign language (p. 261) through the intermediate level. If you choose to enroll in a language you have studied previously without receiving college credit, you must first take a placement test. See academic advisor.

³ Select from SOCI 100-499 (p. 1233), SOCI 608.

⁴ Any 100-499 level course may be taken. No more than 3 hours of SOCI 484 may be used toward fulfilling this requirement.

⁵ SOCI courses do not count toward fulfilling this requirement.

⁶ Course applies toward both degrees.

⁷ See Bush School advisor for course selection information.

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

No more than 33 hours in sociology may be applied to the major.

Other courses may qualify. Consult the approved list of courses available in the Undergraduate Student Services Office in the College of Arts and Sciences or from departmental advisors. No more than one course may be counted in more than one category.

Please note that university requirements specify that all students must take at least two courses in their major that are designated as fulfilling a writing requirement (W). See the section on general requirements for baccalaureate degrees for more information.

The program includes a total of 168 hours which up to 18 hours may be applied toward both the Bachelor of Arts in Sociology and the Master of Public Service Administration.

See the MPSA program in the Graduate and Professional Catalog for the MPSA requirements.

Minor Field of Study

Sociology majors are not required to select a minor field of study. If chosen, the minor must consist of 15-18 hours, with no more than 9 hours taken at a 100- or 200-level. No more than six hours from the minor may be used to fulfill other requirements. A grade of C or higher is required if a course is to be counted in the minor field.

Sociology - BS

A Bachelor of Science in Sociology provides a solid foundation in the knowledge and skills needed to address real-world social issues and problems, while allowing students to explore a wide range of social topics and issues.

Some courses in this program include hands-on service-learning opportunities in which students connect service and/or research in the community with course material. For sociology majors seeking to enter applied fields, we have a highly praised internship program that offers practical experience in community nonprofit organizations, government agencies, and businesses. To further complement our courses, students accepted into our honors program have opportunities to work one-on-one with professors engaged in sociological research.

The BS provides an excellent background for students aspiring to attend graduate school or enter a career in nonprofit community services or social work, health care and nursing, law or law enforcement, education, public policy, organizational management and entrepreneurialism, marketing, human resources, and/or journalism.

Marketable Skills Achieved with a BS in Sociology include:

- Being aware of other's beliefs and behaviors and understanding why they believe and behave as they do
- The ability to address real-world problems and issues by developing realistic and equitable solutions
- Identifying complex problems and ideas and reviewing related information to analyze, develop and evaluate options, and implement solutions
- Communicating effectively in writing and speech as appropriate for the needs of the audience
- Developing and utilizing visual aids, graphs, tables and charts
- Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times
- Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action
- Managing one's own time and the time of others
- Data analysis and interpretation
- Identifying the underlying patterns and principles of qualitative and quantitative information and explaining what that information means and how it can be used
- Bringing others together and trying to reconcile differences
- Establishing trust and ensuring input from all members of a group
- Working together to produce a shared product

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 104	Composition and Rhetoric ¹	3
Creative arts (p. 30)		3
Life and physical sciences (p. 27)		3
Mathematics (p. 27)		3

Sociology elective ^{1, 2} 3

Semester Credit Hours 15

Spring

Select one of the following: 3

COMM 203 Public Speaking 3

COMM 205 Communication for Technical Professions 3

COMM 243 Argumentation and Debate 3

ENGL 203 Writing about Literature 3

ENGL 210 Technical and Professional Writing 3

American history (p. 30) 3

Life and physical sciences (p. 27) 3

Mathematics (p. 27) 3

Sociology elective ^{1, 2} 3

Semester Credit Hours 15

Second Year

Fall

SOCI 220 Methods of Social Research ¹ 3

American history (p. 30) 3

Life and physical sciences (p. 27) 3

Literature directed elective (p. 261) 3

Sociology elective ^{1, 2} 3

Semester Credit Hours 15

Spring

SOCI 230 Classical Sociological Theory ¹ 3

Government/Political science (p. 31) 3

Life and physical sciences (p. 27) 3

Literature directed elective (p. 261) 3

General elective ³ 3

Semester Credit Hours 15

Third Year

Fall

SOCI 420 Advanced Methods of Social Research ¹ 3

Life and physical sciences (p. 27) 3

Social and behavioral sciences (p. 31) ⁴ 3

General elective ³ 3

General elective ³ 3

Semester Credit Hours 15

Spring

SOCI 430 Contemporary Sociological Theory ¹ 3

Government/Political science (p. 31) 3

Life and physical sciences (p. 27) 3

Sociology elective ^{1, 2} 3

General elective ³ 3

Semester Credit Hours 15

Fourth Year

Fall

Language, philosophy and culture (p. 28) 3

Life and physical sciences (p. 27) 3

Sociology elective ^{1, 2} 3

Sociology elective ^{1, 2} 3

General elective ³ 3

Semester Credit Hours 15

Spring

Language, philosophy and culture (p. 28) 3

Social and behavioral sciences (p. 31) ⁴ 3

Sociology elective ^{1, 2} 3

General elective ³ 3

General elective ³ 3

Semester Credit Hours 15

Total Semester Credit Hours 120

¹ A grade of C or better is required.

² Select from SOCI 100-499 (p. 1233).

³ Any 100-499 course not used elsewhere. No more than 6 semester credit hours for SOCI 484 may be applied to the Bachelor of Science degree in Sociology.

⁴ SOCI courses do not count toward fulfilling this requirement.

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

No more than 33 hours in sociology may be applied to the major.

Other courses may qualify. Consult the approved list of courses available in the Undergraduate Student Services Office in the College of Arts and Sciences or from departmental advisors. No more than one course may be counted in more than one category.

Please note that university requirements specify that all students must take at least two courses in their major that are designated as fulfilling a writing intensive requirement (W). See the section on general requirements for baccalaureate degree for more information.

Minor Field of Study

Sociology majors are not required to select a minor field of study. If chosen, the minor must consist of 15-18 hours, with no more than 9 hours taken at a 100- or 200-level. No more than six hours from the minor may be used to fulfill other requirements. A grade of C or higher is required if a course is to be counted in the minor field.

Sociology - 5-Year Bachelor of Science and Master of Public Service Administration

This program enables students to receive their Sociology undergraduate degree (BS) and a Master of Public Service and Administration (MPSA) graduate degree in five years.

The Department of Sociology and the Bush School of Government and Public Service offer a 5-year combination degree program that allows Sociology majors to enter the Bush School at the start of their senior year (typically year four) at Texas A&M University.

To be considered for the 5-year combined degree program, Sociology students must have a minimum 3.25 GPA and have completed 102 of the 120 hours of course work required to receive a bachelor's degree. These courses must include all of the specific prerequisites for a Bachelor

of Science degree in Sociology, as well as the courses required by the College of Liberal Arts and by Texas A&M University for an undergraduate degree. Interested students are encouraged to contact an academic advisor for more information.

A Bachelor of Science in Sociology provides a solid foundation in the knowledge and skills needed to address real-world social issues and problems, while allowing students to explore a wide range of social topics and issues. Some courses include hands-on service-learning opportunities in which students connect service and/or research in the community with course material. For sociology majors seeking to enter applied fields, we have a highly praised internship program that offers practical experience in community nonprofit organizations, government agencies, and businesses. To further complement our courses, students accepted into our honors program have opportunities to work one-on-one with professors engaged in sociological research.

The Master of Public Service and Administration (MPSA) program develops principled leaders for the public and nonprofit sectors, providing students the tools and knowledge they will need in order to perform effectively and ethically in a time when public servants face new and increased challenges. The MPSA program is fully accredited by the Network of Schools of Public Policy, Affairs, and Administration. The curriculum provides students with general knowledge and analytical skills in management, leadership, policy analysis, and research methods.

MPSA students have ample opportunities to engage in public service and to develop leadership skills both inside and outside the classroom through interaction with high-level public leaders, real-world consulting projects, student organizations, and the School's Public Service Leadership Program. MPSA graduates leave the Bush School ready to make a difference, whether they choose to work in government, non-profit organizations, or the private sector.

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 104	Composition and Rhetoric ¹	3
	Creative arts (p. 30)	3
	Life and physical sciences (p. 27)	3
	Mathematics (p. 27)	3
	Sociology elective ^{1,2}	3
Semester Credit Hours		15
Spring		
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
	American history (p. 30)	3
	Life and physical sciences (p. 27)	3
	Mathematics (p. 27)	3
	Sociology elective ^{1,2}	3
Semester Credit Hours		15

Second Year

Fall		
SOCI 220	Methods of Social Research ¹	3
	American history (p. 30)	3
	Life and physical sciences (p. 27)	3
	Literature directed elective (p. 261)	3
	Social and behavioral sciences (p. 31) ³	3
	Sociology elective ^{1,2}	3
Semester Credit Hours		18
Spring		
SOCI 230	Classical Sociological Theory ¹	3
	Government/Political science (p. 31)	3
	Language, philosophy and culture (p. 28)	3
	Life and physical sciences (p. 27)	3
	Literature directed elective (p. 261)	3
	General elective ⁴	3
Semester Credit Hours		18

Third Year

Fall		
SOCI 420	Advanced Methods of Social Research ¹	3
	Life and physical sciences (p. 27)	3
	Life and physical sciences (p. 27)	3
	Social and behavioral sciences (p. 31) ³	3
	General elective ⁴	3
	General elective ⁴	3
Semester Credit Hours		18
Spring		
SOCI 430	Contemporary Sociological Theory ¹	3
	Government/Political science (p. 31)	3
	Language, philosophy and culture or creative arts (p. 28)	3
	Life and physical sciences (p. 27)	3
	Sociology elective ^{1,2}	3
	General elective ⁴	3
Semester Credit Hours		18

Fourth Year

Fall		
BUSH 631	Quantitative Methods in Public Management I ⁵	3
PSAA 601	Foundations of Public Service ⁵	3
PSAA 621	Economic Analysis ⁵	3
PSAA 643	Foundations of the Nonprofit Sector	3
Semester Credit Hours		12
Spring		
PSAA 611	Public Policy Formation ⁵	3
Select one of the following: ^{5,6}		3
BUSH 632	Quantitative Methods in Public Management II	
BUSH 635	Quantitative Methods in Public Management II: Policy Analysis Emphasis	
PSAA 630	Program Evaluation in Public and Nonprofit Organizations	
BUSH elective ⁵		3

BUSH elective ⁶		3
Semester Credit Hours		12
Fifth Year		
Fall		
PSAA 675	Public Service and Administration Capstone Seminar	3
BUSH elective ⁶		3
BUSH elective ⁶		3
BUSH elective ⁶		3
Semester Credit Hours		12
Spring		
PSAA 676	Public Service and Administration Capstone Seminar II	3
BUSH elective ⁶		3
BUSH elective ⁶		3
BUSH elective ⁶		3
Semester Credit Hours		12
Total Semester Credit Hours		150

¹ A grade of C or better is required.
² Select from SOCI 100-499 (p. 1233), SOCI 608.
³ SOCI courses do not count toward fulfilling this requirement.
⁴ Any 100-499 course not used elsewhere. No more than 6 semester credit hours for SOCI 484 may be applied to the Bachelor of Science degree in Sociology.
⁵ Course applies toward both degrees.
⁶ See Bush School advisor for course selection information.

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

No more than 33 credit hours in SOCI may be applied to the major.

Other courses may qualify. Consult the approved list of courses available in the Undergraduate Student Services Office in the College of Arts and Sciences or from departmental advisors. No more than one course may be counted in more than one category.

Please note that university requirements specify that all students must take at least two courses in their major that are designated as fulfilling a writing intensive requirement (W). See the section on general requirements for baccalaureate degree for more information.

The program includes a total of 168 hours which up to 18 hours may be applied toward both the Bachelor of Science in Sociology and the Master of Public Service Administration.

See the MPSA program in the Graduate and Professional Catalog for the MPSA requirements.

Minor Field of Study

Sociology majors are not required to select a minor field of study. If chosen, the minor must consist of 15-18 hours, with no more than 9 hours taken at a 100- or 200-level. No more than six hours from the

minor may be used to fulfill other requirements. A grade of C or higher is required if a course is to be counted in the minor field.

Criminology - Minor

Explore the complexities of crime and its impact on society with this Criminology minor.

A minor in Criminology prepares students for employment in criminal justice, criminology, forensic sciences, public service, and public policy fields, as well as those seeking advanced degrees in related disciplines. The minor focuses on the theories and research used to predict and explain the origins and nature of crimes, the determinants of crime patterns, the effects of crime on individuals, communities and society, and the solutions to reduce and prevent crime.

Program Requirements

Code	Title	Semester Credit Hours
SOCI 304	Criminology	3
Select four of the following:		12
ECON 421	Economics of Crime	
FIVS 205	Introduction to Forensic and Investigative Sciences	
FIVS 420	Controlled Substances	
HIST 209	Famous Trials in American History	
PBSI 315	Social Psychology	
PBSI 336	Drugs and Behavior	
PBSI 371	Forensic Psychology	
SOCI 211	Sociology of Deviance	
SOCI 214	Social Problems	
SOCI 408	Death and Dying	
SOCI 411	Social Psychology	
SOCI 421/ WGST 421	Gender & Crime	
SOCI 422	Race, Ethnicity, Crime and Justice	
SOCI 445	Sociology of Law	
SOCI 446	Sociology of War Crimes	
Total Semester Credit Hours		15

A grade of C or better is required to use a course for the minor.
A minimum of 9 hours of coursework must be at the 300/400 level.

Latino/a and Mexican-American Studies - Minor

The Latino/a and Mexican American Studies minor (LMAS) encourages students across the university to investigate the experiences and contributions of Latino/as in the United States and abroad.

Students minoring in LMAS will receive instruction from interdisciplinary faculty across the College of Arts and Sciences, and the University. LMAS courses draw on disciplines including, but not limited to, the areas of History, Sociology, English, Anthropology, Psychology, Communications, Political Science, Geography, Education, and Hispanic Studies. The courses provide students with broad knowledge about Latino/as

frequently omitted from the common curriculum and centered in the experiences of Latino/as.

The LMAS minor addresses topics such as race, ethnicity, gender, politics, religion, education, labor, immigration, and civil rights, among others. These topics include both historical and contemporary perspectives and draw on a variety of approaches, including literature, history, individual and interpersonal experiences, performance, policy analysis, and psychological research.

The LMAS minor complements any degree and future career by providing students with a strong foundation in key workplace skills: critical thinking, perspective taking, social and personal responsibility, communication, research, writing, and cultural understanding. Additionally, the LMAS minor prepares students to address societal changes that will occur as the state of Texas becomes a majority-minority state and continues to navigate its southern border. The LMAS minor prepares students to address some of the most crucial societal issues today: health policy, justice and law reform, civil rights, and labor and immigration practices.

Program Requirements

Code	Title	Semester Credit Hours
Select at least six hours from the following ^{1,2}		6
ENGL 362/ HISP 362	Latino/a Literature	
HISP 363	Borderlands: U.S. and Mexico	
HIST 307	Latinx History	
LMAS 201	Introduction to Latino/Mexican American Studies	
POLS 304	Latino Politics in the United States	
SOCI 403	Sociology of Latinos	
SPAN 412	U.S. Hispanic Writers	
Select the remaining hours from the following: ²		9
AFST 325	Africana Humanities	
COMM 407/ WGST 407	Gender, Race and Media	
GEOG 323	Geography of Latin America	
HISP 204	Spanish and Spanish American Literature in Translation	
HIST 258	American Indian History	
HIST 304	Southwest Borderlands	
HIST 305	Chicana/o History since 1848	
HIST 316	Latino/a Labor in the United States	
HIST 468/ LMAS 468	Latinx Civil Rights Movements	
HLTH 236	Introduction to Health Disparities and Diversity	
PBSI 208	Stereotypes, Prejudice, and Minority Experience	
PBSI 209/ AFST 209	Psychology of Culture and Diversity	
PBSI 303	Psychology of Women of Color	
PHIL 283	Latin American Philosophy	
POLS 306	Contemporary Political Problems and Issues	

POLS 362	Latin American Political Thought
SOCI 203	U.S.-Mexico Border
SOCI 217	Introduction to Race and Ethnicity
SOCI 337	International Migration
SOCI 338	Latino Immigration
SPAN 414	Mexican Cinema and Culture
SPAN 450	Contemporary Spanish and Spanish-American Literature
TEFB 273	Introduction to Culture, Community, Society and Schools

Total Semester Credit Hours

15

¹ The two courses (6 hours) from the first area must come from two departments.

² Students will select 15 hours total from both lists with a minimum of 9 hours at the upper-division level (300- and 400-level).

Students must earn a C or higher in each course to be counted in the minor field.

Sociology - Minor

This minor equips students with the critical thinking and communication skills needed to navigate a diverse and global society, preparing them for impactful careers in fields ranging from social services to business.

A minor in Sociology can be a valuable complement to a degree in almost any field of study. Students select from a variety of courses to enhance the ability to live and work effectively in a diverse and global society by better understanding social diversity, cultural trends, inequalities, organizational behavior, and community and world events.

A Sociology minor will provide graduates with skills in applying knowledge to address real world problems through the development of realistic and equitable solutions, thinking critically about complex problems and ideas, engaging in communication processes with diverse audiences, practicing responsibility for one's own and others' performance to improve processes and make improvements, analyzing data to identify patterns and explain the meaning and application of data, and collaborating with others.

Sociology provides an excellent background for students wishing to enter into helping professions like social services, ministry, nursing, teaching, and law enforcement; it also provides an outstanding foundation for law, marketing, human resources, journalism, government, business management, and entrepreneurship.

Program Requirements

Code	Title	Semester Credit Hours
Select 6 hours from the following:		6
SOCI 200 to 499 (p. 1233)		
Select 9 hours from the following:		9
SOCI 300 to 499 (p. 1233)		
Total Semester Credit Hours		15

Students must make a grade of C or better in all courses.

At least 9 hours must be at the 300- or 400-level.

Department of Statistics

The science of statistics deals with the collection and summarization of data, design of experiments and surveys, measurement of the magnitude of variation in both experimental and survey data, estimation of population parameters with measures of their accuracy and precision, tests of hypotheses about populations and studies of the relationships between two or more variables. While the ideal of science is to achieve a systematic interrelationship of facts, scientific methods must be a pursuit of this ideal by experimentation, observation and logical arguments from various accepted postulates. Thus, the science of statistics is a set of scientific principles and methodologies that are useful in reaching conclusions about populations and processes when the available information is both limited and variable. Hence, statistical principles are useful in all the sciences, both physical and social. Many practical applications of statistics are found in a wide variety of fields, including biology, education, social sciences, engineering, business, government and agriculture.

The Department of Statistics offers training in statistics leading to degrees of Bachelor of Science, Master of Science and Doctor of Philosophy.

Faculty

Aburweis, Mohamed, Instructional Associate Professor
Statistics
PHD, South Dakota State University, 2017

Akleman, Derya G, Instructional Professor
Statistics
PHD, Texas A&M University, 1996

Arroyo Relion, Jesus Daniel, Assistant Professor
Statistics
PHD, University of Michigan, 2018

Bhattacharya, Anirban, Professor
Statistics
PHD, Duke University, 2012

Bruce, Scott Alan, Associate Professor
Statistics
PHD, Temple University, 2018

Carroll, Raymond J, Distinguished Professor
Statistics
PHD, Purdue University, 1974

Chakraborty, Abhishek, Assistant Professor
Statistics
PHD, Harvard Graduate School of Arts and Sciences, 2016

Chen, Willa W, Professor
Statistics
PHD, New York University, 2000

Cline, Daren B.H., Professor
Statistics
PHD, Colorado State University, 1983

Crawford, Scott, Instructional Professor
Statistics
PHD, Texas A&M University, 2012

Dabney, Alan R, Professor
Statistics
PHD, University of Washington, 2006

Dao, Thy, Lecturer
Statistics
PHD, University of Arkansas, 2021

Ghosh, Prasenjit, Instructional Assistant Professor
Statistics
PHD, Indian Statistical Institute, 2017

Guha, Sharmistha, Assistant Professor
Statistics
PHD, University of California-Santa Cruz, 2019

Guhaniyogi, Rajarshi, Professor
Statistics
PHD, University of Minnesota - Twin Cities, 2012

Ha, Seungyeon, Instructional Assistant Professor
Statistics
PHD, Florida State University, 2013

Hatfield, Keith, Senior Lecturer
Statistics
MBA, University of North Texas, 1980

Hernandez Magallanes, Irma Del Consue, Instructional Associate
Professor
Statistics
PHD, University California Berkley, 2010

Homrighausen, Darren Warren, Instructional Professor
Statistics
PHD, Carnegie Mellon, 2012

Jiang, Yuchao, Associate Professor
Statistics
PHD, University of Pennsylvania, Perelman School of Medicine, 2017

Johnson, Valen E, Professor
Statistics
PHD, University Of Chicago, 1989

Jones, Edward R, Visiting Professor
Statistics
PHD, Virginia Polytechnic State University, 1976

Jung, Yoonsung, Instructional Associate Professor
Statistics
PHD, Kansas State University, 2009

Kolodziej, Elizabeth Y, Instructional Assistant Professor
Statistics
PHD, Texas A&M University, 2010

Laha, Nilanjana, Assistant Professor
Statistics
PHD, University of Washington, Seattle, 2019

Lockhart, Mary E, Instructional Assistant Professor
Statistics
PHD, Texas A&M University, 2021

Mallick, Bani K, Distinguished Professor
Statistics
PHD, University of Connecticut, 1994

Ni, Yang, Associate Professor
Statistics
PHD, Rice University, 2015

Ning, Ning, Assistant Professor
Statistics
PHD, University of California, Santa Barbara, 2018

Peng, Xiyu, Assistant Professor
Statistics
PHD, Iowa State University, 2021

Pourahmadi, Mohsen, Professor
Statistics
PHD, Michigan State University, 1980

Roiterchtein, Alexander, Instructional Associate Professor
Statistics
PHD, Israel Institute of Technology, 2004

Roy, Abhishek, Assistant Professor
Statistics
PHD, University of California, Davis, 2020

Sang, Huiyan, Professor
Statistics
PHD, Duke University, 2008

Schafer, Toryn, Assistant Professor
Statistics
PHD, University of Missouri, 2020

Sinha, Samiran, Professor
Statistics
PHD, University of Florida, 2004

Subbarao, Suhasini T, Professor
Statistics
PHD, University of Bristol, 2001

Vidakovic, Brani, Professor
Statistics
PHD, Purdue University, 1992

Wang, Runmin, Assistant Professor
Statistics
PHD, University of Illinois at Urbana-Champaign, 2020

Wang, Suojin, Professor
Statistics
PHD, The University of Texas at Austin, 1988

Wong, Raymond, Professor
Statistics
PHD, University California, Davis, 2014

Yi, Seongbaek, Instructional Assistant Professor
Statistics
PHD, Texas A&M University, 1996

Zhang, Xianyang, Professor
Statistics
PHD, University of Illinois at Urbana-Champaign, 2013

Zhou, Lan, Associate Professor
Statistics
PHD, University of California at Berkeley, 1997

Zhou, Quan, Associate Professor
Statistics
PHD, Baylor College of Medicine, 2017

Majors

- Bachelor of Science in Bioinformatics (p. 491)
- Bachelor of Science in Statistics (p. 493)
- Bachelor of Science in Statistics and Master of Science in Statistical Data Science, 5-Year Degree Program (p. 494)

Minors

- Statistics Minor (p. 496)

Bioinformatics - BS

The Bioinformatics curriculum focuses on cultivating students with knowledge and expertise in biology, statistics, computer science, and, most importantly, the seamless integration of these diverse domains.

The recent explosion of high-throughput experimental techniques (e.g., next-generation sequencing, proteomics, metabolomics, imaging, etc.), coupled with rapid advances in computational and statistical technologies, has laid the foundation for the emergence of a highly interdisciplinary field of bioinformatics. The Bachelor of Science in Bioinformatics is strategically designed with core courses in statistics/mathematics, biology/genetics, and computer science, as well as comprehensive and advanced training in bioinformatics. Bioinformatics, at the intersection of Biology, Statistics, and Computer Science, bears resemblances to Computational Biology. However, Bioinformatics emphasizes quantitative skills to better harness large-scale biological data, whereas Computational Biology is mainly focused on addressing biological questions using computational approaches.

The overall purpose of this program is to empower graduates with a profound grasp of biological, genetic, and genomic principles, complemented by robust skills in statistics, computation, and data science. This program aims to nurture the next generation of bioinformaticians, computational biologists, data scientists, and researchers in various life science, biotechnology, and healthcare settings. This program will structurally and administratively reside in the Department of Statistics, in close partnership with the Department of Biology and with full support from the Department of Computer Science and Engineering.

Program Requirements

First Year

Fall		Semester Credit Hours
BIOL 111	Introductory Biology I	4
CSCE 110 or CSCE 111	Programming I ¹ or Introduction to Computer Science Concepts and Programming	4
ENGL 104	Composition and Rhetoric	3
Select one of the following: ¹		4
MATH 147	Calculus I for Biological Sciences	
MATH 151	Engineering Mathematics I	
MATH 171	Calculus I	
Semester Credit Hours		15

Spring

BIOL 112	Introductory Biology II	4
CSCE 120	Program Design and Concepts	3
Select one of the following: ¹		4
MATH 148	Calculus II for Biological Sciences	
MATH 152	Engineering Mathematics II	
MATH 172	Calculus II	
Social and behavioral sciences (p. 31)		3
Semester Credit Hours		14

Second Year

Fall		
PHYS 201	College Physics	4
STAT 211	Principles of Statistics I	3
American history (p. 30)		3
Prescribed elective ²		3
General elective ³		3
Semester Credit Hours		16

Spring

STAT 205	Bioinformatics Cornerstone (Bioinformatics Cornerstone)	1
STAT 212	Principles of Statistics II	3
Select one of the following:		4
CHEM 107 & CHEM 117	General Chemistry for Engineering Students and General Chemistry for Engineering Students Laboratory	
CHEM 119	Fundamentals of Chemistry I	
Prescribed elective ²		3
General elective ³		3
Semester Credit Hours		14

Third Year

Fall		
MATH 304	Linear Algebra	3
STAT 315	Computational Data Science	3
POLS 206	American National Government	3
Language, philosophy and culture (p. 28)		3
Prescribed elective ²		3
Semester Credit Hours		15

Spring

GENE 301 or GENE 320/ BIMS 320	Comprehensive Genetics or Biomedical Genetics	3
POLS 207	State and Local Government	3
STAT 404	Statistical Computing	3
Prescribed elective ²		3
General elective ³		3
Semester Credit Hours		15

Fourth Year

Fall		
BIOL 450/ BICH 450	Genomics	4
STAT 446	Statistical Bioinformatics	3
STAT 447	Machine Learning for Computational Biology (Machine Learning for Computational Biology)	3
American history (p. 30)		3
Prescribed elective ²		3
Semester Credit Hours		16

Spring

STAT 486	Bioinformatics Capstone (Bioinformatics Capstone)	3
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
Creative arts (p. 30)		3
Prescribed elective ²		3
General elective ³		3
Semester Credit Hours		15
Total Semester Credit Hours		120

¹ Must make a grade of C or better.

² Prescribed electives to be selected from the list below. 11 hours must be 300- and 400-level courses.

³ Select from any 100-499 course not used elsewhere.

Prescribed electives

Code	Title	Semester Credit Hours
BIOL 213	Molecular Cell Biology	3
BIOL 214	Genes, Ecology and Evolution	3
BIOL 349	Bioinformatics	3
BIOL 350	Computational Genomics	3
BIOL 351	Fundamentals of Microbiology	4
BIOL 406/ GENE 406	Bacterial Genetics	3
BIOL 430	Biological Imaging	4
BMEN 250	Biostatistics and Data Visualization	3
CSCE 206	Structured Programming in C	4
CSCE 222/ ECEN 222	Discrete Structures for Computing	3
CSCE 221	Data Structures and Algorithms	4

ECEN 419	Genomic Signal Processing	3
GENE 405/ BIMS 405	Mammalian Genetics	3
GENE 419/ BICH 419	Computational Techniques for Evolutionary Analysis	3
GENE 464/ BICH 464	Bacteriophage Genomics	3
STAT 335/ CSCE 320	Principles of Data Science	3
STAT 406	Design and Analysis of Experiments	3
STAT 408	Introduction to Linear Models	3
STAT 445	Applied Biostatistics and Data Analysis	3

The Department of Statistics will allow at most two D's in upper-level (300-499) courses. If a third D is earned, one of the three courses in which a D was earned must be retaken and a grade of C or better earned.

This is a suggested schedule that includes the required courses for the BS in Bioinformatics. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

Statistics - BS

This program equips students with the essential skills to analyze and interpret data, preparing them for high-demand careers in multiple fields or graduate studies.

Statistics is the science of collecting and analyzing data for the purpose of making decisions in the presence of uncertainty. Data are ubiquitous in the modern day and age, and statisticians are in high demand. Multidisciplinary application areas vary widely and include health and medicine, business, engineering, physical sciences, environmental studies, and government. The curriculum in statistics provides instruction in all necessary areas, including a foundation in mathematics and probability, strategies for designing studies and collecting data, the visualization and analysis of data using popular software such as R and Python, and the process of using sample data to draw conclusions about a population. Depending on the electives selected, a student completing this program will be prepared to enter employment as a statistical analyst or to continue to graduate school in statistics or a related field.

Program Requirements

The following is a suggested schedule that includes the required courses for the BS in Statistics. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year

Fall		Semester Credit Hours
ENGL 104	Composition and Rhetoric	3
MATH 171	Calculus I ¹	4
STAT 182	Foundations of Statistics	1
Select one of the following:		4
ASTR 111	Overview of Modern Astronomy	

BIOL 111	Introductory Biology I	
BIOL 112	Introductory Biology II	
CHEM 119	Fundamentals of Chemistry I	
CHEM 120	Fundamentals of Chemistry II	
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences	
PHYS 207 & PHYS 227	Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences	
American history (p. 30)		3

Semester Credit Hours

15

Spring

MATH 172	Calculus II ¹	4
Select one of the following:		3-4
CSCE 110	Programming I	
CSCE 111	Introduction to Computer Science Concepts and Programming	
CSCE 120 or CSCE 121	Program Design and Concepts or Introduction to Program Design and Concepts	
CSCE 206	Structured Programming in C	
Select one of the following		4
ASTR 111	Overview of Modern Astronomy	
BIOL 111	Introductory Biology I	
BIOL 112	Introductory Biology II	
CHEM 119	Fundamentals of Chemistry I	
CHEM 120	Fundamentals of Chemistry II	
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences	
PHYS 207 & PHYS 227	Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences	
American history (p. 30)		3

Semester Credit Hours

15

Second Year

Fall

MATH 221	Several Variable Calculus ¹	4
POLS 206	American National Government	3
STAT 211	Principles of Statistics I ¹	3
Select one of the following		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
Life and physical sciences (p. 27)		3

Semester Credit Hours

16

Spring

MATH 304 or MATH 323	Linear Algebra ¹ or Linear Algebra	3

POLS 207	State and Local Government	3
STAT 212	Principles of Statistics II ¹	3
Select one of the following:		3-4
CSCE 110	Programming I	
CSCE 111	Introduction to Computer Science Concepts and Programming	
CSCE 120 or CSCE 121	Program Design and Concepts or Introduction to Program Design and Concepts	
CSCE 206	Structured Programming in C	
Creative arts (p. 30)		3
Semester Credit Hours		15
Third Year		
Fall		
STAT 404	Statistical Computing	3
STAT 414	Mathematical Statistics I	3
Language, philosophy and culture (p. 28)		3
Mathematics elective ²		3
Outside specialization elective ³		3
Semester Credit Hours		15
Spring		
STAT 408	Introduction to Linear Models	3
STAT 415	Mathematical Statistics II	3
Outside specialization elective ³		3
General elective		6
Semester Credit Hours		15
Fourth Year		
Fall		
STAT 406	Design and Analysis of Experiments	3
Social and behavioral sciences (p. 31)		3
Mathematics or Statistics elective ⁴		3
Outside specialization elective ³		3
Statistics elective ⁵		3
Semester Credit Hours		15
Spring		
STAT 482 or STAT 483	Statistics Capstone or Interdisciplinary Data Analytics Practicum	3
Outside specialization elective ³		3
Statistics elective ⁵		2
General elective		6
Semester Credit Hours		14
Total Semester Credit Hours		120

¹ Must make a grade of C or better.² Select from ISEN 320, ISEN 340, ISEN 355; MATH 300, MATH 302, MATH 308, MATH 409, MATH 410, MATH 417 or MATH 437, MATH 442, MATH 446, MATH 447, MATH 469, MATH 470.³ Students must take 12 hours in an outside specialization area upon approval by a departmental advisor. At least 6 hours must be upper-level hours.⁴ Select from ISEN 320, ISEN 340, ISEN 350, ISEN 355; MATH 300, MATH 302, MATH 308, MATH 409, MATH 410, MATH 417 or MATH 437, MATH 442, MATH 446, MATH 447, MATH 469, MATH 470; STAT 315, STAT 335/CSCE 320, STAT 407, STAT 421, STAT 424/MATH 424,

STAT 426, STAT 436, STAT 438, STAT 445, STAT 446, STAT 459, STAT 484, STAT 485, STAT 489, STAT 491.

⁵ Select from ISEN 350; STAT 315, STAT 335/CSCE 320, STAT 407, STAT 421, STAT 424/MATH 424, STAT 426, STAT 436, STAT 438, STAT 445, STAT 446, STAT 459, STAT 484, STAT 485, STAT 489, STAT 491.

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core (p. 26) category, a college/department requirement, or a general elective can be used to satisfy this requirement.

The department will allow at most two D's in upper-level (325-499) courses. If a third D is earned, one of the three courses in which a D was earned must be retaken and a grade of C or better earned.

Statistics - 5-Year Bachelor of Science and Master of Science in Statistical Data Science

This program enables students to receive their Statistics undergraduate degree (BS) and a Master of Science (MS) in Statistical Data Science graduate degree in five years.

Well-trained statisticians are in high demand in various application areas including health and medicine, business, engineering, physical sciences, environmental studies, and government. The combined degree program enables ambitious and academically talented statistics majors at Texas A&M University to earn both a bachelor's degree and a master's degree within a period of five years after entering Texas A&M as a freshman. Depending on the electives selected, a student completing the combined program will be prepared to enter:

- Employment as a statistical analyst or as a data scientist;
- The professional job marketplace for quantitatively trained professionals;
- A career in secondary education;
- A doctoral program in statistics, biostatistics, or in a related discipline, at Texas A&M or another university.

Program Requirements

The following is a suggested schedule that includes the required courses for the combined BS in Statistics /MS in Statistical Data Science. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year

		Semester Credit Hours
Fall		
ENGL 104	Composition and Rhetoric	3
MATH 171	Calculus I ¹	4
STAT 182	Foundations of Statistics	1
Select one of the following:		4
ASTR 111	Overview of Modern Astronomy	

BIOL 111	Introductory Biology I	
BIOL 112	Introductory Biology II	
CHEM 119	Fundamentals of Chemistry I	
CHEM 120	Fundamentals of Chemistry II	
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences	
PHYS 207 & PHYS 227	Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences	
American history (p. 30)		3
Semester Credit Hours		15
Spring		
MATH 172	Calculus II ¹	4
Select one of the following:		3-4
CSCE 110	Programming I	
CSCE 111	Introduction to Computer Science Concepts and Programming	
CSCE 120 or CSCE 121	Program Design and Concepts or Introduction to Program Design and Concepts	
CSCE 206	Structured Programming in C	
Select one of the following		4
ASTR 111	Overview of Modern Astronomy	
BIOL 111	Introductory Biology I	
BIOL 112	Introductory Biology II	
CHEM 119	Fundamentals of Chemistry I	
CHEM 120	Fundamentals of Chemistry II	
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences	
PHYS 207 & PHYS 227	Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences	
American history (p. 30)		3
Semester Credit Hours		15
Second Year		
Fall		
MATH 221	Several Variable Calculus ¹	4
POLS 206	American National Government	3
STAT 211	Principles of Statistics I ¹	3
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
Life and physical sciences (p. 27)		3
Semester Credit Hours		16
Spring		
MATH 304 or MATH 323	Linear Algebra ¹ or Linear Algebra	3

POLS 207	State and Local Government	3
STAT 212	Principles of Statistics II ¹	3
Select one of the following:		3-4
CSCE 110	Programming I	
CSCE 111	Introduction to Computer Science Concepts and Programming	
CSCE 120 or CSCE 121	Program Design and Concepts or Introduction to Program Design and Concepts	
CSCE 206	Structured Programming in C	
Creative arts (p. 30)		3
Semester Credit Hours		15
Third Year		
Fall		
STAT 404	Statistical Computing	3
STAT 414	Mathematical Statistics I	3
Language, philosophy and culture (p. 28)		3
Mathematics elective ²		3
Outside specialization elective ³		3
Semester Credit Hours		15
Spring		
STAT 408	Introduction to Linear Models	3
STAT 415	Mathematical Statistics II	3
Outside specialization elective ³		3
General elective		6
Semester Credit Hours		15
Fourth Year		
Fall		
STAT 406	Design and Analysis of Experiments	3
Graduate coursework ⁷		3
Social and behavioral sciences (p. 31)		3
Mathematics or Statistics elective ⁵		3
Outside specialization elective ³		3
Semester Credit Hours		15
Spring		
STAT 482 or STAT 483	Statistics Capstone or Interdisciplinary Data Analytics Practicum	3
Statistics elective ⁶		3
Outside specialization elective ³		3
General elective		6
Semester Credit Hours		15
Fifth Year		
Fall		
Graduate coursework ⁷		15
Semester Credit Hours		15
Spring		
STAT 692	Statistical Consulting ⁴	2
Graduate coursework ⁷		12
Semester Credit Hours		14
Total Semester Credit Hours		150

¹ Must make a grade of C or better.

- ² Select from ISEN 320, ISEN 340, ISEN 350, ISEN 355; MATH 300, MATH 302, MATH 308, MATH 409, MATH 410, MATH 417 or MATH 437, MATH 442, MATH 446, MATH 447, MATH 469, MATH 470.
- ³ Students must take 12 hours in an outside specialization area upon approval by a departmental advisor. At least 6 hours must be upper-level hours.
- ⁴ Courses to be used towards both the BS in Statistics and MS degree in Statistical Data Science.
- ⁵ Select from ISEN 320, ISEN 340, ISEN 355; MATH 300, MATH 302, MATH 308, MATH 409, MATH 410, MATH 417 or MATH 437, MATH 442, MATH 446, MATH 447, MATH 469, MATH 470; STAT 315, STAT 335/CSCE 320, STAT 407, STAT 421, STAT 424/MATH 424, STAT 426, STAT 436, STAT 438, STAT 445, STAT 446, STAT 459, STAT 484, STAT 485, STAT 489, STAT 491.
- ⁶ Select from STAT 315, STAT 335/CSCE 320, STAT 407, STAT 421, STAT 424/MATH 424, STAT 426, STAT 436, STAT 438, STAT 445, STAT 446, STAT 459, STAT 484, STAT 485, STAT 489, STAT 491.
- ⁷ 32 hours for a non-thesis option. Graduate hours must be taken from 600 level STAT courses not including STAT 601, STAT 651, or STAT 652. Students are required to take two semester hours of STAT 692. For additional information concerning this and other requirements of the Master's program including the Master's diagnostic examination, reference the Master of Science in Statistical Data Science (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/statistics/statistical-data-science-ms/>) graduate catalog page.

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity courses and 3 hours of Cultural Discourse courses. A course satisfying a Core category, a college/department requirement, or a general elective can be used to satisfy this requirement.

Students will not be permitted to receive credit for both the 400- and 600-level versions of certain courses because the content and learning outcomes are too similar (e.g. STAT 404/STAT 604, STAT 408/STAT 608, STAT 407/STAT 607, STAT 426/STAT 626, STAT 436/STAT 636, STAT 438/STAT 638, STAT 445/STAT 645, STAT 446/STAT 646, STAT 459/STAT 659).

The program includes a total of 152 hours which up to 2 hours may be applied toward both the Bachelor of Science in Statistics and the non-thesis option Master of Science in Statistical Data Science.

Statistics - Minor

This minor equips students with the essential skills to analyze and interpret data, preparing them for high-demand careers in multiple fields or graduate studies.

Statistics is the science of collecting and analyzing data for the purpose of making decisions in the presence of uncertainty. Multidisciplinary application areas vary widely and include health and medicine, business, engineering, physical sciences, environmental studies, and government. The statistics minor provides training in theoretical, applied and computational statistics with a two-semester sequence in statistical methods and a broad selection of upper-level elective classes. Depending on the electives selected, a student completing this program will be prepared to conduct statistical analysis in their professional work or to continue graduate study in fields involving statistical analysis.

For additional information, see the Department of Statistics website (<https://artsci.tamu.edu/statistics/>).

Program Requirements

Code	Title	Semester Credit Hours
Lower Division Courses		
STAT 211	Principles of Statistics I	3
STAT 212	Principles of Statistics II	3
Directed Upper Division Electives		
Select three of the following: ¹		9
STAT 315	Computational Data Science	
STAT 335/CSCE 320	Principles of Data Science	
STAT 404	Statistical Computing	
STAT 406	Design and Analysis of Experiments	
STAT 407	Principles of Sample Surveys	
STAT 408	Introduction to Linear Models	
STAT 414	Mathematical Statistics I	
STAT 415	Mathematical Statistics II	
STAT 421	Machine Learning	
STAT 424/MATH 424	Probability and Computing	
STAT 426	Methods in Time Series Analysis	
STAT 436	Multivariate Analysis and Statistical Learning	
STAT 438	Bayesian Statistics	
STAT 445	Applied Biostatistics and Data Analysis	
STAT 446	Statistical Bioinformatics	
STAT 459	Categorical Data Analysis	
STAT 485	Directed Studies	
STAT 489	Special Topics in...	
Total Semester Credit Hours		15

¹ STAT 485 or STAT 489 must be approved by the Statistics Department.

Additional Requirements:

Students must make a grade of C or better in all courses.

Substitutions for the minor must be approved by the Statistics Department.

Other
required
courses:

Accounting	0	9	0	0	0	0
American history	6	6	6	6	6	6
Business law	0	0	3	0	0	0
Communications	6	6	6	6	6	6
Creative arts	3	3	3	3	3	3
Government and political science	6	6	6	6	6	6
Language, philosophy and culture	3	3	3	3	3	3
Life and physical sciences	9	9	9	9	9	9
Mathematics	6	6	6	6	6	6
Social and behavioral science	3	3	3 ³	3	3	3
Total Semester Credit Hours	120	120	120	120	120	120

¹ To satisfy the University's *Cultural Discourse (CD)* graduation requirement students must take one course (3 credit hours) from a list of approved courses. If not satisfied through Core Curriculum, an approved *CD* [KUCD] course can be used to satisfy unmet *General Elective* requirement.

² Select from a list of approved BBA international electives for business students. In the BBA curricula, at least 3 credit hours must be selected from a list of approved international elective courses that simultaneously fulfill the University's International and Cultural Diversity (ICD) graduation requirement. See an academic advisor.

³ Management majors must take MGMT 450/IBUS 450.

³ Management majors are advised to take PBSI 107 or SOCI 205.

Bachelor of Science in Business

The Bachelor of Science in Business (BSB) degree allows students to combine a comprehensive business education with other areas of interest to create a custom degree plan. The unique features of the BSB prepare students for a wide variety of careers or graduate school. The BSB allows students to specialize in an area of focus by pursuing a minor or a certificate that complements their business education and personal interests.

The student completes 120 semester credit hours of study. The BSB curriculum includes the following requirements:

Code	Title	Semester Credit Hours
Core Curriculum - 42 hours		
	American history	6
	Communication	6
	Creative arts	3
	Government/political science	6
	Language, philosophy and culture	3
	Life and physical sciences	9
	Mathematics	6
	Social and behavioral science	3
Business Courses - 42 hours		
	Core Business Knowledge	36
	BSB capstone course	3
	Required internship	3
Electives - 36 hours		
	Additional science/quantitative	9
	Area of focus coursework	12-18
	Electives	9-15
Total Semester Credit Hours		120

Core Business Knowledge

Code	Title	Semester Credit Hours
Required Courses		
ACCT 229	Introductory Accounting	3
ACCT 230	Introductory Accounting	3
BUSN 101	Freshman Business Initiative	3
BUSN 203	Statistical Methods for Business	3
ECON 202	Principles of Economics	3
ECON 203	Principles of Economics	3
FINC 341	Business Finance	3
ISTM 210	Fundamentals of Information Systems	3
MGMT 311	Legal and Social Environment of Business	3
MGMT 363	Managing People in Organizations	3
MGMT 466	Strategic Management	3
MKTG 321	Marketing	3
SCMT 364	Operations Management	3
Total Semester Credit Hours		39

Upper-Level Entry into BBA and BSB Degree-Granting Majors

Students who meet the University and college entrance requirements enter Mays Business School as lower-level business (BUAD) students. Enrollment of Mays Business School students in junior- and senior-level business courses (i.e., 300- and 400-numbered) is limited to those who have been admitted to upper-level (also referred to as upper division) in one of the seven BBA majors—accounting, business honors, finance, management, management information systems, marketing, and supply chain management—or the Bachelor of Science in Business.

Upper-Level Entry Requirements and Application Procedures

Lower-level business (BUAD) students are encouraged to complete the freshman and sophomore sequence of courses as listed under Program Requirements.

The upper-level (UL) entry requirements and application procedures are as follows:

1. **Admission:** To be admitted to an UL major, a student must be admitted to Mays Business School and have:
 - a. Satisfactorily completed the following five courses:

Code	Title	Semester	Credit Hours
ACCT 229	Introductory Accounting		3
ECON 202	Principles of Economics		3
ECON 203	Principles of Economics		3
MATH 140	Mathematics for Business and Social Sciences		3
MATH 142	Business Calculus (or its equivalent)		3
 - b. Submitted application for UL admission no later than preregistration for the expected UL entry term. **NOTE:** For summer UL entry, ALL REQUIREMENTS must be completed BEFORE the first class day of the FIRST SUMMER SESSION.
 - c. BUAD students may preregister for upper-level business courses in the semester for which they have applied for upper level. However, students who fail to complete upper-level requirements shall not be permitted to remain registered in upper-level business classes.
2. **Transfer Students:** Transfer students admitted to Mays Business School will be classified as lower-level business (BUAD) majors until they complete all requirements listed previously in item 1, at which time they may apply for admission to an UL major. Transfer students may immediately apply for UL when admitted to Mays Business School if, and only if, they meet all UL requirements at that time.
3. **On-Campus Change of Major Students:** Texas A&M students who change major into Mays Business School from another college or department at the University enter the business school as lower-level Business (BUAD) majors until they complete all requirements listed previously in item 1. Change of major students who, when admitted to the business school, qualify to apply for admission to an UL major may do so.
4. **Junior- and Senior-Level Business Courses:** Preference for available seats in junior- and senior-level business courses (i.e., 300- and 400-numbered) will be given to students who have been admitted to an UL degree-granting major in Mays Business School. All ineligible students who preregister for UL business classes are subject to cancellation of their registration in these courses.

Cooperative Education

Cooperative education is designed to augment the academic program of study with on-the-job training. Academic requirements a business undergraduate must have to be eligible to participate are 45 completed credit hours and a minimum 2.5 cumulative GPA. Interested students may obtain more information from the Career Center (<http://careercenter.tamu.edu/>) website or (979) 845-5139 or in Room 209, Koldus Building.

Restrictions on Two Degrees

Mays Business School is enrollment managed; demand for admission to the undergraduate business program consistently exceeds available educational resources. Priority is given to qualified applicants for their initial bachelor's degree.

Double Major

Only Business Honors majors may elect a second major field of study within the BBA degree. The first major must be business honors. The Business Honors student must satisfy all University and Business School requirements and complete all curriculum requirements for each major. This option leads to the granting of one BBA degree with two majors. Additional restrictions may apply.

Double Degree

Approval of double degrees (BBA with BA or BS) is granted by exception only. A written appeal for a double degree may be submitted; the appeal should reflect an excellent academic record, support from the BA or BS granting college, and a compelling justification.

Second Degree

Postbaccalaureate admission to Mays is severely restricted and granted by exception only. Applicants for a postbaccalaureate business degree may present a case for an exception to this enrollment restriction in the essay of a complete Texas A&M admission application. Generally, eligible applicants are denied postbaccalaureate admission but may be encouraged to apply, instead, to an appropriate graduate degree program.

Certificate Programs

Mays offers certificate programs for undergraduate students who want to explore a particular topic area in more depth. Most are open to Mays undergraduate students, and some are designed for specific majors who wish to specialize in a particular area in the major field of study.

Students who pursue any of the certificate programs must complete all requirements for the specific program prior to graduation. Certificates are noted on the transcript after graduation. Information regarding certificate programs and requirements can be found in the Mays Business School Certificates section.

Majors

Mays Business School

- Bachelor of Business Administration in Business Honors (p. 502)
- Bachelor of Science in Business (p. 501)
- Bachelor of Science in University Studies, Business Concentration (p. 541)

James Benjamin Department of Accounting

- Bachelor of Business Administration in Accounting (p. 510)
- Bachelor of Business Administration in Accounting and Master of Financial Management, 5-Year Degree Program (p. 511)
- Bachelor of Business Administration in Accounting and Master of Science, 5-Year Degree Program (p. 513)

Adam C. Sinn '00 Department of Finance

- Bachelor of Business Administration in Finance (p. 518)

Department of Information and Operations Management

- Bachelor of Business Administration in Management Information Systems (p. 522)
- Bachelor of Business Administration in Supply Chain Management (p. 524)

Department of Management

- Bachelor of Business Administration in Management, Consulting/General Management Track (p. 527)
- Bachelor of Business Administration in Management, Entrepreneurial Leadership Track (p. 529)
- Bachelor of Business Administration in Management, Human Resource Management Track (p. 530)
- Bachelor of Business Administration in Management, Pre-Law Track (p. 531)

Department of Marketing

- Bachelor of Business Administration in Marketing, Advertising Strategy Track (p. 534)
- Bachelor of Business Administration in Marketing, Analytics and Consulting Track (p. 536)
- Bachelor of Business Administration in Marketing, Healthcare Marketing Track (p. 537)
- Bachelor of Business Administration in Marketing, Professional Selling and Sales Management Track (p. 538)
- Bachelor of Business Administration in Marketing, Strategic Retailing Track (p. 540)

Minors

Mays Business School

- Artificial Intelligence in Business Minor (p. 504)
- Business Minor (p. 504)

Certificates

Mays Business School

- Business of Technology Certificate (p. 504)
- International Business Studies Certificate (p. 505)
- Management Consulting Certificate (p. 507)

James Benjamin Department of Accounting

- Energy Accounting Certificate (p. 515)
- Internal Audit Certificate (p. 515)

Adam C. Sinn '00 Department of Finance

- Commercial Banking Certificate (p. 519)
- Corporate Finance Certificate (p. 519)
- Trading, Risk and Investments Certificate (p. 520)

Masters

Mays Business School

- Master of Business Administration in Business Administration (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/business/interdepartmental/mba/>), Mays Full-Time MBA Program (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/business/interdepartmental/mba/>)
- Master of Business Administration in Business Administration, (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/business/interdepartmental/executive-mba/>) Mays Executive MBA Program (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/business/interdepartmental/executive-mba/>)
- Master of Business Administration in Business Administration, (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/business/interdepartmental/professional-mba/>) Mays Professional MBA Program (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/business/interdepartmental/professional-mba/>)
- Master of Business Administration in Business Administration and Master of Science in Analytics Combined Degree Program (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/business/interdepartmental/anly-ms-mba/>)
- Master of Science in Analytics (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/business/interdepartmental/ms-analytics/>)
- Master of Science in Business (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/business/interdepartmental/ms/>)

James Benjamin Department of Accounting

- Master of Science in Accounting (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/business/accounting/ms/>)

Adam C. Sinn '00 Department of Finance

- Master of Financial Management in Financial Management (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/business/finance/mfm/>)
- Master of Land and Property Development and Master of Real Estate Combined Degree Program (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/architecture/landscape-architecture-urban-planning/combined-mlp-mre/>)
- Master of Real Estate in Land Economics and Real Estate (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/business/finance/mre/>)
- Master of Science in Finance (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/business/finance/ms/>)
- Master of Science in Quantitative Finance (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/business/finance/quantitative-finance-ms/>)

Department of Information and Operations Management

- Master of Science in Management Information Systems (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/business/information-operations-management/ms/>)
- Master of Science in Supply Chain and Analytics (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/business/information-operations-management/supply-chain-analytics-ms/>)

Department of Management

- Master of Science in Entrepreneurial Leadership (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/business/management/entrepreneurial-leadership-ms/>)
- Master of Science in Human Resource Management (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/business/management/ms/>)

Department of Marketing

- Master of Science in Marketing (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/business/marketing/ms/>)

Doctoral

Mays Business School

- Doctor of Philosophy in Business Administration (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/business/interdepartmental/phd/>)

Department of Management

- Doctor of Philosophy in Management (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/business/management/phd/>)

Business - BS

This program provides students the opportunity to combine a comprehensive business administration education with other areas of interest to create a customized degree program.

The Bachelor of Science in Business (BSB) degree prepares students for careers in a variety of business roles. Students will acquire core business knowledge and pursue an area of emphasis via a minor, certificate, or program-approved directed electives.

The flexibility and customization features of the BSB prepare students for a broad range of degree options based on their unique interests and skill sets. Students may pursue employment in traditional business roles or a sector in line with their area of interest. The flexibility of the BSB program may also allow for pre-professional students (pre-med, pre-health, etc.) to incorporate some or all their non-business prerequisite courses into their degree plan.

Students must be admitted to the Bachelor of Science in Business degree program and may not major or double-major in a Mays Business School Bachelor of Business Administration (BBA) major, including accounting, business honors, finance, management, management information systems, marketing, and supply chain management.

Program Requirements

First Year

Fall

		Semester Credit Hours
BUSN 101 or BUSN 403	Freshman Business Initiative ¹ or Business Writing and Communication	3
ECON 202	Principles of Economics	3
MATH 140	Mathematics for Business and Social Sciences ²	3

Communication

Select one of the following:

COMM 203	Public Speaking	3
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 104	Composition and Rhetoric	
ENGL 210	Technical and Professional Writing	

Life and physical sciences (p. 27) 3

Semester Credit Hours 15

Spring

ECON 203	Principles of Economics	3
MATH 142	Business Calculus ³	3
POLS 206	American National Government	3
	American history (p. 30) ⁴	3
	Life and physical sciences (p. 27)	3

Semester Credit Hours 15

Second Year

Fall

ACCT 229	Introductory Accounting	3
ISTM 210	Fundamentals of Information Systems	3
POLS 207	State and Local Government	3

Communication

Select one of the following:

COMM 203	Public Speaking	3
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 104	Composition and Rhetoric	
ENGL 210	Technical and Professional Writing	

American history (p. 30)⁴ 3

Semester Credit Hours 15

Spring

ACCT 230	Introductory Accounting	3
BUSN 203	Statistical Methods for Business ⁵	3
	Creative arts (p. 30)	3
	Language, philosophy and culture (p. 28)	3
	Life and physical sciences (p. 27)	3

Semester Credit Hours 15

Third Year

Fall

FINC 341	Business Finance	3
MGMT 311	Legal and Social Environment of Business	3
MKTG 321	Marketing	3

General elective ⁶		3
General elective ⁶		3
Semester Credit Hours		15
Spring		
MGMT 363	Managing People in Organizations	3
SCMT 364	Operations Management	3
General elective ⁶		3
General elective ⁶		3
General elective ⁶		3
Semester Credit Hours		15
Summer		
BUSN 484	Internship	3
Semester Credit Hours		3
Fourth Year		
Fall		
Science/Math elective ⁷		3
Science/Math elective ⁷		3
General elective ⁶		3
General elective ⁶		3
Semester Credit Hours		12
Spring		
BUSN 404	Career Design	3
MGMT 466	Strategic Management	3
Science/Math elective ⁷		3
General elective ⁶		3
General elective ⁶		3
Semester Credit Hours		15
Total Semester Credit Hours		120

¹ BUSN 403 is required for students admitted through change of major or transfer admissions process.

² MATH 148, MATH 152, MATH 168 and MATH 172 will be accepted in lieu of MATH 140.

³ MATH 147, MATH 151 and MATH 171 will be accepted in lieu of MATH 142.

⁴ For those students under ROTC contract, see Requirement 7 of the Requirements for a Baccalaureate Degree (<http://catalog.tamu.edu/undergraduate/general-information/degree-information/>).

⁵ STAT 211 will be accepted in lieu of BUSN 203.

⁶ Includes 12-18 hours of courses that were used to satisfy the required Minor or Certificate requirement and 9-15 hours of 100-499 courses not used elsewhere, except ACCT 209, ACCT 210, FINC 409, IBUS 301, ISTM 209, MGMT 209, MGMT 309, MKTG 409, SCMT 309. Additional restrictions may apply; see academic advisor for information. May be taken on a satisfactory basis.

⁷ In consultation with advisor select from approved science and mathematics courses. Courses counting towards a certificate or minor may also fulfill these requirements.

Program requires the completion of a minor or certificate for degree to be awarded.

Business Honors - BBA

This program is designed for students whose academic excellence is matched by strong character, leadership skills, and teamwork. It prepares

students to begin careers in all fields or to continue on to a graduate program or professional school.

Mays Business School offers a Business Honors program. Selection through a separate application process is required to be eligible for participation in Business Honors. Prospective students apply to Business Honors as incoming freshmen or during the spring semester of their freshman year. Both selection cycles are competitive processes. More information is available at <https://mays.tamu.edu/undergraduate/bba/business-honors/>.

Bachelor of Business Administration

The Bachelor of Business Administration (BBA) in Business Honors degree is available only to students admitted to Mays' Business Honors program.

Students pursuing a BBA in Business Honors must maintain a cumulative GPA of 3.5 or higher and meet other program requirements to continue in Business Honors. Students are required to complete a total of 30 hours of honors coursework plus an internship for credit. Other program requirements apply.

Business Honors majors work closely with an academic advisor to identify a set of courses to meet their academic goals. They may pursue a double major in Business Honors and one of the six other BBA majors (accounting, finance, management, management information systems, marketing and supply chain management).

Upper-Level Entry Requirements

Admission to an upper-level (UL) major in Business Honors requires satisfactory completion of specific coursework, in addition to the application and selection process for Business Honors program participation. To review UL requirements and application procedures see Upper-Level Entry Requirements and Application Procedures. (p. 497)

Program Requirements

Lower-Level Business Program (BUAD)

First Year		
Fall		Semester Credit Hours
BUSN 101	Freshman Business Initiative ¹	3
MATH 140	Mathematics for Business and Social Sciences ²	3
American history (p. 30) ³		3
Life and physical sciences (p. 27)		3
Communication (p. 27)		3
Semester Credit Hours		15
Spring		
ECON 202	Principles of Economics	3
MATH 142	Business Calculus ⁴	3
American history (p. 30) ³		3
Life and physical sciences (p. 27)		3
Social and behavioral sciences (p. 31)		3
Semester Credit Hours		15

Second Year**Fall**

ACCT 229	Introductory Accounting	3
ECON 203	Principles of Economics	3
ISTM 210	Fundamentals of Information Systems	3
POLS 206	American National Government ³	3
Communication (p. 27) ¹		3

Semester Credit Hours	15

Spring

ACCT 230	Introductory Accounting	3
BUSN 203	Statistical Methods for Business ⁵	3
Creative arts (p. 30) ¹		3
Language, philosophy and culture (p. 28)		3
Life and physical sciences (p. 27)		3

Semester Credit Hours	15

Total Semester Credit Hours	60

¹ Refer to the specific major notes below for variations from the Business (lower level) requirements.

² MATH 148, MATH 152, MATH 168 and MATH 172 will be accepted in lieu of MATH 140.

³ For those students under ROTC contract, see Requirement 7 of the "Requirements for a Baccalaureate Degree." (p. 32)

⁴ MATH 147, MATH 151 and MATH 171 will be accepted in lieu of MATH 142.

⁵ STAT 211 will be accepted in lieu of BUSN 203.

Management Information Systems: Students intending to major in Management Information Systems must add ISTM 250 Business Programming Logic and Design (3 credits) to second year fall curriculum in Business (lower level). The communication elective can be taken during the third year fall.

Business Honors: Students admitted to Business Honors take BUSN 125 Business Learning Community I (3 credits) in place of BUSN 101 in the first year fall curriculum and must add BUSN 225 Business Competency (3 credits) to the second year spring curriculum in Business (lower level). The creative arts elective can be taken during the third year fall.

Finance: Students intending to major in Finance must add FINC 210 to freshman year curriculum in Business (lower-level). The general elective taken in the fourth year can be reduced by 1 credit.

Upper-Level Business Honors Program

Third Year**Fall**

BUSN 325	Business Honors Seminar I	1
FINC 341	Business Finance ¹	3
MGMT 363	Managing People in Organizations ¹	3
MKTG 321	Marketing ¹	3
Creative arts ²		3
International elective ³		3

Semester Credit Hours	16

Spring

MGMT 311	Legal and Social Environment of Business ¹	3
POLS 207	State and Local Government ⁴	3
SCMT 364	Operations Management ¹	3
Upper-division business elective ⁵		3
Upper-division business elective ⁵		3

Semester Credit Hours	15

Fourth Year**Fall**

Internship ⁶		2
Upper-division business elective ⁵		3
Upper-division business elective ⁵		3
General elective ⁷		3
General elective ⁷		3

Semester Credit Hours	14

Spring

MGMT 466	Strategic Management ⁸	3
International elective ³		3
Upper-division business elective ⁵		3
General elective ⁷		3
General elective ⁷		3

Semester Credit Hours	15

Total Semester Credit Hours	60

¹ Five of the nine Common Body of Knowledge classes listed must be taken as honors: ACCT 229, ACCT 230, FINC 341, ISTM 210, BUSN 203, SCMT 364, MGMT 311, MGMT 363, MKTG 321.

² Refer to the major specific paragraph on the Lower-Level Business Program (BUAD). Select from approved creative arts elective courses.

³ Six hours required. A complete list of approved courses is available in the Undergraduate Advising Office. In the BBA curricula, three hours of approved international elective coursework simultaneously fulfills the university's International and Cultural Diversity Graduation requirement.

⁴ For those students under ROTC contract, see Requirement 7 of the 'Requirements for a Baccalaureate Degree (p. 32).'

⁵ Any 300- or 400-level business course (ACCT, FINC, IBUS, ISTM, MGMT, MKTG, SCMT) except FINC 341, FINC 409; MGMT 309, MGMT 363, MGMT 466; MKTG 321, MKTG 409; MGMT 311, SCMT 309, SCMT 364. At least one course must be designated as writing designated (W) or oral communication (C). Select in consultation with an academic advisor.

⁶ Select from ACCT 484, BUSN 484, FINC 484, IBUS 484, ISTM 484, MGMT 484, MKTG 484, SCMT 484.

⁷ Elective courses are open to any course offered for university credit, except ACCT 209, ACCT 210, FINC 409, IBUS 301, ISTM 209, MGMT 209, MGMT 309, MKTG 409, SCMT 309. Additional restrictions may apply; see academic advisor for information. May be taken on a satisfactory/unsatisfactory basis.

⁸ Must be taken as honors.

Total Program Hours 120

Artificial Intelligence in Business - Minor

This program equips students with cutting-edge Artificial Intelligence (AI) and machine learning (ML) skills essential for modern business leadership.

Mays Business School offers an Artificial Intelligence in Business minor for all undergraduate students. Students interested in utilizing Artificial Intelligence (AI) or machine learning (ML) in a business setting may find that when combined with skills from their major, an AI in Business minor provides the foundation required to efficiently and effectively utilize AI/ML to advance their career and company.

Students applying for the AI in Business minor must have a 3.0 or better overall GPA, 24 credit hours completed with at least 12 completed at Texas A&M University. Application is made in the student's home college or major department. Students are encouraged to start taking AI in Business minor courses as soon as the minor is declared.

To be awarded the minor and receive transcript recognition, students must obtain a 2.0 or better GPA overall in the courses. Once declared, minor requirements become graduation requirements. The minor will be recognized on the transcript after graduation, but not on the diploma.

Program Requirements

Code	Title	Semester Credit Hours
BUSN 450	Business Transformation with Generative Artificial Intelligence	3
BUSN 455	Automating Business Story Telling Using Artificial Intelligence	3
BUSN 460	Machine Learning, Predictive Modeling, and Business Applications	3
BUSN 465	Business Applications of Deep Learning - Image Audio and Video Data	3
BUSN 470	Applied Natural Language Processing for Business Decisions	3
Total Semester Credit Hours		15

Minimum of 6 hours at the 300-400 level.

Business - Minor

This program develops a foundational knowledge in the basic aspects of business, including accounting, finance, management information systems, management, and marketing.

Mays Business School offers a business minor (<https://mays.tamu.edu/undergraduate/non-business-major/business-minor/>) for undergraduate non-business majors. Students interested in pursuing a future MBA, or the MS Business (<https://mays.tamu.edu/graduate/masters/ms-programs/ms-business/>) Master's degree, may find that when combined with appropriate statistics and economics coursework, a business minor provides the business foundation required by most graduate business programs.

Students applying for a business minor must have a 2.0 or better overall GPA. Application is made in the student's home college or major

department. Students are encouraged to start taking business minor courses as soon as the minor is declared.

To be awarded the minor and receive transcript recognition, students complete required coursework. Once declared, minor requirements become graduation requirements. The minor will be recognized on the transcript after graduation, but not on the diploma.

Program Requirements

The minor in business consists of six specific courses chosen to develop foundational knowledge in the basic aspects of business, including accounting, finance, management, marketing, and management information systems.

The courses listed below constitute the 18 hours required for a minor in business.

Code	Title	Semester Credit Hours
ACCT 209	Survey of Accounting Principles	3
FINC 409	Survey of Finance Principles ¹	3
ISTM 209	Business Information Systems Concepts ²	3
MGMT 209	Principles of Business Regulations and Law	3
MGMT 309	Survey of Management ¹	3
MKTG 409	Principles of Marketing ¹	3
Total Semester Credit Hours		18

¹ Course must be taken in residence at Texas A&M. No transfer courses or substitutions will be allowed except through approved exchange and affiliate provider study abroad programs.

² The *Information Systems* CLEP exam is available for students who have not taken ISTM 209 and wish to demonstrate mastery of the course concepts. See your academic advisor for additional information.

Students must earn a grade of C or better in each course listed above to be awarded the business minor and receive transcript recognition.

Course equivalents may be available for lower-level business minor coursework (200-level courses). Refer to the business minor webpage for further information.

Business of Technology - Certificate

This program is designed to augment participants' understanding of rapidly changing technologies, equip them for roles within leading technology enterprises, provide mentorship and networking opportunities with industry executives, and equip them with foundational knowledge.

The Business of Technology certificate, available to students at Texas A&M University, represents a distinctive opportunity to explore the intersection of business and technology. The certificate is housed under the Aggies in Tech program – a high impact learning opportunity.

Students pursuing this certificate must fulfill specified coursework obligations at Texas A&M University, prior to graduation. Upon successful fulfillment of these requirements, a certificate will be issued by the Office of the Registrar.

Program Requirements

Code	Title	Semester Credit Hours
BUSN 206	Emerging Business Technology Environment	3
BUSN 299	Professional and High Impact Experiences	0
CSCE 110	Programming I	3
or CSCE 120	or Program Design and Concepts	
Select two of the following:		6
ACCT 407	Auditing	
ACCT 427	Accounting and Financial Information Systems	
BUSN 207	New Product Development and Go-to-Market Strategies	
BUSN 208	Business Application Development	
BUSN 209	Business in Technology Experience	
CSCE 313	Introduction to Computer Systems	
CSCE 314	Programming Languages	
CSCE 331	Foundations of Software Engineering	
CSCE 350/ ECEN 350	Computer Architecture and Design	
FINC 427	Titans of Investing	
FINC 446	Technical Analysis of Financial Markets	
FINC 449	Financial Modeling	
ISTM 360	Applied Predictive Analytics	
ISTM 455/ SCMT 455	Cybersecurity Management	
MGMT 421	Management Data Analytics and Visualization	
MGMT 424	Organizational Design, Change and Development	
MGMT 430/ WGST 430	Employment Discrimination Law	
MGMT 440	Creativity and Innovation in Business	
MKTG 404	Data Visualization for Marketers	
MKTG 431	Marketing Analytics	
MKTG 438	Strategic Digital Marketing	
SCMT 345	Business Process Design	
SCMT 375	Supply Chain Security	
SCMT 380	Lean Business Systems	
SCMT 390	Blockchain and AI Business Transformation	
SCMT 465	Information Technology for Supply Chain Management	
SCMT 468	Enterprise Resource Planning	
Total Semester Credit Hours		12

International Business Studies - Certificate

This program is designed to offer Mays Business School undergraduate students the opportunity to establish an international business and culture knowledge base that will prepare them to meet global business challenges.

The Certificate in International Business Studies coursework can be integrated as part of the undergraduate business curriculum. An international experience is also required. Students who pursue this certificate program must complete all requirements prior to graduation.

Program Requirements

Code	Title	Semester Credit Hours
Select four of the following international business courses: ¹		12
ACCT 430/ IBUS 430	Global Immersion in Accounting	
ACCT 445/ IBUS 445	International Accounting	
FINC 445/ IBUS 446	International Finance	
IBUS 285	Directed Studies	
IBUS 289	Special Topics in...	
IBUS 291	Research	
IBUS 310	Global Context of Business	
IBUS 320	Global Sustainable Business	
IBUS 401/ MKTG 401	Global Marketing	
IBUS 402/ MKTG 402	International Marketing: Study Abroad	
IBUS 403/ MKTG 403	International Market Entry Strategies	
IBUS 430/ ACCT 430	Global Immersion in Accounting	
IBUS 440/ ISTM 440	International Technology Management	
IBUS 445/ ACCT 445	International Accounting	
IBUS 446/ FINC 445	International Finance	
IBUS 450/ MGMT 450	International Environment of Business	
IBUS 452/ MGMT 452	International Management	
IBUS 455	Asian Business Environment	
IBUS 456	European Integration and Business	
IBUS 457/ MGMT 457	Global Entrepreneurship	
IBUS 459	Latin American Markets	
IBUS 460	Academy for Future International Leaders	
IBUS 484	International Business Internship	
IBUS 485	Directed Studies	

IBUS 489	Special Topics in...	FREN 336	Politics, Culture and Society in Contemporary France
IBUS 491	Research	FREN 418	Seminar in French Civilization
ISTM 440/ IBUS 440	International Technology Management	GEOG 202	Geography of the Global Village
MGMT 450/International Environment of IBUS 450	Business	GEOG 311	Cultural Geography
MGMT 452/International Management IBUS 452		GEOG 320	The Middle East
MGMT 457/Global Entrepreneurship IBUS 457		GEOG 323	Geography of Latin America
MKTG 401/ Global Marketing IBUS 401		GEOG 325	Geography of Europe
MKTG 402/ International Marketing: Study IBUS 402	Abroad	GERM 322	German Culture and Civilization II
MKTG 403/ International Market Entry IBUS 403	Strategies	GERM 435/ German Film FILM 435	
Select one of the following options:		GLST 215/ Global Cinema FILM 215	
Option 1: Foreign language ²		HIST 210	Introduction to Russian History
Option 2: Any two of the non-business international courses below: ³		HIST 336	Europe Since 1919
AFST 345/ Modern Africa HIST 345		HIST 339	Eastern Europe
AGEC 452 International Trade and Agriculture		HIST 342	Latin America Since 1810
AGEC 453 International Agribusiness Marketing		HIST 345/ AFST 345	Modern Africa
ALEC 350 Global Agricultural Issues		HIST 346/ History of South Africa AFST 346	
ANTH 205 Peoples and Cultures of the World		HIST 348	Modern Middle East
ANTH 300 Cultural Change and Development		HIST 352/ Modern East Asia ASIA 352	
ANTH 324/ Music in World Cultures MUSC 324		HIST 356/ Twentieth Century Japan ASIA 356	
ARCH 458 Cultural and Ethical Considerations for Global Practice		HIST 402	History of Modern Germany
ASIA 352/ Modern East Asia HIST 352		HIST 407	History of France Since 1815
ASIA 356/ Twentieth Century Japan HIST 356		HIST 412	Russia's Long Twentieth Century - The Soviet Experiment and Beyond
COMM 335 Intercultural Communication		HIST 439	Twentieth Century Britain
COMM 365/International Communication JOUR 365		HIST 441	History of Mexico, 1821 to the Present
ECON 320 Economic Development of Europe		HIST 449	History of Brazil, 1822 to the Present
ECON 330 Economic Development		HIST 464	International Developments Since 1918
ECON 452 International Trade Theory and Policy		HIST 477/ WGST 477	Women and Gender in Modern European History
EURO 443/ Contemporary Russian Prose RUSS 443		HUMA 321	Political Islam and Jihad
EURO 444/ Russian Drama RUSS 444		INTA 251	Contemporary Issues in the Middle East
EURO 447/ Russian Artistic Culture II - 1890 to RUSS 447	Present	INTA 301	Theories of Globalization
FILM 215/ Global Cinema GLST 215		INTA 321	Political Islam and Jihad
FILM 435/ German Film GERM 435		ITAL 456	Contemporary Italian Cultures
FREN 301 French Society and Culture in Evolution		JOUR 365/ COMM 365	International Communication
FREN 322 French Literature II		PERF 325	Dance in World Cultures
		PERF 328	Japanese Traditional Performing Arts
		POLS 229	Introduction to Comparative Politics
		POLS 231	Introduction to World Politics
		POLS 322	Western European Government and Politics
		POLS 323	Political Systems of Latin America

POLS 324	Politics of Global Inequality	
POLS 325	African Politics	
POLS 326	Government and Politics of Eastern Europe	
POLS 328	Globalization and Democracy	
POLS 338	Government and Politics of the Former Soviet Union	
POLS 365	Asian Governments and Politics	
POLS 366	Political Conflicts of the Middle East	
POLS 432	The Politics of European Union	
RELS 321	Political Islam and Jihad	
SOCI 206	Global Social Trends	
SPAN 312	Hispanic Culture and Civilization: 18th Century to Present	
SPAN 320	Introduction to Hispanic Literature	
SPAN 410	Hispanic Film	
SPAN 411	Contemporary Hispanic Society and Culture	
SPAN 450	Contemporary Spanish and Spanish-American Literature	
SPMT 220	Olympic Studies	
SPMT 337	International Sport Business	
WGST 477/	Women and Gender in Modern	
HIST 477	European History	
Total Semester Credit Hours		18

¹ Three hours must be taken in the student's business major. Courses may be taken on campus or through a TAMU or Mays faculty-led, field trip, or exchange program. Prior approval is required for direct enrollment at a foreign institution or through a provider.

² Must be the same language (e.g. SPAN 101, SPAN 102) and taken at the university level. Credit-by-exam not allowed.

³ Non-business courses taken abroad as part of a TAMU or Mays faculty-led, field trip, or exchange program, or through direct enrollment at a foreign institution or through a provider may also be used to satisfy this requirement.

Approved International Experience

An approved international experience, one month minimum, is required. Options available include:

- Mays or university-wide exchange program
- Mays or TAMU faculty-led or field trip
- International internship (for IBUS 484 credit)
- Other study abroad or volunteer program (with prior approval)

Management Consulting - Certificate

This program provides students across Texas A&M University an opportunity to explore the management consulting industry.

This certificate in Management Consulting certificate will enhance students' analytical agility through use of systems methodologies, effective communication strategies, and practical application of client management and adaptive leadership

skills necessary to place and subsequently thrive in all levels of consulting firms.

Program Requirements

Code	Title	Semester Credit Hours
BUSN 204	Discover Consulting	3
BUSN 405	Consulting Interview Preparation	3
BUSN 484	Internship	3
Select one of the following:		3
COMM 301	Rhetoric in Western Thought	
COMM 303/JOUR 305	Communication Data Applications	
COMM 320	Organizational Communication	
ECON 449	Economics of Decision-Making Strategy	
EHRD 374	Organizational Development	
EHRD 477	Project Management in Organizations	
ISTM 410	Management of Information Systems	
MGMT 421	Management Data Analytics and Visualization	
MGMT 424	Organizational Design, Change and Development	
MKTG 430	Marketing Consulting	
MKTG 431	Marketing Analytics	
PBSI 251	Survey of Industrial/Organizational Psychology	
PBSI 352	Organizational Psychology	
PHIL 240	Introduction to Logic	
PHIL 451	Probability, Decision Theory and Game Theory - How Should I Choose	
POLS 308	Game Theoretic Methods in Political Science	
SCMT 336	Data Analytics with Optimization	
SCMT 465	Information Technology for Supply Chain Management	
STAT 201	Elementary Statistical Inference	
Total Semester Credit Hours		12

James Benjamin Department of Accounting

The accounting profession continues to be recognized as one of the world's leading professions and as one offering many opportunities for a challenging career. The major challenge confronting the accounting profession today is the continuous development of accounting and information systems that can be utilized by business firms operating in an increasingly complex global environment. Within this environment, business firms and government units are generating and utilizing information at an accelerating rate.

A Bachelor of Business Administration ([BBA](#)) degree in accounting provides the opportunity for entry into a career offering a variety of different and challenging paths. Many accounting graduates are employed by public accounting firms that provide assurance, tax and other services to all types of organizations. Other accounting graduates pursue careers with business firms and financial institutions, within all levels of government, and as accounting educators. All of these careers provide an opportunity to earn the Certified Public Accountant (CPA) license and to serve society by maintaining the highest levels of integrity.

The American Institute of Certified Public Accountants (AICPA) recognizes the need for technically competent graduates entering the accounting profession. The State Board of Public Accountancy in Texas requires a minimum of 150 semester hours of college coursework (including at least 27 hours of upper-division accounting courses) as well as other requirements for CPA licensure. Therefore, highly motivated students are encouraged to give serious consideration to pursuing advanced studies to enhance their potential for a successful accounting career. The BBA degree alone does not meet the requirements to sit for the CPA examination in Texas.

The James Benjamin Department of Accounting offers a 5-year combined professional program that students apply for admission to enter during their junior year. The Professional Program in Accounting (PPA) offers a curriculum integrating undergraduate and graduate education. Graduates receive a BBA and a Master of Science degree (MS) or receive a BBA and a Master of Financial Management (MFM). This program offers opportunities for successful and motivated students to pursue academic coursework that challenges both their interests and abilities. Courses are taught by experienced faculty with superior teaching and professional credentials and are limited in class size.

Objectives of PPA include developing sound conceptual, technical, analytical and communication skills that are required for success in the accounting profession. The program develops decision making and teamwork skills through extensive use of discussions and case studies. Also, the program enables the student to select a coursework specialization in audit, non-profit, information systems, financial management, marketing, entrepreneurship, taxation, consulting, supply chain management, wealth management, or human resource management. Each track offers the student an opportunity to participate in a professional accounting internship which can be taken for course credit, should the student elect to do so.

The department also offers a standalone traditional Master's program (Master of Science in Accounting) that students enter after completion of the Bachelor's degree. For more details about PPA or the traditional Master's program, refer to the *Texas A&M University Graduate and Professional Catalog* or contact the PPA Director in the James Benjamin Department of Accounting. Students must be able to complete the coursework of any of the aforementioned programs in College Station, TX.

Lastly, the department offers a Flex Online Master of Science in Accounting degree in a fully online format. This program is designed for working professionals looking to advance a current accounting career or to move into accounting from another field. Refer to the *Texas A&M University Graduate and Professional Catalog* or contact the director of the Flex Online Accounting Program in the James Benjamin Department of Accounting.

Questions related to eligibility requirements to take the CPA examination or for CPA licensure in Texas should be directed to the Texas State Board of Public Accountancy (or the licensing authority in other jurisdictions).

Faculty

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MS, Texas A&M University, 1988

Arnosky, Caroline Hattox, Lecturer
Accounting
MS, Texas A&M University, 2015

Bartoskewitz, Patricia, Professor of the Practice
Accounting
MS, Texas A&M University, 1991

Blasor, Tara N, Principal Lecturer
Accounting
MS, Texas A&M University, 2007

Blum, Emily, Assistant Professor
Accounting
PHD, University of Alabama, 2020

Cline, Kayla M, Clinical Assistant Professor
Accounting
PHD, Texas A&M University, 2017

Deer, Shannon K, Clinical Associate Professor
Accounting
PHD, Texas A&M University, 2017

Diaz, Michelle C, Clinical Associate Professor
Accounting
PHD, Texas A&M University, 2005

Ege, Matthew, Professor
Accounting
PHD, University of Texas, 2013

Farmer, Karen C, Senior Lecturer
Accounting
MS, Texas A&M University, 2009

Foster, Courtney E, Senior Lecturer
Accounting
MS, Texas A&M University, 2008

Garza, Brent A, Clinical Assistant Professor
Accounting
PHD, University of Illinois at Urbana-Champaign, 2017

Green, Jeremiah, Professor
Accounting
PHD, University of North Carolina at Chapel Hill, 2010

Grossman, Steven D, Associate Professor
Accounting
PHD, Tufts University, 1972

Harding, Michael, Assistant Professor of the Practice
Accounting
BBA, Texas A&M University, 2019

Head, Michael J, Assistant Professor of the Practice
Accounting
BS, University of Missouri at Columbia, 1980

Hepfer, Bradford F, Associate Professor
Accounting
PHD, The University of Iowa, 2016

Hurta, Amy, Lecturer
Accounting
MS, Texas A&M University, 2008

Jin, Hengda, Assistant Professor
Accounting
PHD, University of Utah, 2022

Kartapanis, Antonis, Associate Professor
Accounting
PHD, University of Texas, 2019

Kim, Eunjee, Assistant Professor
Accounting
PHD, Cornell University, 2021

Knoop, Jacqueline D, Senior Lecturer
Accounting
MS, Texas A&M University, 1997

Kyllonen, Casey L, Senior Lecturer
Accounting
MS, Texas A&M University, 2008

Larkin, Ryan E, Principal Lecturer
Accounting
MAC, University of Utah, 2002

Lassila, Dennis R, Professor
Accounting
PHD, University of Minnesota, 1981

Leonard, Mary Ellen, Lecturer
Accounting
BBA, Texas A&M University, 1986

Liu, Summer, Assistant Professor
Accounting
PHD, Arizona State University, 2023

McGowan, Annie L, Associate Professor
Accounting
PHD, University of North Texas, 1994

McGuire, Sean, Professor
Accounting
PHD, University of Georgia, 2008

Munevar, Kimberlyn K, Assistant Professor
Accounting
PHD, University of California Berkely, 2024

Puccia, Jenn, Assistant Professor
Accounting
PHD, Michigan State University, 2024

Ranzilla, Sam J., Professor of the Practice
Accounting
BS, University of Detroit, 1978

Ray, Korok, Associate Professor
Accounting
PHD, Stanford University Graduate School of Business, 2004

Rice, Sarah C, Professor
Accounting
PHD, The Ohio State University, 2007

Robinson, John R, Professor
Accounting
JD, University of Michigan, 1979
PHD, University of Michigan, 1981

Rodriguez, Carlos, Professor of the Practice
Accounting
BBA, Texas A&M University, 1993

Sanders, Joan T, Principal Lecturer
Accounting
MS, Texas A&M University, 1990

Shafron, Emily-Anne Chicksen, Assistant Professor
Accounting
PHD, The University of Georgia, 2019

Sharp, Nate Y, Professor
Accounting
PHD, University of Texas, 2007

Strawser, Jerry R, Professor
Accounting
PHD, Texas A&M University, 1985

Tse, Senyo Y, Professor
Accounting
PHD, University of California at Berkeley, 1983

Twedt, Brady James, Professor
Accounting
PHD, Texas A&M University, 2013

Wang, Dechun, Professor
Accounting
PHD, University of Missouri at Columbia, 2004

Warren, James, Assistant Professor
Accounting
PHD, University of Georgia, 2021

Wolfe, Wesley C, Lecturer
Accounting
MS, Texas A&M University, 2020

Xia, Junwei, Assistant Professor
Accounting
PHD, INDIANA UNIVERSITY - KELLEY SCHOOL OF BUSINESS, 2020

Yust, Christopher G, Associate Professor
Accounting
PHD, University of Texas, 2015

Majors

- Bachelor of Business Administration in Accounting (p. 510)
- Bachelor of Business Administration in Accounting and Master of Financial Management, 5-Year Degree Program (p. 511)
- Bachelor of Business Administration in Accounting and Master of Science, 5-Year Degree Program (p. 513)

Certificates

- Energy Accounting Certificate (p. 515)
- Internal Audit Certificate (p. 515)

Accounting - BBA

This program develops students to understand business operations, communicate financial performance to different audiences, and use financial data to provide insights that will help businesses and individuals make better decisions.

A Bachelor of Business Administration (BBA) degree from an AACSB-Accredited (Association to Advance Collegiate Schools of Business) Accounting program prepares students for careers that offer numerous opportunities for growth and development. This degree program provides the minimum credentials necessary for entry into most accounting careers. However, the BBA degree does not meet the requirements to sit for the CPA examination in Texas. Questions related to eligibility requirements to take the CPA examination or for CPA licensure in Texas should be directed to the Texas State Board of Public Accountancy (or the licensing authority in other jurisdictions).

Many accounting graduates are employed by public accounting firms that provide assurance, tax and other services to all types of organizations. Other accounting graduates pursue careers with business firms and financial institutions, within all levels of government, and as accounting educators.

Upper-Level Entry Requirements

Admission to the upper-level major of accounting requires satisfactory completion of specific coursework. To review requirements and application procedures see Upper-Level Entry Requirements and Application Procedures (p. 497).

Program Requirements

Lower-Level Business Program (BUAD)

First Year

Fall		Semester Credit Hours
BUSN 101	Freshman Business Initiative ¹	3
MATH 140	Mathematics for Business and Social Sciences ²	3
American history (p. 30) ³		3
Life and physical sciences (p. 27)		3

Communication (p. 27) 3

Semester Credit Hours 15

Spring

ECON 202	Principles of Economics	3
MATH 142	Business Calculus ⁴	3
American history (p. 30) ³		3
Life and physical sciences (p. 27)		3
Social and behavioral sciences (p. 31)		3

Semester Credit Hours 15

Second Year

Fall

ACCT 229	Introductory Accounting	3
ECON 203	Principles of Economics	3
ISTM 210	Fundamentals of Information Systems	3
POLS 206	American National Government ³	3
Communication (p. 27) ¹		3

Semester Credit Hours 15

Spring

ACCT 230	Introductory Accounting	3
BUSN 203	Statistical Methods for Business ⁵	3
Creative arts (p. 30) ¹		3
Language, philosophy and culture (p. 28)		3
Life and physical sciences (p. 27)		3

Semester Credit Hours 15

Total Semester Credit Hours 60

¹ Refer to the specific major notes below for variations from the Business (lower level) requirements.

² MATH 148, MATH 152, MATH 168 and MATH 172 will be accepted in lieu of MATH 140.

³ For those students under ROTC contract, see Requirement 7 of the "Requirements for a Baccalaureate Degree." (p. 32)

⁴ MATH 147, MATH 151 and MATH 171 will be accepted in lieu of MATH 142.

⁵ STAT 211 will be accepted in lieu of BUSN 203.

Management Information Systems: Students intending to major in Management Information Systems must add ISTM 250 Business Programming Logic and Design (3 credits) to second year fall curriculum in Business (lower level). The communication elective can be taken during the third year fall.

Business Honors: Students admitted to Business Honors take BUSN 125 Business Learning Community I (3 credits) in place of BUSN 101 in the first year fall curriculum and must add BUSN 225 Business Competency (3 credits) to the second year spring curriculum in Business (lower level). The creative arts elective can be taken during the third year fall.

Finance: Students intending to major in Finance must add FINC 210 to freshman year curriculum in Business (lower-level). The general elective taken in the fourth year can be reduced by 1 credit.

Upper-Level Accounting Program

Third Year

		Semester Credit Hours
Fall		
ACCT 327	Financial Reporting I	3
FINC 341	Business Finance	3
MGMT 311	Legal and Social Environment of Business	3
MKTG 321	Marketing	3
International elective ¹		3

Semester Credit Hours 15

Spring

ACCT 322	Professional Development Seminar – BBA	1
ACCT 328	Financial Reporting II	3
ACCT 329	Cost Management and Analysis	3
ACCT 421	Critical Communication Skills for Accountants ²	3
MGMT 363	Managing People in Organizations	3
SCMT 364	Operations Management	3

Semester Credit Hours 16

Fourth Year

Fall		
ACCT 405	Income Tax	3
ACCT 427	Accounting and Financial Information Systems	3
MGMT 312	Commercial Law for Accountants and Managers	3
POLS 207	State and Local Government ³	3
General electives ⁴		3

Semester Credit Hours 15

Spring

ACCT 407	Auditing ²	3
MGMT 466	Strategic Management	3
International elective ¹		3
General electives ⁴		5

Semester Credit Hours 14

Total Semester Credit Hours 60

¹ Six hours required. A complete list of approved courses is available in the Undergraduate Advising Office. In the BBA curricula, the 6 hours of approved international elective courses simultaneously fulfill the university's International and Cultural Diversity Graduation requirement.

² This course is an approved writing-designated (W) or oral communication (C) business course. See your academic advisor for additional information.

³ For those students under ROTC contract, see Requirement 7 of the Requirements for a Baccalaureate Degree (<http://catalog.tamu.edu/undergraduate/general-information/degree-information/>).

⁴ General elective courses are open to any course offered for university credit, except ACCT 209, ACCT 210, FINC 409, IBUS 301, ISTM 209, MGMT 209, MGMT 309, MKTG 409, SCMT 364. Additional restrictions may apply; see academic advisor for information. May be taken on a satisfactory/unsatisfactory basis.

Total Program Hours 120

See the Department of Accounting academic advisors for more information on the licensure requirements for the Certified Public Accountant (CPA) license.

Professional Program students will follow the degree plan coordinated by the Professional Program office. Professional Program students will substitute ACCT 321 for ACCT 322. The additional credit hour required for ACCT 321 will to replace 1 hour of General Electives.

Accounting - 5-Year Bachelor of Business Administration and Master of Financial Management

This combination program offers students the opportunity to simultaneously earn a Bachelor of Business Administration in Accounting and a Master of Financial Management.

The James Benjamin Department of Accounting offers a 5-year Professional Program in Accounting (PPA) which prepares students for any path. Students must apply for admission into the PPA while, or after, taking ACCT 327 (Financial Reporting I). Students must be able to take the coursework in College Station, Texas.

The objectives of the PPA include developing sound conceptual, technical, analytical, and communication skills that are required for success in the accounting profession. Many accounting graduates are employed by public accounting firms that provide assurance, tax and other services to all types of organizations. Other accounting graduates pursue careers with business firms and financial institutions, within consulting firms, within all levels of government, and as accounting educators.

Upper-Level Entry Requirements

Admission to the upper-level major of accounting requires satisfactory completion of specific coursework. To review requirements and application procedures see Upper-Level Entry Requirements and Application Procedures (p. 497).

Program Requirements

Lower-Level Business Program (BUAD)

First Year

		Semester Credit Hours
Fall		
BUSN 101	Freshman Business Initiative ¹	3
MATH 140	Mathematics for Business and Social Sciences ²	3
American history (p. 30) ³		3
Life and physical sciences (p. 27)		3
Communication (p. 27)		3
Semester Credit Hours		15

Spring

ECON 202	Principles of Economics	3
MATH 142	Business Calculus ⁴	3
American history (p. 30) ³		3

Life and physical sciences (p. 27)	3
Social and behavioral sciences (p. 31)	3
Semester Credit Hours	15
Second Year	
Fall	
ACCT 229 Introductory Accounting	3
ECON 203 Principles of Economics	3
ISTM 210 Fundamentals of Information Systems	3
POLS 206 American National Government ³	3
Communication (p. 27) ¹	3
Semester Credit Hours	15
Spring	
ACCT 230 Introductory Accounting	3
BUSN 203 Statistical Methods for Business ⁵	3
Creative arts (p. 30) ¹	3
Language, philosophy and culture (p. 28)	3
Life and physical sciences (p. 27)	3
Semester Credit Hours	15
Total Semester Credit Hours	60

¹ Refer to the specific major notes below for variations from the Business (lower level) requirements.

² MATH 148, MATH 152, MATH 168 and MATH 172 will be accepted in lieu of MATH 140.

³ For those students under ROTC contract, see Requirement 7 of the "Requirements for a Baccalaureate Degree." (p. 32)

⁴ MATH 147, MATH 151 and MATH 171 will be accepted in lieu of MATH 142.

⁵ STAT 211 will be accepted in lieu of BUSN 203.

Management Information Systems: Students intending to major in Management Information Systems must add ISTM 250 Business Programming Logic and Design (3 credits) to second year fall curriculum in Business (lower level). The communication elective can be taken during the third year fall.

Business Honors: Students admitted to Business Honors take BUSN 125 Business Learning Community I (3 credits) in place of BUSN 101 in the first year fall curriculum and must add BUSN 225 Business Competency (3 credits) to the second year spring curriculum in Business (lower level). The creative arts elective can be taken during the third year fall.

Finance: Students intending to major in Finance must add FINC 210 to freshman year curriculum in Business (lower-level). The general elective taken in the fourth year can be reduced by 1 credit.

Upper-Level Accounting Program

Third Year

Fall		Semester Credit Hours
ACCT 327	Financial Reporting I	3
FINC 341	Business Finance	3
MGMT 311	Legal and Social Environment of Business	3
MKTG 321	Marketing	3

International elective ¹		3
Semester Credit Hours		15
Spring		
ACCT 321	Professional Development Seminar	2
ACCT 328	Financial Reporting II	3
ACCT 329	Cost Management and Analysis	3
ACCT 421	Critical Communication Skills for Accountants ²	3
MGMT 363	Managing People in Organizations	3
SCMT 364	Operations Management	3
Semester Credit Hours		17
Fourth Year		
Fall		
ACCT 405	Income Tax	3
ACCT 427	Accounting and Financial Information Systems	3
MGMT 312	Commercial Law for Accountants and Managers ³	3
POLS 207	State and Local Government ⁴	3
General elective ⁵		3
Semester Credit Hours		15

Code	Title	Semester Credit Hours
Masters of Financial Management Degree Requirements		36
ACCT 628	Business Application Modeling	
ACCT 647/	Financial Statement Analysis	
FINC 647		
ACCT 650	Accounting Ethics	
ACCT 651	Development of Accounting Thought	
FINC 629	Financial Management I	
FINC 632	Investment Management	
FINC 641	Valuation	
FINC 642	Analysis of Money and Capital Markets	
FINC 645/	International Finance	
IBUS 645		

FINC 665 Derivative Securities

Accounting elective ⁸

¹ Six hours required. A complete list of approved courses is available in the Undergraduate Advising Office. In the BBA curricula, the six hours of approved international elective courses simultaneously fulfill the university's International and Cultural Diversity Graduation requirement.

² This course is an approved writing-designated (W) or oral communication (C) business course. See your academic advisor for additional information.

³ May also take MGMT 643.

⁴ For those students under ROTC contract, see Requirement 7 of the 'Requirements for a Baccalaureate Degree (<http://catalog.tamu.edu/undergraduate/general-information/degree-information/>)'.

⁵ General elective courses are open to any course offered for university credit, except ACCT 209, ACCT 210, FINC 409, IBUS 301, ISTM 209, MGMT 209, MGMT 643. Additional restrictions may apply; see academic advisor for information. May be taken on a satisfactory/unsatisfactory basis.

⁶ May also take MGMT 680.

⁷ Students will follow the graduate coursework coordinated by the Professional Program in Accounting (PPA) office.

⁸ Select from ACCT 607, ACCT 621, ACCT 646/IBUS 646, ACCT 680, ACCT 684.

See the James Benjamin Department of Accounting academic advisors for more information on the licensure requirements to sit for the Certified Public Accountant (CPA) exam.

The program includes a total of 156 hours, of which up to 6 hours may be applied toward both the Bachelor of Business Administration in Accounting and the Master of Financial Management.

Total Program Hours 156

Accounting- 5-Year Bachelor of Business Administration and Master of Science

This combination program offers students the opportunity to simultaneously earn a Bachelor of Business Administration in Accounting and a Master of Science degree within a variety of business disciplines.

The James Benjamin Department of Accounting offers a 5-year Professional Program in Accounting (PPA) which prepares students for any path. Students must apply for admission into the PPA while, or after, taking ACCT 327 (Financial Reporting I). Students must be able to take the coursework in College Station, Texas.

The objectives of the PPA include developing sound conceptual, technical, analytical, and communication skills that are required for success in the accounting profession. Many accounting graduates are employed by public accounting firms that provide assurance, tax and other services to all types of organizations. Other accounting graduates pursue careers with business firms and financial institutions, within consulting firms, within all levels of government, and as accounting educators.

Upper-Level Entry Requirements

Admission to the upper-level major of accounting requires satisfactory completion of specific coursework. To review requirements and application procedures see Upper-Level Entry Requirements and Application Procedures (p. 497).

Program Requirements

Lower-Level Business Program (BUAD)

First Year

Fall		Semester Credit Hours
BUSN 101	Freshman Business Initiative ¹	3
MATH 140	Mathematics for Business and Social Sciences ²	3
	American history (p. 30) ³	3
	Life and physical sciences (p. 27)	3
	Communication (p. 27)	3

Semester Credit Hours 15

Spring

ECON 202	Principles of Economics	3
MATH 142	Business Calculus ⁴	3
	American history (p. 30) ³	3
	Life and physical sciences (p. 27)	3
	Social and behavioral sciences (p. 31)	3

Semester Credit Hours 15

Second Year

Fall		
ACCT 229	Introductory Accounting	3
ECON 203	Principles of Economics	3
ISTM 210	Fundamentals of Information Systems	3
POLS 206	American National Government ³	3
	Communication (p. 27) ¹	3

Semester Credit Hours 15

Spring

ACCT 230	Introductory Accounting	3
BUSN 203	Statistical Methods for Business ⁵	3
	Creative arts (p. 30) ¹	3
	Language, philosophy and culture (p. 28)	3
	Life and physical sciences (p. 27)	3

Semester Credit Hours 15

Total Semester Credit Hours 60

¹ Refer to the specific major notes below for variations from the Business (lower level) requirements.

² MATH 148, MATH 152, MATH 168 and MATH 172 will be accepted in lieu of MATH 140.

³ For those students under ROTC contract, see Requirement 7 of the "Requirements for a Baccalaureate Degree." (p. 32)

⁴ MATH 147, MATH 151 and MATH 171 will be accepted in lieu of MATH 142.

⁵ STAT 211 will be accepted in lieu of BUSN 203.

Management Information Systems: Students intending to major in Management Information Systems must add ISTM 250 Business Programming Logic and Design (3 credits) to second year fall curriculum in Business (lower level). The communication elective can be taken during the third year fall.

Business Honors: Students admitted to Business Honors take BUSN 125 Business Learning Community I (3 credits) in place of BUSN 101 in the first year fall curriculum and must add BUSN 225 Business Competency (3 credits) to the second year spring curriculum in Business (lower level). The creative arts elective can be taken during the third year fall.

Finance: Students intending to major in Finance must add FINC 210 to freshman year curriculum in Business (lower-level). The general elective taken in the fourth year can be reduced by 1 credit.

Upper-Level Accounting Program

Third Year

Fall		Semester Credit Hours
ACCT 327	Financial Reporting I	3
FINC 341	Business Finance	3
MGMT 311	Legal and Social Environment of Business	3
MKTG 321	Marketing	3
International elective ¹		3
Semester Credit Hours		15

Spring

ACCT 321	Professional Development Seminar	2
ACCT 328	Financial Reporting II	3
ACCT 329	Cost Management and Analysis	3
ACCT 421	Critical Communication Skills for Accountants ²	3
MGMT 363	Managing People in Organizations	3
SCMT 364	Operations Management	3
Semester Credit Hours		17

Fourth Year

Fall		
ACCT 405	Income Tax	3
ACCT 427	Accounting and Financial Information Systems	3
MGMT 312	Commercial Law for Accountants and Managers ³	3
POLS 207	State and Local Government ⁴	3
General electives ⁵		3
Semester Credit Hours		15

Spring

ACCT 407	Auditing ²	3
MGMT 466	Strategic Management ⁶	3
International elective ¹		3
General elective ⁵		4
Semester Credit Hours		13

Fifth Year

Fall

Graduate coursework ⁷	18
Semester Credit Hours	18

Spring

Graduate coursework ⁷	18
Semester Credit Hours	18
Total Semester Credit Hours	96

Code	Title	Semester Credit Hours

Master of Science Degree Requirements 36

ACCT 628	Business Application Modeling ⁸
ACCT 646/	International Accounting ⁸
IBUS 646	
ACCT 647/	Financial Statement Analysis ⁸
FINC 647	
ACCT 650	Accounting Ethics
ACCT 651	Development of Accounting Thought ⁸
ACCT 684	Professional Internship
Track courses ⁹	

¹ Three hours required. A complete list of approved courses is available in the Undergraduate Advising Office. In the BBA curricula, the 3 hours of approved international elective courses simultaneously fulfill the university's International and Cultural Diversity graduation requirement.

² This course is an approved writing-designated (W) or oral communication (C) business course. See your academic advisor for additional information.

³ May also take MGMT 643.

⁴ For those students under ROTC contract, see Requirement 7 of the 'Requirements for a Baccalaureate Degree (<http://catalog.tamu.edu/undergraduate/general-information/degree-information/>)'.

⁵ General elective courses are open to any course offered for university credit, except ACCT 209, ACCT 210, FINC 409, IBUS 301, ISTM 209, MGMT 209, MGMT 309, MKTG 409, SCMT 309. Additional restrictions may apply; see academic advisor for information. May be taken on a satisfactory/unsatisfactory basis.

⁶ May also take MGMT 680.

⁷ Students will follow the graduate coursework coordinated by the Professional Program in Accounting (PPA) office.

⁸ Accounting courses are subject to change based on the track students select.

⁹ Track courses are specific to the individual track that is chosen once you are admitted into the Professional Program of Accounting (PPA). Tracks other than Financial Management include Audit, Consulting, Tax, Entrepreneurship, Nonprofit, Technology, Human Resource Management, Marketing, Supply Chain and Analytics, and Wealth Management.

See the James Benjamin Department of Accounting academic advisors for more information on the licensure requirements to sit for the Certified Public Accountant (CPA) exam.

The program includes a total of 156 hours, of which up to 6 hours could be applied toward both the Bachelor of Business Administration in Accounting and the Master of Science in Accounting, Entrepreneurial

Leadership, Human Resource Management, Management Information Systems, Marketing, or Supply Chain and Analytics.

Total Program Hours 156

Energy Accounting - Certificate

This program offers coursework and experiences to prepare students for a career in the energy sector.

The Energy Accounting Certification (EAC) program offers Mays BBA Accounting and Finance majors who have an interest in working within the energy sector an opportunity to set themselves apart and find a place in an exciting, competitive industry that provides a wide variety of opportunities – including international. The EAC program is designed to provide undergraduate students high impact learning experiences related to the energy industry.

All EAC requirements must be completed prior to graduation. To meet the program requirements, students must complete the required coursework. Upon fulfilling the requirements, a certificate is issued by the Office of the Registrar.

Program Requirements

Code	Title	Semester Credit Hours
ACCT 328	Financial Reporting II ¹	3
ACCT 403	Energy Accounting ^{1,2}	3
ACCT 484	Accounting Internship ^{3,4}	3
	or FINC 484 or Professional Internship	
BUSN 213	Overview of the Energy Industry ¹	1
	Select one of the following: ^{1,5}	3
AGEC 350	Environmental and Natural Resource Economics	
AGEC 402	Survey of International Agricultural Economics: Study Abroad	
AGEC 422	Land Economics	
ATMO 201	Weather and Climate	
ATMO 210	Climate Change	
BESC 201	Introduction to Bioenvironmental Sciences	
CHEM 107	General Chemistry for Engineering Students	
CHEM 119	Fundamentals of Chemistry I	
CHEM 120	Fundamentals of Chemistry II	
ECON 433	Energy Markets and Policy ⁶	
ENGR 101	Energy: Resources, Utilization and Importance to Society	
ENSS 105	Introduction to Environmental Systems Science	
GEOG 202	Geography of the Global Village	
GEOG 203	Planet Earth	
GEOG 205	Environmental Change	
GEOG 309	Geography of Energy	
GEOG 330	Resources and the Environment	
GEOL 101	Principles of Geology	
HIST 359	American Environmental History	

HIST 360	History of Energy in America
OCNG 251	The Blue Planet - Our Oceans
PHYS 123	Physics for Future Presidents
PHYS 201	College Physics
PHYS 202	College Physics
PHYS 206	Newtonian Mechanics for Engineering and Science
RWFM 375	Conservation of Natural Resources
RWFM 400/Study Abroad in Natural Resources	
ECCB 452	

¹ Must make a grade of C or better.

² ACCT 603 will be accepted in lieu of ACCT 403.

³ Must be taken on a satisfactory/unsatisfactory basis.

⁴ ACCT 684 will be accepted in lieu of ACCT 484 or FINC 484.

⁵ Course availability will vary each semester. For a complete list of prescribed electives, please contact an Academic Advisor or the Certificate in Energy Accounting coordinator.

⁶ May take ECON 633 as an elective.

Internal Audit - Certificate

This program offers coursework and experiences to prepare students to work with one company across all departments to solve their biggest challenges.

Business students with a consulting mindset interested in serving an internal function with a broad focus on areas such as risk management, compliance, fraud investigation, and auditing for operational efficiency and effectiveness may be a good match for a career as an internal auditor.

To prepare students for such roles, the James Benjamin Department of Accounting offers an Internal Audit Certificate which is recognized as a Center of Excellence by The Institute of Internal Auditors (<https://www.theiia.org/en/>) (IIA). This certificate is available to undergraduate students enrolled in the Mays Business School at Texas A&M University. To be eligible for this certificate students must be pursuing a BBA in one of the following majors: ACCT (includes students admitted in the Professional Program in Accounting), BHNR, FINC, MGMT, MISY, MKTG, or SCMT. Students pursuing the BS in Business degree program are also eligible for this certificate. Students must apply and be accepted into the Internal Audit Program (<https://mays.tamu.edu/undergraduate/high-impact-programs/internal-audit-program/>) in order to be eligible to take some of the coursework required for this certificate.

To meet the program requirements, students must complete the required coursework in College Station, TX. All requirements must be completed prior to graduation. Upon fulfilling the certificate requirements, a certificate will be issued by the Office of the Registrar.

Program Requirements

Code	Title	Semester Credit Hours
ACCT 408	Internal Auditing	3
ACCT 427	Accounting and Financial Information Systems	3
ACCT 450	Accounting Ethics	3

Elective ^{1,2}	3
Select one of the following:	
ACCT 410 Fraud Examination	
FINC 361 Managerial Finance I	
FINC 447/ Financial Statement Analysis ACCT 447	
FINC 449 Financial Modeling	
ISTM 315 Database Programming	
ISTM 320 Business Systems Analysis and Design	
ISTM 455/ Cybersecurity Management SCMT 455	
MGMT 372 Advanced Concepts in Organizational Behavior	
MGMT 422 Management Consulting	
MGMT 475 Leadership Development	
MKTG 323 Marketing Research	
MKTG 431 Marketing Analytics	
SCMT 345 Business Process Design	
Internship ²	3
Select one of the following:	
ACCT 484 Accounting Internship	
FINC 484 Professional Internship	
ISTM 484 Management Information Systems Internship	
MGMT 484 Management Internship	
MKTG 484 Marketing Internship	
SCMT 484 Supply Chain Management Internship	
Total Semester Credit Hours	15

¹ Students may use another course in lieu of the course listed if approved by an Internal Audit Program Director in advance of the student registering for the course.

² An internship experience is required for the certificate and will be documented through registering and completing an internship course. If the student pursues an internship and earns less than three credit-hours in their internship course, an additional elective must be taken. Completing less than three credit-hours for the internship course and the selection of the appropriate elective must be approved in advance of registering for either course by an Internal Audit Program Director. At least 15 credit hours must be taken to earn the certificate.

Adam C. Sinn '00 Department of Finance

The Adam C. Sinn '00 Department of Finance (<https://mays.tamu.edu/departments-of-finance/>) at Mays Business School is one of the country's top finance departments. The department's goal is to provide students with the theoretical and empirical tools necessary to achieve high levels of expertise in all areas of finance. The business enterprise must raise capital, use it to maximum advantage, and reward investors. Finance is the set of management challenges (and career opportunities) concerned with succeeding at these tasks.

The department offers a Bachelor of Business Administration (BBA) in Finance. The finance (FINC) major involves both required and elective courses in three areas.

- **Corporate Finance** encompasses the tools and techniques for valuing productive assets, choosing ways of funding them, and gauging financial success. This area focuses on how corporations determine funding sources, capital structure, and investment decisions.
- **Investments** encompasses the theoretical and practical models that help assess risks and rewards of stocks, bonds, derivatives, and other "financial assets" (individually and in portfolios), as well as the financial health of firms and institutions offering them to the investing public.
- **Markets and Institutions** explores the ways in which bankers, brokers, and other financial institutions convert savings into productive capital.

Mays Business School BBA-FINC graduates with good academic records place well in all the above career areas, as well as in graduate and professional schools. Firms in a variety of industries, along with major financial firms such as commercial and investment banking, brokerage, wealth management and consulting, seek finance graduates. Accordingly, the Adam C. Sinn '00 Department of Finance emphasizes scholarship in its faculty, professionalism in its programs, and innovation in its relationships with employers and mentors.

For more information visit the Adam C. Sinn '00 Department of Finance (<https://mays.tamu.edu/departments-of-finance/>) website.

Faculty

Abdi, Farshid, Assistant Professor
Finance
PHD, University of St. Gallen, 2018

Adams, Brent Ray, Professor of the Practice
Finance
BBA, Texas A&M University, 1990

Amos, Nicky, Associate Professor of the Practice
Finance
MER, Texas A&M University, 2005

Banks, Bulkeley, Associate Professor of the Practice
Finance
MPS, Georgetown University, 2010

Bouwman, Christa, Professor
Finance
PHD, University of Michigan, 2005

Bowles, Boone, Assistant Professor
Finance
PHD, University of North Carolina Chapel Hill, 2019

Brown, Jamie, Professor
Finance
PHD, Washington University in St. Louis, 2004

Cetina, Jill, Professor of the Practice
Finance
MPA, Princeton University, 1998

Chen, Yong, Professor
Finance
PHD, Boston College, 2007

Cziraki, Peter, Assistant Professor
Finance
PHD, Tilburg University, 2012

Dye, Richard T, Clinical Professor
Finance
PHD, Texas A&M University, 1993

Fieldhouse, Andrew, Assistant Professor
Finance
PHD, Cornell University, 2019

Fitzgerald, Tristan, Assistant Professor
Finance
PHD, University of California at Berkeley, 2018

Garey, William D, Professor of the Practice
Finance
MBA, University of Houston at Clear Lake, 1980

Guyton, Sally C, Principal Lecturer
Finance
MBA, The University of Texas at Austin, 1982

Hallermann, Detlef, Clinical Professor
Finance
PHD, Colorado School of Mines, 1999

Hercot, Philippe, Professor of the Practice
Finance
MBA, Harvard Graduate School of Business Administration, 1993

Huang, Jing, Assistant Professor
Finance
PHD, Duke University, 2020

Illeditsch, Philipp Karl, Assistant Professor
Finance
PHD, Texas A&M University, 2007

Johnson, Shane A, Professor
Finance
PHD, Louisiana State University, 1991

Keller, Lorena, Assistant Professor
Finance
PHD, Northwestern University, 2020

Kelly, Robert, Professor of the Practice
Finance
PHD, Harvard University, 1981

Kim, Hwagyun, Associate Professor
Finance
PHD, University of Chicago, 2003

Kolari, James, Professor
Finance
PHD, Arizona State University, 1980

Kolasinski, Adam C, Professor
Finance
PHD, Massachusetts Institute of Technology, 2006

Li, Fulin, Assistant Professor
Finance
MS, Columbia University, 2017

Liu, Xiaoding, Associate Professor
Finance
PHD, University of Florida, 2012

Mahajan, Arvind, Professor
Finance
PHD, Georgia State University, 1980

Paine, Fiona, Assistant Professor
Finance
PHD, Massachusetts Institute of Technology, 2025

Peterson, John R, Clinical Associate Professor
Finance
PHD, Texas A&M University, 2002

Pique, Ricardo, Visiting Assistant Professor
Finance
PHD, Northwestern University, 2016

Pleus, Scott, Visiting Professor of the Practice
Finance
BS, University of Missouri-Columbia, 1988

Ramseur, Stephen, Professor of the Practice
Finance
MTH, Dallas Theological Seminary, 2017

Rossi, Marco, Associate Professor
Finance
PHD, Pennsylvania State University, 2010

Sorescu, Sorin M, Professor
Finance
PHD, University of Florida, 1996

Tomio, Davide, Assistant Professor
Finance
PHD, Copenhagen Business School, 2017

Weldon, Charlie Charles, Visiting Professor of the Practice
Finance
MBA, The University of Texas at Austin, 2000

White, Edward C, Professor of the Practice
Finance
MBA, University of Hawaii, 1972

Wilson, Christopher A, Professor of the Practice
Finance
MBA, Texas A&M University, 1990

Wu, Wei, Associate Professor
Finance
PHD, University of Chicago, 2015
PHD, Duke University, 2009

Zhou, Kangying, Assistant Professor
 Finance
 PHD, Yale University, 2025

Majors

- Bachelor of Business Administration in Finance (p. 518)

Certificates

- Commercial Banking Certificate (p. 519)
- Corporate Finance Certificate (p. 519)
- Trading, Risk and Investments Certificate (p. 520)

Finance - BBA

This program equips students with the theoretical and empirical tools necessary to achieve high levels of expertise in all areas of finance.

The Adam C. Sinn '00 Department of Finance (<https://mays.tamu.edu/departments/finance/>) offers a Bachelor of Business Administration (BBA) in Finance. Finance is the study of how individuals, companies, and governments allocate resources over time, under conditions of risk or uncertainty. The BBA Finance (FINC) major equips students in the core financial areas of corporate finance, investments, and markets and institutions.

In addition to earning a BBA FINC degree, majors may apply for one of several specialized fields of study:

- Aggies on Wall Street (AOWS)
- Commercial Banking Certificate Program (CBP)
- Corporate Finance Certificate Program (CFP)
- Trading, Risk and Investments Certificate Program (TRIP)

Finance students also have access to applied finance courses including *Titans of Investing*, which exposes students to a broad perspective of financial markets and global developments; the *Tanner Fund* and *Reveille Fund*, which allow students to manage real money for credit; *Financial Modeling*, in which students build Excel-based financial models in the context of company valuations, leveraged buyout investments, and mergers and acquisitions; and multiple commercial real estate analysis classes.

BBA FINC graduates are qualified for careers including investment bankers, commercial bankers, investment fund managers, traders, corporate treasurers, comptrollers, chief financial officers, investor relations officers, risk managers, investment analysts, and commercial real estate analysts.

Upper-Level Entry Requirements

Admission to the upper-level major of finance (FINC) requires satisfactory completion of specific coursework. To review requirements and application procedures see Upper-Level Entry Requirements and Application Procedures (p. 497).

Program Requirements

Lower-Level Business Program (BUAD)

First Year		Semester
Fall		Credit Hours
BUSN 101	Freshman Business Initiative ¹	3
MATH 140	Mathematics for Business and Social Sciences ²	3
American history (p. 30) ³		3
Life and physical sciences (p. 27)		3
Communication (p. 27)		3
Semester Credit Hours		15
Spring		
ECON 202	Principles of Economics	3
MATH 142	Business Calculus ⁴	3
American history (p. 30) ³		3
Life and physical sciences (p. 27)		3
Social and behavioral sciences (p. 31)		3
Semester Credit Hours		15
Second Year		
Fall		
ACCT 229	Introductory Accounting	3
ECON 203	Principles of Economics	3
ISTM 210	Fundamentals of Information Systems	3
POLS 206	American National Government ³	3
Communication (p. 27) ¹		3
Semester Credit Hours		15
Spring		
ACCT 230	Introductory Accounting	3
BUSN 203	Statistical Methods for Business ⁵	3
Creative arts (p. 30) ¹		3
Language, philosophy and culture (p. 28)		3
Life and physical sciences (p. 27)		3
Semester Credit Hours		15
Total Semester Credit Hours		60

¹ Refer to the specific major notes below for variations from the Business (lower level) requirements.

² MATH 148, MATH 152, MATH 168 and MATH 172 will be accepted in lieu of MATH 140.

³ For those students under ROTC contract, see Requirement 7 of the "Requirements for a Baccalaureate Degree." (p. 32)

⁴ MATH 147, MATH 151 and MATH 171 will be accepted in lieu of MATH 142.

⁵ STAT 211 will be accepted in lieu of BUSN 203.

Management Information Systems: Students intending to major in Management Information Systems must add ISTM 250 Business Programming Logic and Design (3 credits) to second year fall curriculum in Business (lower level). The communication elective can be taken during the third year fall.

Business Honors: Students admitted to Business Honors take BUSN 125 Business Learning Community I (3 credits) in place of BUSN 101 in the first year fall curriculum and must add BUSN 225 Business Competency (3 credits) to the second year spring curriculum in Business (lower level). The creative arts elective can be taken during the third year fall.

Finance: Students intending to major in Finance must add FINC 210 to freshman year curriculum in Business (lower-level). The general elective taken in the fourth year can be reduced by 1 credit.

Upper-Level Finance Program

Third Year

		Semester Credit Hours
Fall		
ACCT 327	Financial Reporting I	3
FINC 341	Business Finance	3
FINC 350	Ethics in Financial Decision-Making ¹	1
MGMT 363	Managing People in Organizations	3
SCMT 364	Operations Management	3
Semester Credit Hours		13

Spring

FINC 351	Investment Analysis	3
FINC 361	Managerial Finance I	3
FINC 381	Money and Capital Markets	3
MGMT 311	Legal and Social Environment of Business	3
International elective ²		3
Semester Credit Hours		15

Fourth Year

Fall		
ACCT 328	Financial Reporting II	3
MKTG 321	Marketing ¹	3
POLS 207	State and Local Government ³	3
Select one of the following:		3
Accounting elective (p. 895) ⁴		
Finance elective (p. 1043) ⁵		
Finance elective (p. 1043) ⁵		3
Semester Credit Hours		15

Spring

MGMT 466	Strategic Management	3
Finance elective (p. 1043) ⁵		6
International elective ²		3
General elective ^{6,7}		5
Semester Credit Hours		17
Total Semester Credit Hours		60

¹ This course is an approved writing-designated (W) or oral communication (C) business course. See your academic advisor for additional information.

² Six hours required. A complete list of approved courses is available in the Undergraduate Advising Office. In the BBA curricula, three of the 6 hours of approved international elective courses simultaneously fulfill the university's International and Cultural Diversity Graduation requirement.

³ For those students under ROTC contract, see Requirement 7 of the 'Requirements for a Baccalaureate Degree (<http://catalog.tamu.edu/undergraduate/general-information/degree-information/>)'.

⁴ Any 300- or 400-level accounting course except ACCT 327 and ACCT 328. Before enrolling in ACCT 489, students should consult with the finance department advisor.

⁵ Any 300- or 400-level finance course except FINC 341, FINC 350, FINC 409, and FINC 484.

⁶ Elective courses are open to any course offered for university credit, except ACCT 209, ACCT 210, FINC 409, IBUS 301, ISTM 209, MGMT 209, MGMT 309, MKTG 409, SCMT 309. Additional restrictions may apply; see academic advisor for information. May be taken on a satisfactory/unsatisfactory basis.

⁷ Refer to the major specific paragraph on the Lower-Level Business Program (BUAD). The general elective taken in the fourth year should be reduced by 1 credit.

Total Program Hours 120 Commercial Banking - Certificate

This program is designed to equip students with the best practices for a career in commercial banking.

The Adam C. Sinn '00 Department of Finance (<https://mays.tamu.edu/departments/finance/>) offers specialized, industry-relevant study through the Commercial Banking Certificate Program (CBP). The CBP is designed to equip BBA FINC students with the banking and finance skills needed to prepare for and transition into successful careers in commercial banking, serving the personnel needs of the industry in the state of Texas and the United States.

The CBP requires completion of prescribed coursework and a paid summer internship with a member bank of the CBP Advisory Board. The required curriculum is representative of banking industry requirements for CBP graduates to be favorably recruited by the banking industry for commercial banking careers. Business student applicants must be U.S. citizens or permanent residents.

Students who pursue the CBP must complete all program requirements prior to graduation. Upon graduation a certificate notation will be added to the official transcript.

Program Requirements

Code	Title	Semester Credit Hours
FINC 462	Commercial Bank Management	3
FINC 463	Seminar in Commercial Banking	3
FINC 464	Commercial Credit Analysis	3
MKTG 337	Selling Financial Products and Services	3
Total Semester Credit Hours		12

An internship with a banking institution or regulatory agency is required.

Corporate Finance - Certificate

This program is designed to prepare BBA Finance students focused on careers in corporate finance and accounting.

The Adam C. Sinn '00 Department of Finance (<https://mays.tamu.edu/departments/finance/>) offers specialized study through the Corporate Finance Certificate Program (CFP).

The CFP requires completion of a set of guided finance, accounting, and data analytics electives which have been selected to prepare students for the many roles available in the corporate world of finance and accounting. Business students must be U.S. citizens or permanent residents.

Students who pursue the CFP must complete all program requirements prior to graduation. Upon graduation a certificate notation will be added to the official transcript.

Program Requirements

Code	Title	Semester Credit Hours
FINC 345	Success Factors in Corporate Finance	1
FINC 436	Corporate Finance Capstone	3
FINC 443	Valuation	3
FINC 447/ ACCT 447	Financial Statement Analysis	3
FINC 449	Financial Modeling	3
ISTM 313	Foundations of Data Analytics for Non-MIS Majors	3
Total Semester Credit Hours		16

Trading, Risk and Investments - Certificate

This program is designed to prepare BBA FINC and BBA Business Honors/FINC undergraduate students in the fields of energy trading, investments, and risk management by combining exceptional class instruction with hands-on internship-based experience.

The Adam C. Sinn '00 Department of Finance (<https://mays.tamu.edu/departments/finance/>) offers specialized study through the Trading, Risk and Investments Program (TRIP). Three paid internships with different board member companies are required and provided. TRIP students must be U.S. citizens or permanent residents.

Students who pursue TRIP must complete all program requirements prior to graduation. Upon graduation a certificate notation will be added to the official transcript.

Program Requirements

Code	Title	Semester Credit Hours
ACCT 327	Financial Reporting I	3
BUSN 392	Cooperative Education in Business ¹	2
FINC 368	Trade Floor Dynamics	3
FINC 485	Directed Studies ((Final Presentation))	0
Select three of the following:		9
FINC 422	Applied Investment Analysis	
FINC 423	Options and Financial Futures	
FINC 424	Trading Risk Management	

FINC 425	Active Portfolio Management
FINC 426	Trading Markets
FINC 427	Titans of Investing
FINC 428	Fixed Income Analysis
FINC 443	Valuation
FINC 446	Technical Analysis of Financial Markets
FINC 448	Advanced Investments
FINC 449	Financial Modeling

Total Semester Credit Hours

17

¹ This certificate requires completion of three internships. Spring-semester internships require enrollment in BUSN 392, a 2-credit course, repeatable for credit. A maximum of 4 credits can be earned through BUSN 392.

Department of Information and Operations Management

The Department of Information and Operations Management (<https://mays.tamu.edu/departments/information-and-operations-management/>) (INFO) ranks among the top departments internationally in research productivity, impact and visibility. The INFO department offers two undergraduate degree programs: a Bachelor of Business (BBA) in Management Information Systems and a BBA in Supply Chain Management.

Management Information Systems (MISY) is a people-oriented field with an emphasis on service through technology. The BBA MISY degree program is the study of people, technology, organizations, and the relationships among them. MISY professionals help firms realize maximum benefit from investment in personnel, equipment, and business processes. This major is designed for students who have an interest in technology and have the desire to use technology to improve people's lives.

Supply Chain Management (SCMT) includes all the activities that must take place to get the right product into the right consumer's hands in the right quantity and at the right time – from raw materials extraction to consumer purchase. The BBA SCMT degree program is primarily concerned with the efficient integration of suppliers, factories, planning and forecasting, purchasing, product assembly, moving, storage, distribution, sales, and customer service. This major is designed for students who have an interest in problem solving, are detail-oriented, and a desire to help businesses achieve a sustainable competitive advantage by building and delivering products better, faster and cheaper.

In each degree program, students learn how to use technology to make businesses more efficient, effective, and competitive. Coursework includes both the technical and managerial aspects of MISY and SCMT to ensure that students are well-equipped for successful careers in the dynamic, global business environment.

For more information, visit the Department of Information and Operations Management (<https://mays.tamu.edu/departments/information-and-operations-management/advising/>) website.

Faculty

Aasi, Parisa, Clinical Assistant Professor
Information & Operations Mgmt
BDS, Amirkabir University of Technology, 2009
PHD, Stockholm University, 2018

Abbey, James D, Professor
Information & Operations Mgmt
PHD, The Pennsylvania State University, 2013

Abbott, Jeanna, Visiting Professor
Information & Operations Mgmt
PHD, University of Houston, 2013

Agrawal, Anupam, Associate Professor
Information & Operations Mgmt
PHD, INSEAD France, 2008

Arreola-Risa, Antonio, Associate Professor
Information & Operations Mgmt
PHD, Stanford University, 1989

Arumugam, Ranga, Lecturer
Information & Operations Mgmt
MBA, University of Texas at Austin, 2010

Becker, Aaron C, Clinical Professor
Information & Operations Mgmt
PHD, University of Oklahoma, 2009

Berberian, Rose, Lecturer
Information & Operations Mgmt
MBA, University of Houston - Victoria, 2004

Bonfardeci, John, Visiting Lecturer
Information & Operations Mgmt
MS, Texas A&M University, 2018

Boone, Ted, Principal Lecturer
Information & Operations Mgmt
MS, Pennsylvania State University, 2000

Castro, Arnold, Professor of the Practice
Information & Operations Mgmt
MS, Texas A&M University, 2022

Curtsinger, Wanda F, Senior Lecturer
Information & Operations Mgmt
PHD, Morehead State University, 2007

Geismar, H. Neil, Professor
Information & Operations Mgmt
PHD, The University of Texas at Dallas, 2003

George, Jordana, Assistant Professor
Information & Operations Mgmt
PHD, Baylor University, 2019

Gomillion, David L, Clinical Associate Professor
Information & Operations Mgmt
PHD, Florida State University, 2013

Hartmann, Mark, Visiting Professor
Information & Operations Mgmt
PHD, Cornell University, Ithaca, NY, 1989

Heim, Gregory R, Professor
Information & Operations Mgmt
PHD, University of Minnesota, Twin Cities, 2000

Hinds, Jason, Lecturer
Information & Operations Mgmt
BBA, Texas State University, 1999

Jasperson, 'Jon (Sean), Clinical Professor
Information & Operations Mgmt
PHD, Florida State University, 1999

Johnston, Jamey, Visiting Professor
Information & Operations Mgmt
MS, Texas A&M University, 2016

Jola-Sanchez, Andres F., Associate Professor
Information & Operations Mgmt
DBA, Indiana University, 2018

Ketzenberg, Michael E, Professor
Information & Operations Mgmt
PHD, University of North Carolina at Chapel Hill, 2000

Keyvanshokoo, Esmaeil, Assistant Professor
Information & Operations Mgmt
DEN, University of Michigan, Ann Arbor, 2021

Kotikela, Srujan, Clinical Assistant Professor
Information & Operations Mgmt
PHD, University of North Texas, 2018

Koufteros, Xenophon, Professor
Information & Operations Mgmt
PHD, University of Toledo, 1995

Lee, Dong Joon, Associate Professor
Information & Operations Mgmt
PHD, Florida State University, 2015

Lopez, Jose Luis, Assistant Professor
Information & Operations Mgmt
MBA, Instituto Centroamericano de Administracion de Empresas, 2016

Marcoulides, George A., Research Professor
Information & Operations Mgmt
EDD, University of California, 1987

Metters, Richard D, Professor
Information & Operations Mgmt
PHD, University of North Carolina at Chapel Hill, 1993

Mhoon, Kendra, Visiting Professor
Information & Operations Mgmt
PHD, University of Texas, Houston, 2008

Miller, Robert, Clinical Professor
Information & Operations Mgmt
PHD, University of Arkansas at Fayetteville, 2006

Moreira Trindade, Maria Alice, Clinical Assistant Professor
Information & Operations Mgmt
PHD, Faculty of Economics, University of Porto, 2021

Mukherjee, Rajiv, Assistant Professor
Information & Operations Mgmt
PHD, The University of Texas at Austin, 2013

Oliva, Rogelio, Professor
Information & Operations Mgmt
PHD, Massachusetts Institute of Technology, 1996

Pappu, Madhav, Clinical Associate Professor
Information & Operations Mgmt
PHD, University of Tennessee, 1999

Phinney, Theresa M, Principal Lecturer
Information & Operations Mgmt
MCS, Texas A&M University, 1984

Rangan, Sudarsan, Clinical Professor
Information & Operations Mgmt
PHD, University of Alabama, 2008

Scialdone, Michael, Clinical Associate Professor
Information & Operations Mgmt
PHD, Syracuse University, 2014

Sen, Arun, Professor
Information & Operations Mgmt
PHD, Pennsylvania State University, 1979

Sen, Ravi, Associate Professor
Information & Operations Mgmt
PHD, University of Illinois at Urbana-Champaign, 2003

Sheehan, Niall, Visiting Lecturer
Information & Operations Mgmt
DBA, Middlesex University - London, 2013

Shetty, Bala, Professor
Information & Operations Mgmt
PHD, Southern Methodist University, 1985

Sriskandarajah, Chelliah, Professor
Information & Operations Mgmt
PHD, L'Institut National Polytechnique de Grenoble, 1986

Stauffer, Jon M, Associate Professor
Information & Operations Mgmt
PHD, Indiana University, Kelley School of Business, 2016

Stech, Todd, Lecturer
Information & Operations Mgmt
MBA, Rice University- Houston, TX, 2020

Stuber, Sarah Barron, Associate Professor
Information & Operations Mgmt
PHD, Michigan State University, 2019

Walsh, Colleen Susan, Lecturer
Information & Operations Mgmt
JD, University of Houston, 2007

Whitten, Dwayne, Clinical Professor
Information & Operations Mgmt
PHD, Louisiana Tech University, 2004

Zhang, Bin, Associate Professor
Information & Operations Mgmt
PHD, Carnegie Mellon University, 2012

Zhao, Xuying, Professor
Information & Operations Mgmt
PHD, University of Texas at Dallas, 2007

Majors

- Bachelor of Business Administration in Management Information Systems (p. 522)
- Bachelor of Business Administration in Supply Chain Management (p. 524)

Management Information Systems - BBA

This program addresses the impact of computer-based information systems in a variety of organizational settings.

The Department of Information and Operations Management offers a Bachelor of Business Administration (BBA) degree in Management Information Systems (MISY). The degree program produces graduates who are both business analysts (i.e., professionals who understand accounting, marketing, finance, etc.) and information system specialists (i.e., professionals who can implement information systems strategies).

Graduates of the program possess the business, technical, and leadership skills to meet the challenges presented by rapidly evolving information technology and the need to effectively incorporate this technology into business strategy and day-to-day operations.

For more information, visit the BBA Management Information Systems (<https://mays.tamu.edu/undergraduate/bba/management-information-systems/>) website.

Upper-Level Entry Requirements

Admission to the upper-level major of MISY requires satisfactory completion of specific coursework. To review requirements and application procedures see Upper-Level Entry Requirements and Application Procedures (p. 497).

Program Requirements

Lower-Level Business Program (BUAD)

First Year

Fall		Semester Credit Hours
BUSN 101	Freshman Business Initiative ¹	3
MATH 140	Mathematics for Business and Social Sciences ²	3
American history (p. 30) ³		3
Life and physical sciences (p. 27)		3

Communication (p. 27)	3
Semester Credit Hours	15
Spring	
ECON 202 Principles of Economics	3
MATH 142 Business Calculus ⁴	3
American history (p. 30) ³	3
Life and physical sciences (p. 27)	3
Social and behavioral sciences (p. 31)	3
Semester Credit Hours	15
Second Year	
Fall	
ACCT 229 Introductory Accounting	3
ECON 203 Principles of Economics	3
ISTM 210 Fundamentals of Information Systems	3
POLS 206 American National Government ³	3
Communication (p. 27) ¹	3
Semester Credit Hours	15
Spring	
ACCT 230 Introductory Accounting	3
BUSN 203 Statistical Methods for Business ⁵	3
Creative arts (p. 30) ¹	3
Language, philosophy and culture (p. 28)	3
Life and physical sciences (p. 27)	3
Semester Credit Hours	15
Total Semester Credit Hours	60

¹ Refer to the specific major notes below for variations from the Business (lower level) requirements.

² MATH 148, MATH 152, MATH 168 and MATH 172 will be accepted in lieu of MATH 140.

³ For those students under ROTC contract, see Requirement 7 of the "Requirements for a Baccalaureate Degree." (p. 32)

⁴ MATH 147, MATH 151 and MATH 171 will be accepted in lieu of MATH 142.

⁵ STAT 211 will be accepted in lieu of BUSN 203.

Management Information Systems: Students intending to major in Management Information Systems must add ISTM 250 Business Programming Logic and Design (3 credits) to second year fall curriculum in Business (lower level). The communication elective can be taken during the third year fall.

Business Honors: Students admitted to Business Honors take BUSN 125 Business Learning Community I (3 credits) in place of BUSN 101 in the first year fall curriculum and must add BUSN 225 Business Competency (3 credits) to the second year spring curriculum in Business (lower level). The creative arts elective can be taken during the third year fall.

Finance: Students intending to major in Finance must add FINC 210 to freshman year curriculum in Business (lower-level). The general elective taken in the fourth year can be reduced by 1 credit.

Upper-Level Management Information Systems Program

Third Year		
Fall		Semester Credit Hours
ISTM 281 Professional Development Information Systems Seminar ¹		1
ISTM 310 Network Communications and Infrastructure		3
ISTM 320 Business Systems Analysis and Design		3
MGMT 311 Legal and Social Environment of Business		3
SCMT 364 Operations Management		3
Communication ²		3
Semester Credit Hours		16
Spring		
ISTM 315 Database Programming		3
ISTM 410 Management of Information Systems ³		3
ISTM 481 Information Systems Seminar ¹		1
MKTG 321 Marketing ³		3
POLS 207 State and Local Government ⁴		3
International elective ⁵		3
Semester Credit Hours		16
Fourth Year		
Fall		
FINC 341 Business Finance		3
ISTM 415 Information Systems Capstone Project		3
ISTM 481 Information Systems Seminar ¹		1
MGMT 363 Managing People in Organizations		3
MISY Directed elective ⁶		3
General elective ⁷		3
Semester Credit Hours		16
Spring		
MGMT 466 Strategic Management		3
International elective ⁵		3
MISY Directed elective ⁶		3
General elective ⁷		3
Semester Credit Hours		12
Total Semester Credit Hours		60

¹ Students must take three semesters of ISTM 281 or ISTM 481 for a total of three credits.

² Refer to major specific paragraph on the Lower-Level Business Program (BUAD). Select from any courses with the Core Communication (KCOM) attribute.

³ This course is an approved writing-designated (W) or oral communication (C) business course. See your academic advisor for additional information.

⁴ For those students under ROTC contract, see Requirement 7 of the 'Requirements for a Baccalaureate Degree (p. 32).'

⁵ A complete list of approved courses is available in the Undergraduate Advising Office. Three of the six required hours simultaneously fulfill the university's International and Cultural Diversity Graduation requirement.

⁶ Select in consultation with a management information systems (MISY) academic advisor. A list of acceptable courses is available in the department academic advising office.

⁷ Elective courses are open to any course offered for university credit, except ACCT 209, ACCT 210, FINC 409, IBUS 301, ISTM 209, MGMT 209, MGMT 309, MKTG 409, SCMT 309. Additional restrictions may apply; see academic advisor for information. May be taken on a satisfactory/unsatisfactory basis.

Total Program Hours 120

Supply Chain Management - BBA

This program prepares students for careers in designing and managing the activities that deliver products and services to customers.

The Department of Information and Operations Management offers a Bachelor of Business Administration (BBA) degree in Supply Chain Management (SCMT). The SCMT major is primarily concerned with the efficient integration of suppliers, factories, warehouses, and retail outlets. Supply chain activities add direct value to the customer and thus, are extremely valuable to firms.

The SCMT program produces graduates with strong analytical and problem-solving skills and the ability to work in and coordinate team activities. Graduates possess the business, technical, and leadership skills needed to meet the challenges of the rapidly evolving global marketplace.

For more information, visit the BBA Supply Chain Management (<https://mays.tamu.edu/undergraduate/bba/supply-chain-management/>) website.

Upper-Level Entry Requirements

Admission to the upper-level major of SCMT requires satisfactory completion of specific coursework. To review requirements and application procedures see Upper-Level Entry Requirements and Application Procedures (p. 497).

Program Requirements

Lower-Level Business Program (BUAD)

First Year

Fall		Semester Credit Hours
BUSN 101	Freshman Business Initiative ¹	3
MATH 140	Mathematics for Business and Social Sciences ²	3
American history (p. 30) ³		3
Life and physical sciences (p. 27)		3
Communication (p. 27)		3
Semester Credit Hours		15
Spring		
ECON 202	Principles of Economics	3
MATH 142	Business Calculus ⁴	3
American history (p. 30) ³		3
Life and physical sciences (p. 27)		3
Social and behavioral sciences (p. 31)		3
Semester Credit Hours		15

Second Year

Fall

ACCT 229	Introductory Accounting	3
ECON 203	Principles of Economics	3
ISTM 210	Fundamentals of Information Systems	3
POLS 206	American National Government ³	3
Communication (p. 27) ¹		3
Semester Credit Hours		15

Spring

ACCT 230	Introductory Accounting	3
BUSN 203	Statistical Methods for Business ⁵	3
Creative arts (p. 30) ¹		3
Language, philosophy and culture (p. 28)		3
Life and physical sciences (p. 27)		3
Semester Credit Hours		15
Total Semester Credit Hours		60

¹ Refer to the specific major notes below for variations from the Business (lower level) requirements.

² MATH 148, MATH 152, MATH 168 and MATH 172 will be accepted in lieu of MATH 140.

³ For those students under ROTC contract, see Requirement 7 of the "Requirements for a Baccalaureate Degree." (p. 32)

⁴ MATH 147, MATH 151 and MATH 171 will be accepted in lieu of MATH 142.

⁵ STAT 211 will be accepted in lieu of BUSN 203.

Management Information Systems: Students intending to major in Management Information Systems must add ISTM 250 Business Programming Logic and Design (3 credits) to second year fall curriculum in Business (lower level). The communication elective can be taken during the third year fall.

Business Honors: Students admitted to Business Honors take BUSN 125 Business Learning Community I (3 credits) in place of BUSN 101 in the first year fall curriculum and must add BUSN 225 Business Competency (3 credits) to the second year spring curriculum in Business (lower level). The creative arts elective can be taken during the third year fall.

Finance: Students intending to major in Finance must add FINC 210 to freshman year curriculum in Business (lower-level). The general elective taken in the fourth year can be reduced by 1 credit.

Upper-Level Supply Chain Management Program

Third Year

Fall

		Semester Credit Hours
FINC 341	Business Finance	3
MGMT 363	Managing People in Organizations	3
MKTG 321	Marketing ¹	3
POLS 207	State and Local Government ²	3
SCMT 364	Operations Management	3
Semester Credit Hours		15

Spring

MGMT 311	Legal and Social Environment of Business	3

SCMT 281	Supply Chain Management Professional Development	1
SCMT 336	Data Analytics with Optimization	3
SCMT 361	Operations Planning and Control	3
Directed elective ³		3
International elective ⁴		3

Semester Credit Hours 16

Fourth Year

Fall

SCMT 334 or SCMT 335	Purchasing Practices or Sourcing and Procurement	3
SCMT 481	Seminar	1
Logistics management		
Select one of the following:		3
SCMT 340	Managing Logistics and Supply Chain Operations	
SCMT 380	Lean Business Systems	
SCMT 469	Transportation Management Systems	
Directed elective ³		3
General elective ⁵		6

Semester Credit Hours 16

Spring

MGMT 466	Strategic Management	3
Supply chain technology		
Select one of the following:		3
SCMT 375	Supply Chain Security	
SCMT 390	Blockchain and AI Business Transformation	
SCMT 455/ ISTM 455	Cybersecurity Management	
SCMT 465	Information Technology for Supply Chain Management	
SCMT 468	Enterprise Resource Planning	
Supply chain modeling and data analytics		
Select one of the following:		3
SCMT 305	Forecasting and the Statistical Foundation of Business Analytics	
SCMT 345	Business Process Design	
ISTM 360	Applied Predictive Analytics	
ISTM 450	Business Intelligence and Data Mining	
International elective ⁴		3
General elective ⁵		1

Semester Credit Hours 13

Total Semester Credit Hours 60

fulfill the university's International and Cultural Diversity Graduation requirement.

⁵ Elective courses are open to any course offered for university credit, except ACCT 209, ACCT 210, FINC 409, IBUS 301, ISTM 209, MGMT 209, MGMT 309, MKTG 409, SCMT 309. Additional restrictions may apply; see academic advisor for information. May be taken on a satisfactory/unsatisfactory basis.

Total Program Hours 120 Department of Management

Welcome to Mays Business School's Department of Management - a distinguished leader in the field of management education and research - where tradition meets innovation in creating tomorrow's business leaders. Our globally recognized programs combine academic excellence with real-world application, preparing students to make their mark in the ever-evolving business landscape. For an inside look at our transformative community, visit the Department of Management website (<https://mays.tamu.edu/departments/management/>).

The Bachelor of Business Administration (BBA) in Management (MGMT) delivers a powerful combination of cutting-edge theory and real-world experience. Our graduates emerge ready to excel in diverse roles across Fortune 500 companies, innovative consulting firms, dynamic startups, impactful nonprofits, and government agencies. This versatile degree opens doors to countless opportunities while providing the robust foundation that employers value and families trust for their student's future success.

In our program, students develop essential leadership capabilities that set them apart in the marketplace. Through immersive experiences, they master the art of strategic thinking, effective communication, and collaborative leadership – skills that remain valuable throughout their entire careers.

Our students choose from four powerful specialization tracks, each designed to align passion with purpose:

- *Consulting and General Management* - Transform organizations through strategic problem-solving and innovative solutions. Whether working with established consulting firms or leading corporate initiatives, you'll drive positive change across industries.
- *Entrepreneurial Leadership* - Unleash your innovative spirit and learn to build successful ventures from the ground up. Master the tools of entrepreneurship while developing the leadership skills to inspire teams and drive growth.
- *Human Resource Management* - Shape the future of work by becoming a strategic partner in talent management. Learn to build and lead high-performing organizations while developing initiatives that drive both employee success and business results.
- *Pre-Law* - Bridge the worlds of business and law in this distinctive track. Prepare for leadership roles in corporate compliance, public policy, or advanced legal studies while developing a valuable foundation in business principles.

The BBA MGMT program offers both immediate career advantages and long-term professional growth potential. Whether launching directly into a rewarding career or pursuing advanced degrees, our graduates

¹ This course is an approved writing-designated (W) or oral communication (C) business course. See your academic advisor for additional information.

² For those students under ROTC contract, see Requirement 7 of the 'Requirements for a Baccalaureate Degree (p. 32)'.

³ Select in consultation with a supply chain management academic advisor. A list of acceptable courses is available in the department academic advising office.

⁴ A complete list of approved courses is available in the Undergraduate Advising Office. Three of the six required hours simultaneously

enter the next phase of their journey with confidence, competence, and connections that last a lifetime.

Faculty

Andrei, Alina, Assistant Professor
Management
PHD, Erasmus University Rotterdam, 2025

Arora, Vivek, Professor of the Practice
Management
JD, Columbia Law School, 2006

Bao, Jiayi, Assistant Professor
Management
PHD, University of Pennsylvania, 2020

Bierman, Leonard, Professor
Management
JD, University of Pennsylvania Law School, 1978

Boivie, Steven R, Professor
Management
PHD, The University of Texas at Austin, 2006

Boswell, Wendy R, Professor
Management
PHD, Cornell University, 2000

Buckner, Christopher, Visiting Professor of the Practice
Management
BBA, Texas A&M University, 2007

Call, Matthew L, Associate Professor
Management
PHD, University of South Carolina, 2016

Chambers, Bridgette, Professor of the Practice
Management
PHD, NorthCentral University, 2018

Chung, Brian, Assistant Professor
Management
MS, University of Southern California, 2018

Diamantaras, Damon Evangelos, Visiting Professor of the Practice
Management
BBA, Texas A&M University, 1992

Dwivedi, Priyanka, Associate Professor
Management
PHD, The Pennsylvania State University, 2017

Essman, Spenser, Assistant Professor
Management
PHD, University of South Carolina, 2021

Faulk, Larry H., Clinical Associate Professor
Management
PHD, Louisiana State University, 2002

Flint, Gerald David, Clinical Professor
Management
PHD, Texas A&M University, 1997

Gammenthaler, Kyle S, Clinical Assistant Professor
Management
EDD, Baylor University, 2023

Hailey, Camille E, Clinical Associate Professor
Management
JD, South Texas College of Law, 1993

Hutchins, Nancy S, Clinical Associate Professor
Management
PHD, Texas A&M University, 2014

Johnson, Richard, Senior Lecturer
Management
MS, Texas A&M University, 2005

Kim, Sijun, Assistant Professor
Management
PHD, University of Arizona, 2021

Kim, Yong, Assistant Professor
Management
PHD, University of Michigan, 2017

Koopman, Joel, Professor
Management
PHD, Michigan State University, 2014

Lane, Katy E, Clinical Assistant Professor
Management
PHD, Texas A&M University, 2022

Law, Christopher, Assistant Professor
Management
MBA, Brigham Young University, 2016

LeClair, Cassandra, Clinical Associate Professor
Management
PHD, University of Nebraska Lincoln, 2008

Lee, Eric Young, Assistant Professor
Management
DBA, University of Georgia, 2021

Lee, Yonghoon, Associate Professor
Management
PHD, INSEAD, 2015

Legg, Matthew, Visiting Professor of the Practice
Management
MS, University of Southern California, 2022

Li, Toby Xianyu, Assistant Professor
Management
PHD, Rice University, 2019

Lian, Huiwen, Professor
Management
PHD, University of Waterloo, Canada, 2011

Mahajan, Vanita, Principal Lecturer
Management
MBA, Texas A&M University, 1986

McFarland, Ken P, Clinical Associate Professor
Management
PHD, Pepperdine University, 2018

McGreal, Paul Eugene, Visiting Professor
Management
JD, Dedman School of Law, Southern Methodist University, 1992
LLM, Yale Law School, 1994

Morgan, Timothy J, Clinical Assistant Professor
Management
PHD, Texas A&M University, 2019

Morley, Kristine E, Senior Lecturer
Management
MS, Texas A&M University, 2008

Ong, Madeline, Assistant Professor
Management
PHD, University of Michigan, 2017

Paetzold, Ramona L, Professor
Management
JD, Indiana University, 1990
PHD, Indiana University, 1979

Panina, Daria, Clinical Professor
Management
PHD, Rutgers University, 2002

Paruchuri, Srikanth, Professor
Management
PHD, Columbia University, 2004

Phelps, Jean Ricciardello, Professor of the Practice
Management
JD, South Texas College of Law, 1993

Sanchez, John, Clinical Assistant Professor
Management
DBA, Liberty U, 2022

Seo, Haram, Assistant Professor
Management
PHD, University of Minnesota, 2021

Smith, Andrew T, Visiting Professor of the Practice
Management
BBA, Texas A&M University, 2008

Song, Yifan, Associate Professor
Management
PHD, University of Florida, 2019

Stevens, Jeffery A., Clinical Assistant Professor
Management
PHD, Texas A&M University, 2003

Vanalstyne, John A, Professor of the Practice
Management
MS, Department of the Army, 1976

Welch, Ben D, Clinical Professor
Management
PHD, Texas A&M University, 1990

Wesner, Kylene J, Clinical Assistant Professor
Management
PHD, Texas A&M University, 2014

Zhou, Le, Associate Professor
Management
PHD, University of Florida, 2014

Majors

- Bachelor of Business Administration in Management, Consulting/General Management Track (p. 527)
- Bachelor of Business Administration in Management, Entrepreneurial Leadership Track (p. 529)
- Bachelor of Business Administration in Management, Human Resource Management Track (p. 530)
- Bachelor of Business Administration in Management, Pre-Law Track (p. 531)

Management - BBA, Consulting/General Management Track

This program is designed for students interested in problem-solving and helping individuals or organizations navigate the business environment.

Transform your passion for business into impactful solutions with a Bachelor of Business Administration (BBA) in Management. Our dynamic program empowers future leaders with cutting-edge knowledge and essential professional skills needed to thrive in today's rapidly evolving business landscape. Students customize their educational journey by choosing from four specialized tracks aligned with their career aspirations.

The BBA Management - Consulting and General Management track opens doors to endless possibilities for ambitious problem-solvers and strategic thinkers. Whether you dream of joining a consulting firm or leading organizations from within, this track prepares you to tackle real-world business challenges head-on. Through our innovative curriculum, you'll develop advanced analytical and strategic thinking skills while learning to identify opportunities that drive organizational success. You'll emerge ready to guide businesses through complex decisions, implement transformative solutions, and make a lasting impact in any industry you choose to pursue.

Upper-Level Entry Requirements

Admission to the upper-level major of management (MGMT) requires satisfactory completion of specific coursework. To review requirements and application procedures see [Upper-Level Entry Requirements and Application Procedures](#).

Program Requirements

Lower-Level Business Program (BUAD)

First Year		Semester
Fall		Credit Hours
BUSN 101	Freshman Business Initiative ¹	3
MATH 140	Mathematics for Business and Social Sciences ²	3

American history (p. 30) ³	3
Life and physical sciences (p. 27)	3
Communication (p. 27)	3
Semester Credit Hours	15
Spring	
ECON 202 Principles of Economics	3
MATH 142 Business Calculus ⁴	3
American history (p. 30) ³	3
Life and physical sciences (p. 27)	3
Social and behavioral sciences (p. 31)	3
Semester Credit Hours	15
Second Year	
Fall	
ACCT 229 Introductory Accounting	3
ECON 203 Principles of Economics	3
ISTM 210 Fundamentals of Information Systems	3
POLS 206 American National Government ³	3
Communication (p. 27) ¹	3
Semester Credit Hours	15
Spring	
ACCT 230 Introductory Accounting	3
BUSN 203 Statistical Methods for Business ⁵	3
Creative arts (p. 30) ¹	3
Language, philosophy and culture (p. 28)	3
Life and physical sciences (p. 27)	3
Semester Credit Hours	15
Total Semester Credit Hours	60

¹ Refer to the specific major notes below for variations from the Business (lower level) requirements.

² MATH 148, MATH 152, MATH 168 and MATH 172 will be accepted in lieu of MATH 140.

³ For those students under ROTC contract, see Requirement 7 of the "Requirements for a Baccalaureate Degree." (p. 32)

⁴ MATH 147, MATH 151 and MATH 171 will be accepted in lieu of MATH 142.

⁵ STAT 211 will be accepted in lieu of BUSN 203.

Management Information Systems: Students intending to major in Management Information Systems must add ISTM 250 Business Programming Logic and Design (3 credits) to second year fall curriculum in Business (lower level). The communication elective can be taken during the third year fall.

Business Honors: Students admitted to Business Honors take BUSN 125 Business Learning Community I (3 credits) in place of BUSN 101 in the first year fall curriculum and must add BUSN 225 Business Competency (3 credits) to the second year spring curriculum in Business (lower level). The creative arts elective can be taken during the third year fall.

Finance: Students intending to major in Finance must add FINC 210 to freshman year curriculum in Business (lower-level). The general elective taken in the fourth year can be reduced by 1 credit.

Upper-Level Management Program

Third Year		Semester Credit Hours
Fall		
FINC 341	Business Finance	3
MGMT 311	Legal and Social Environment of Business	3
MGMT 363	Managing People in Organizations	3
MKTG 321	Marketing ¹	3
POLS 207	State and Local Government ²	3
Semester Credit Hours		15
Spring		
MGMT 373	Managing Human Resources	3
MGMT 421	Management Data Analytics and Visualization	3
MGMT 422	Management Consulting ³	3
SCMT 364	Operations Management	3
International elective ⁴		3
Semester Credit Hours		15
Fourth Year		
Fall		
MGMT 372	Advanced Concepts in Organizational Behavior ³	3
MGMT 424	Organizational Design, Change and Development ³	3
MGMT 439	Negotiations	3
Business elective ⁵		3
General electives ⁶		3
Semester Credit Hours		15
Spring		
MGMT 450/IBUS 450	International Environment of Business ⁴	3
MGMT 466	Strategic Management	3
MGMT directed elective ³		3
General electives ⁶		6
Semester Credit Hours		15
Total Semester Credit Hours		60

¹ This course is an approved writing-designated (W) or oral communication (C) business course. See your academic advisor for additional information.

² For those students under ROTC contract, see Requirement 7 of the Requirements for a Baccalaureate Degree. (p. 32)

³ Select in consultation with a management academic advisor. A list of acceptable courses is available in the Undergraduate Advising Office.

⁴ Six hours required. Management majors must take MGMT 450/IBUS 450 as three of these required credit hours. A complete list of approved courses is available in the Undergraduate Advising Office. Three of the six required hours simultaneously fulfill the university's International and Cultural Diversity Graduation requirement.

⁵ Any 300- or 400-level business course (ACCT, FINC, IBUS, ISTM, MKTG, SCMT) except MGMT 300-499 (p. 1146), ACCT 484, ACCT 485, FINC 341, FINC 409, FINC 484, FINC 485, IBUS 301, IBUS 450/IBUS 452/MGMT 452, IBUS 457/MGMT 457, IBUS 484, IBUS 485, ISTM 484, ISTM 485, MKTG 321, MKTG 409, MKTG 484, MKTG 485, SCMT 309, SCMT 364, SCMT 484, SCMT 485.

⁶ Elective courses are open to any course offered for university credit except ACCT 209, ACCT 210, FINC 409, IBUS 301, ISTM 209, MGMT 209, MGMT 309, MKTG 409, SCMT 309. Additional restrictions may apply; see academic advisor for information. May be taken on a satisfactory/unsatisfactory basis.

Management - BBA, Entrepreneurial Leadership Track

This program is designed for students interested in learning the entrepreneurial process and the role of creativity in identifying and/or developing entrepreneurial opportunities.

Unleash your entrepreneurial spirit with a Bachelor of Business Administration (BBA) in Management. Our innovative program equips tomorrow's business leaders with cutting-edge knowledge and essential professional skills needed to thrive in today's dynamic business landscape. Students chart their own path to success by choosing from four specialized tracks aligned with their professional aspirations.

The BBA Management - Entrepreneurial Leadership track is your launchpad to entrepreneurial success, whether you dream of launching (or growing) your own venture or driving innovation within established organizations. Through our immersive curriculum, you'll master the art of opportunity recognition, harness creative problem-solving, and develop the leadership skills essential for building thriving enterprises. From crafting compelling business plans to leading high-performing teams, you'll gain hands-on experience in every aspect of entrepreneurial leadership. Graduate ready to transform your innovative ideas into successful ventures, inspire others to achieve their potential, and make your mark in the business world.

Upper-Level Entry Requirements

Admission to the upper-level major of management (MGMT) requires satisfactory completion of specific coursework. To review requirements and application procedures see Upper-Level Entry Requirements and Application Procedures (p. 497).

Program Requirements

Lower-Level Business Program (BUAD)

First Year

Fall		Semester Credit Hours
BUSN 101	Freshman Business Initiative ¹	3
MATH 140	Mathematics for Business and Social Sciences ²	3
American history (p. 30) ³		3
Life and physical sciences (p. 27)		3
Communication (p. 27)		3
Semester Credit Hours		15
Spring		
ECON 202	Principles of Economics	3
MATH 142	Business Calculus ⁴	3
American history (p. 30) ³		3
Life and physical sciences (p. 27)		3

Social and behavioral sciences (p. 31)		3
Semester Credit Hours		15
Second Year		
Fall		
ACCT 229	Introductory Accounting	3
ECON 203	Principles of Economics	3
ISTM 210	Fundamentals of Information Systems	3
POLS 206	American National Government ³	3
Communication (p. 27) ¹		3
Semester Credit Hours		15
Spring		
ACCT 230	Introductory Accounting	3
BUSN 203	Statistical Methods for Business ⁵	3
Creative arts (p. 30) ¹		3
Language, philosophy and culture (p. 28)		3
Life and physical sciences (p. 27)		3
Semester Credit Hours		15
Total Semester Credit Hours		60

¹ Refer to the specific major notes below for variations from the Business (lower level) requirements.

² MATH 148, MATH 152, MATH 168 and MATH 172 will be accepted in lieu of MATH 140.

³ For those students under ROTC contract, see Requirement 7 of the "Requirements for a Baccalaureate Degree." (p. 32)

⁴ MATH 147, MATH 151 and MATH 171 will be accepted in lieu of MATH 142.

⁵ STAT 211 will be accepted in lieu of BUSN 203.

Management Information Systems: Students intending to major in Management Information Systems must add ISTM 250 Business Programming Logic and Design (3 credits) to second year fall curriculum in Business (lower level). The communication elective can be taken during the third year fall.

Business Honors: Students admitted to Business Honors take BUSN 125 Business Learning Community I (3 credits) in place of BUSN 101 in the first year fall curriculum and must add BUSN 225 Business Competency (3 credits) to the second year spring curriculum in Business (lower level). The creative arts elective can be taken during the third year fall.

Finance: Students intending to major in Finance must add FINC 210 to freshman year curriculum in Business (lower-level). The general elective taken in the fourth year can be reduced by 1 credit.

Upper-Level Management Program

Third Year

Fall		Semester Credit Hours
FINC 341	Business Finance	3
MGMT 311	Legal and Social Environment of Business	3
MGMT 363	Managing People in Organizations	3
MGMT 376/	Entrepreneurial Perspectives ¹	3
SOCI 376		

MKTG 321	Marketing ²	3
Semester Credit Hours		15
Spring		
MGMT 373	Managing Human Resources	3
MGMT 421	Management Data Analytics and Visualization	3
MGMT 450/ IBUS 450	International Environment of Business ³	3
POLS 207	State and Local Government ⁴	3
SCMT 364	Operations Management	3
Semester Credit Hours		15
Fourth Year		
Fall		
MGMT 439	Negotiations	3
Business elective ⁵		3
MGMT directed electives ¹		6
General electives ⁶		3
Semester Credit Hours		15
Spring		
MGMT 466	Strategic Management	3
International elective ³		3
MGMT directed elective ¹		3
General electives ⁶		6
Semester Credit Hours		15
Total Semester Credit Hours		60

¹ Select in consultation with a management academic advisor. A list of acceptable courses is available in the Undergraduate Advising Office.

² This course is an approved writing-designated (W) or oral communication (C) business course. See your academic advisor for additional information.

³ Six hours required. Management majors must take IBUS 450/ MGMT 450 as three of these required credit hours. A complete list of approved courses is available in the Undergraduate Advising Office. Three of the six required hours simultaneously fulfill the university's International and Cultural Diversity Graduation requirement.

⁴ For those students under ROTC contract, see Requirement 7 of the Requirements for a Baccalaureate Degree. (p. 32)

⁵ Any 300- or 400-level business course (ACCT, FINC, IBUS, ISTM, MKTG, SCMT) except MGMT 300-499 (p. 1146), ACCT 484, ACCT 485, FINC 341, FINC 409, FINC 484, FINC 485, IBUS 301, IBUS 450/ MGMT 450, IBUS 452/ MGMT 452, IBUS 457/ MGMT 457, IBUS 484, IBUS 485, ISTM 484, ISTM 485, MKTG 321, MKTG 409, MKTG 484, MKTG 485, SCMT 309, SCMT 364, SCMT 484, SCMT 485.

⁶ Elective courses are open to any course offered for university credit, except ACCT 209, ACCT 210, FINC 409, IBUS 301, ISTM 209, MGMT 209, MGMT 309, MKTG 409, SCMT 309. Additional restrictions may apply; see academic advisor for information. May be taken on a satisfactory/ unsatisfactory basis.

Management - BBA, Human Resource Management Track

This program is designed for students interested in learning how HR professionals develop and implement workplace policies and initiatives regarding employee recruiting, selection, compensation, training &

development, performance management, career planning, and employee & labor relations.

Chart your path to becoming a strategic people leader with a Bachelor of Business Administration (BBA) in Management. Our comprehensive program equips tomorrow's business leaders with cutting-edge knowledge and essential professional skills needed to excel in today's evolving workplace. Students customize their educational journey by choosing from four specialized tracks aligned with their career aspirations.

The BBA Management - Human Resource Management track empowers you to become a catalyst for organizational success by mastering the art and science of talent management. Through our innovative curriculum, you'll develop expertise in creating dynamic workplace cultures, attracting top talent, and nurturing employee potential. From designing competitive compensation packages to implementing strategic development programs, you'll learn to align human capital with organizational goals. Graduate ready to shape the future of work, drive organizational transformation, and build thriving workplace communities that give companies their competitive edge in today's global marketplace.

Upper-Level Entry Requirements

Admission to the upper-level major of management (MGMT) requires satisfactory completion of specific coursework. To review requirements and application procedures see Upper-Level Entry Requirements and Application Procedures (p. 497).

Program Requirements

Lower-Level Business Program (BUAD)

First Year

		Semester Credit Hours
Fall		
BUSN 101	Freshman Business Initiative ¹	3
MATH 140	Mathematics for Business and Social Sciences ²	3
American history (p. 30) ³		3
Life and physical sciences (p. 27)		3
Communication (p. 27)		3
Semester Credit Hours		15

Spring

ECON 202	Principles of Economics	3
MATH 142	Business Calculus ⁴	3
American history (p. 30) ³		3
Life and physical sciences (p. 27)		3
Social and behavioral sciences (p. 31)		3
Semester Credit Hours		15

Second Year

Fall		
ACCT 229	Introductory Accounting	3
ECON 203	Principles of Economics	3
ISTM 210	Fundamentals of Information Systems	3
POLS 206	American National Government ³	3
Communication (p. 27) ¹		3
Semester Credit Hours		15

Spring

ACCT 230	Introductory Accounting	3
BUSN 203	Statistical Methods for Business ⁵	3
Creative arts (p. 30) ¹		3
Language, philosophy and culture (p. 28)		3
Life and physical sciences (p. 27)		3
Semester Credit Hours		15
Total Semester Credit Hours		60

¹ Refer to the specific major notes below for variations from the Business (lower level) requirements.

² MATH 148, MATH 152, MATH 168 and MATH 172 will be accepted in lieu of MATH 140.

³ For those students under ROTC contract, see Requirement 7 of the "Requirements for a Baccalaureate Degree." (p. 32)

⁴ MATH 147, MATH 151 and MATH 171 will be accepted in lieu of MATH 142.

⁵ STAT 211 will be accepted in lieu of BUSN 203.

Management Information Systems: Students intending to major in Management Information Systems must add ISTM 250 Business Programming Logic and Design (3 credits) to second year fall curriculum in Business (lower level). The communication elective can be taken during the third year fall.

Business Honors: Students admitted to Business Honors take BUSN 125 Business Learning Community I (3 credits) in place of BUSN 101 in the first year fall curriculum and must add BUSN 225 Business Competency (3 credits) to the second year spring curriculum in Business (lower level). The creative arts elective can be taken during the third year fall.

Finance: Students intending to major in Finance must add FINC 210 to freshman year curriculum in Business (lower-level). The general elective taken in the fourth year can be reduced by 1 credit.

Upper-Level Management Program**Third Year**

Fall		Semester Credit Hours
FINC 341	Business Finance	3
MGMT 311	Legal and Social Environment of Business	3
MGMT 363	Managing People in Organizations	3
MKTG 321	Marketing ¹	3
International elective ²		3
Semester Credit Hours		15
Spring		
MGMT 373	Managing Human Resources	3
MGMT 421	Management Data Analytics and Visualization	3
MGMT 450/ IBUS 450	International Environment of Business ²	3
POLS 207	State and Local Government ³	3
SCMT 364	Operations Management	3
Semester Credit Hours		15

Fourth Year**Fall**

MGMT 425	Human Resource Selection ⁴	3
MGMT 430/ WGST 430 or MGMT 435	Employment Discrimination Law ⁴ or Labor Law and Policy	3
MGMT 439	Negotiations	3
Business elective ⁵		3
General electives ⁶		3
Semester Credit Hours		15

Spring

MGMT 466	Strategic Management	3
MGMT directed electives ⁴		6
General electives ⁶		6
Semester Credit Hours		15
Total Semester Credit Hours		60

¹ This course is an approved writing-designated (W) or oral communication (C) business course. See your academic advisor for additional information.

² Six hours required. Management majors must take MGMT 450/IBUS 450 as three of these required credit hours. A complete list of approved courses is available in the Undergraduate Advising Office. Three of the six required hours simultaneously fulfill the university's International and Cultural Diversity Graduation requirement.

³ For those students under ROTC contract, see Requirement 7 of the "Requirements for a Baccalaureate Degree." (p. 32)

⁴ Select in consultation with a management academic advisor. A list of acceptable courses is available in the Undergraduate Advising Office.

⁵ Any 300- or 400-level business course (ACCT, FINC, IBUS, ISTM, MKTG, SCMT) except MGMT 300-499 (p. 1146), ACCT 484, ACCT 485, FINC 341, FINC 409, FINC 484, FINC 485, IBUS 301, IBUS 450/ MGMT 450, IBUS 452/ MGMT 452, IBUS 457/ MGMT 457, IBUS 484, IBUS 485, ISTM 484, ISTM 485, MKTG 321, MKTG 409, MKTG 484, MKTG 485, SCMT 309, SCMT 364, SCMT 484, SCMT 485.

⁶ Elective courses are open to any course offered for university credit, except ACCT 209, ACCT 210, FINC 409, IBUS 301, ISTM 209, MGMT 209, MGMT 309, MKTG 409, SCMT 309. Additional restrictions may apply; see academic advisor for information. May be taken on a satisfactory/unsatisfactory basis.

Management - BBA, Pre-Law Track

This program is designed to expose students to opportunities that combine law and business, preparing them for careers in corporate law, international affairs, public policy, conflict resolution, and more.

Forge a powerful intersection between business and law with a Bachelor of Business Administration (BBA) in Management. Our innovative program equips future leaders with sophisticated knowledge and professional skills needed to excel in today's complex business-legal landscape. Students tailor their educational journey by choosing from four specialized tracks aligned with their professional aspirations.

The BBA Management - Pre-Law track opens doors to a world where business acumen meets legal expertise. This distinctive program prepares you to navigate the intricate relationship between commerce and law, whether your ambitions lead you to corporate law, international business, public policy advocacy, or dispute resolution. Through our

rigorous curriculum, you'll develop critical thinking, analytical reasoning, and strategic decision-making skills valued by top law schools and employers alike. Graduate ready to pursue advanced legal education or launch directly into careers where business and legal knowledge create unique competitive advantages in fields ranging from regulatory compliance to international trade negotiations.

Upper-Level Entry Requirements

Admission to the upper-level major of management (MGMT) requires satisfactory completion of specific coursework. To review requirements and application procedures see Upper-Level Entry Requirements and Application Procedures (p. 497).

Program Requirements

Lower-Level Business Program (BUAD)

First Year

Fall		Semester Credit Hours
BUSN 101	Freshman Business Initiative ¹	3
MATH 140	Mathematics for Business and Social Sciences ²	3
American history (p. 30) ³		3
Life and physical sciences (p. 27)		3
Communication (p. 27)		3
Semester Credit Hours		15
Spring		
ECON 202	Principles of Economics	3
MATH 142	Business Calculus ⁴	3
American history (p. 30) ³		3
Life and physical sciences (p. 27)		3
Social and behavioral sciences (p. 31)		3
Semester Credit Hours		15
Second Year		
Fall		
ACCT 229	Introductory Accounting	3
ECON 203	Principles of Economics	3
ISTM 210	Fundamentals of Information Systems	3
POLS 206	American National Government ³	3
Communication (p. 27) ¹		3
Semester Credit Hours		15
Spring		
ACCT 230	Introductory Accounting	3
BUSN 203	Statistical Methods for Business ⁵	3
Creative arts (p. 30) ¹		3
Language, philosophy and culture (p. 28)		3
Life and physical sciences (p. 27)		3
Semester Credit Hours		15
Total Semester Credit Hours		60

¹ Refer to the specific major notes below for variations from the Business (lower level) requirements.

² MATH 148, MATH 152, MATH 168 and MATH 172 will be accepted in lieu of MATH 140.

³ For those students under ROTC contract, see Requirement 7 of the "Requirements for a Baccalaureate Degree." (p. 32)

⁴ MATH 147, MATH 151 and MATH 171 will be accepted in lieu of MATH 142.

⁵ STAT 211 will be accepted in lieu of BUSN 203.

Management Information Systems: Students intending to major in Management Information Systems must add ISTM 250 Business Programming Logic and Design (3 credits) to second year fall curriculum in Business (lower level). The communication elective can be taken during the third year fall.

Business Honors: Students admitted to Business Honors take BUSN 125 Business Learning Community I (3 credits) in place of BUSN 101 in the first year fall curriculum and must add BUSN 225 Business Competency (3 credits) to the second year spring curriculum in Business (lower level). The creative arts elective can be taken during the third year fall.

Finance: Students intending to major in Finance must add FINC 210 to freshman year curriculum in Business (lower-level). The general elective taken in the fourth year can be reduced by 1 credit.

Upper-Level Management Program

Third Year

Fall		Semester Credit Hours
FINC 341	Business Finance	3
MGMT 311	Legal and Social Environment of Business	3
MGMT 363	Managing People in Organizations	3
MKTG 321	Marketing ¹	3
International elective ²		3
Semester Credit Hours		15
Spring		
MGMT 373	Managing Human Resources	3
MGMT 421	Management Data Analytics and Visualization	3
MGMT 450/IBUS 450	International Environment of Business ²	3
POLS 207	State and Local Government ³	3
SCMT 364	Operations Management	3
Semester Credit Hours		15

Fourth Year

Fall		
MGMT 439	Negotiations	3
Business elective ⁴		3
MGMT directed electives ⁵		6
General electives ⁶		3
Semester Credit Hours		15
Spring		
MGMT 466	Strategic Management	3
MGMT directed electives ⁵		6

General electives ⁶	6
Semester Credit Hours	15
Total Semester Credit Hours	60

¹ This course is an approved writing-designated (W) or oral communication (C) business course. See your academic advisor for additional information.

² Six hours required. Management majors must take MGMT 450/IBUS 450 as three of these required credit hours. A complete list of approved courses is available in the Undergraduate Advising Office. Three of the six required hours simultaneously fulfill the university's International and Cultural Diversity Graduation requirement.

³ For those students under ROTC contract, see Requirement 7 of the "Requirements for a Baccalaureate Degree." (p. 32)

⁴ Any 300- or 400-level business course (ACCT, FINC, IBUS, ISTM, MKTG, SCMT) except MGMT 300-499 (p. 1146), ACCT 484, ACCT 485, FINC 341, FINC 409, FINC 484, FINC 485, IBUS 301, IBUS 450/MGMT 450, IBUS 452/MGMT 452, IBUS 457/MGMT 457, IBUS 484, IBUS 485, ISTM 484, ISTM 485, MKTG 321, MKTG 409, MKTG 484, MKTG 485, SCMT 309, SCMT 364, SCMT 484, SCMT 485.

⁵ Select in consultation with a management academic advisor. A list of acceptable courses is available in the department academic advising office, or in the Undergraduate Advising Office, Room 238, Wehner Building.

⁶ Elective courses are open to any course offered for university credit, except ACCT 209, ACCT 210, FINC 409, IBUS 301, ISTM 209, KINE 198, MGMT 209, MGMT 309, MKTG 409, SCMT 309. Additional restrictions may apply; see academic advisor for information. May be taken on a satisfactory/unsatisfactory basis.

Department of Marketing

The Department of Marketing at the Mays Business School is a distinguished leader in the field of marketing education and research. Our programs and curricula receive global recognition for their strength and continued contributions to the field of marketing. For more information visit the Department of Marketing (<https://mays.tamu.edu/departments-of-marketing/>) website.

Marketing involves developing goods and services to satisfy customers' needs and then making them available at the right places, at the right times and at competitive prices. Marketing also provides information to help customers decide whether specific goods and services will meet their needs.

Recent changes in social and economic systems have created new challenges for marketing professionals. Increasingly, they must focus on both domestic and global opportunities and the explosive changes that new technology brings. They must also be continually responsive to cultural differences, quality concerns and ethical issues.

The Bachelor of Business Administration (BBA) in Marketing prepares students to work effectively in corporate and nonprofit organizations that are part of a global economy. Marketing students will be proficient in marketing analytics, digital marketing, customer experience management, creativity, and brand management. Students completing a degree in marketing choose among five tracks: advertising strategy, analytics and consulting, healthcare marketing, professional selling and sales management, and strategic retailing. A career path in marketing typically begins in an entry-level position in advertising, retailing, marketing analytics, marketing consulting, professional selling, or

healthcare marketing. Opportunities are available in manufacturing, wholesale and retail, as well as nonprofit organizations such as universities, government agencies, relief agencies and charitable organizations.

Success in marketing requires understanding a number of fundamental concepts, principles, theories, tools and techniques. Courses are designed to help students acquire this knowledge and to develop competencies needed throughout a marketing career.

Faculty

Alexander, David, Professor of the Practice
Marketing
BBA, Texas A&M University, 1998

Anderson, Stephen J., Professor
Marketing
PHD, London Business School, 2015

Berry, Leonard L, Distinguished Professor
Marketing
PHD, Arizona State University, 1968

Dikec, Altay, Clinical Associate Professor
Marketing
PHD, Konkuk University - Miller Graduate School of Business, 2012

Gao, Huachao, Associate Professor
Marketing
PHD, University of Texas at San Antonio, 2016

Garcia-Rada, Ximena, Assistant Professor
Marketing
DBA, Harvard Business School, 2021

Griffith, David Andrew, Professor
Marketing
PHD, Kent State University, 1997

Jones, Eli, Professor
Marketing
PHD, Texas A&M University, 1997

Lampo, Sandra S, Clinical Professor
Marketing
PHD, Texas A&M University, 2001

Lewis, Don, Professor of the Practice
Marketing
MBA, Texas A&M International University, 1992

Liu, Yan, Professor
Marketing
PHD, Purdue University, 2010

Loring, Andrew J, Clinical Associate Professor
Marketing
PHD, Texas A&M University, 2021

McDaniel, Stephen W, Senior Professor
Marketing
PHD, University of Arkansas, 1979

McMillan, Thomas Bruce, Professor of the Practice
Marketing
MBA, Texas A&M University, 2004

Mosley, Buffy, Assistant Professor
Marketing
PHD, Emory University, 2020

Parish, Janet T, Clinical Professor
Marketing
PHD, University of Alabama, 2002

Ramani, Nandini, Assistant Professor
Marketing
PHD, University of Texas at Austin, 2019

Segal, Shoshana, Assistant Professor
Marketing
PHD, New York University, 2025

Seipp, Leslie S, Senior Lecturer
Marketing
MBA, Rice University, 2008

Sharma, Amalesh, Associate Professor
Marketing
PHD, Georgia State University, 2017

Shi, Huanhuan, Associate Professor
Marketing
PHD, The Pennsylvania State University, 2016

Sorescu, Alina, Professor
Marketing
PHD, University of Houston, 2002

Sreenivasan, Akshaya, Clinical Associate Professor
Marketing
PHD, The Pennsylvania State University, 2016

Sridhar, Shrihari, Professor
Marketing
PHD, University of Missouri at Columbia, 2009

Suhag, Rahul, Assistant Professor
Marketing
MBA, Indian Institute of Management Indore, 2023

Troy, Lisa C, Clinical Professor
Marketing
PHD, Texas A&M University, 1997

Varadarajan, Poondi, Distinguished Professor
Marketing
PHD, University of Massachusetts Amherst, 1979

Vijayaraghavan, Sriniketh, Assistant Professor
Marketing
PHD, University of Wisconsin - Madison, 2024

Wilcox, Keith, Professor
Marketing
PHD, City University of New York, 2009

Yadav, Manjit S, Professor
Marketing
PHD, Virginia Tech, 1990

Majors

- Bachelor of Business Administration in Marketing, Advertising Strategy Track (p. 534)
- Bachelor of Business Administration in Marketing, Analytics and Consulting Track (p. 536)
- Bachelor of Business Administration in Marketing, Healthcare Marketing Track (p. 537)
- Bachelor of Business Administration in Marketing, Professional Selling and Sales Management Track (p. 538)
- Bachelor of Business Administration in Marketing, Strategic Retailing Track (p. 540)

Marketing - BBA, Advertising Strategy Track

This program prepares students for careers in advertising account services, brand management, or related fields like media planning and public relations.

The Bachelor of Business Administration (BBA) in Marketing prepares students to work effectively in corporate and nonprofit organizations that are part of a global economy. Marketing students will be proficient in marketing analytics, digital marketing, customer experience management, creativity, and brand management.

The BBA Marketing (MKTG) Advertising Strategy track offers students interested in advertising several opportunities for building skills specific to this career path, and for networking with advertising professionals. In addition to taking advertising courses, students can attend professional conferences, participate in local, regional, and national advertising campaign competitions, and tour top advertising agencies.

The BBA MKTG Advertising Strategy track supplements the degree by tailoring directed elective courses and building specific advertising skills. Also, it provides recruiters a means of identifying top students interested in advertising.

Upper-Level Entry Requirements

Admission to the upper-level major of marketing (MKTG) requires satisfactory completion of specific coursework. To review requirements and application procedures see Upper-Level Entry Requirements and Application Procedures (p. 497).

Program Requirements

Lower-Level Business Program (BUAD)

First Year		Semester
Fall		Credit Hours
BUSN 101	Freshman Business Initiative ¹	3
MATH 140	Mathematics for Business and Social Sciences ²	3
American history (p. 30) ³		3
Life and physical sciences (p. 27)		3

Communication (p. 27)	3
Semester Credit Hours	15
Spring	
ECON 202 Principles of Economics	3
MATH 142 Business Calculus ⁴	3
American history (p. 30) ³	3
Life and physical sciences (p. 27)	3
Social and behavioral sciences (p. 31)	3
Semester Credit Hours	15
Second Year	
Fall	
ACCT 229 Introductory Accounting	3
ECON 203 Principles of Economics	3
ISTM 210 Fundamentals of Information Systems	3
POLS 206 American National Government ³	3
Communication (p. 27) ¹	3
Semester Credit Hours	15
Spring	
ACCT 230 Introductory Accounting	3
BUSN 203 Statistical Methods for Business ⁵	3
Creative arts (p. 30) ¹	3
Language, philosophy and culture (p. 28)	3
Life and physical sciences (p. 27)	3
Semester Credit Hours	15
Total Semester Credit Hours	60

¹ Refer to the specific major notes below for variations from the Business (lower level) requirements.

² MATH 148, MATH 152, MATH 168 and MATH 172 will be accepted in lieu of MATH 140.

³ For those students under ROTC contract, see Requirement 7 of the "Requirements for a Baccalaureate Degree." (p. 32)

⁴ MATH 147, MATH 151 and MATH 171 will be accepted in lieu of MATH 142.

⁵ STAT 211 will be accepted in lieu of BUSN 203.

Management Information Systems: Students intending to major in Management Information Systems must add ISTM 250 Business Programming Logic and Design (3 credits) to second year fall curriculum in Business (lower level). The communication elective can be taken during the third year fall.

Business Honors: Students admitted to Business Honors take BUSN 125 Business Learning Community I (3 credits) in place of BUSN 101 in the first year fall curriculum and must add BUSN 225 Business Competency (3 credits) to the second year spring curriculum in Business (lower level). The creative arts elective can be taken during the third year fall.

Finance: Students intending to major in Finance must add FINC 210 to freshman year curriculum in Business (lower-level). The general elective taken in the fourth year can be reduced by 1 credit.

Upper-Level Marketing Program

Third Year

		Semester Credit Hours
Fall		
FINC 341	Business Finance	3
MGMT 363	Managing People in Organizations	3
MKTG 321	Marketing ¹	3
POLS 207	State and Local Government ²	3
SCMT 364	Operations Management	3

Semester Credit Hours **15**

Spring

MGMT 311	Legal and Social Environment of Business	3
MKTG 322	Consumer Behavior	3
MKTG 323	Marketing Research	3
MKTG 335	Professional Selling	3
International elective ³		3

Semester Credit Hours **15**

Fourth Year

Fall		
MKTG 404	Data Visualization for Marketers	3
Directed elective ⁴		3
Directed elective ⁴		3
International elective ³		3
General elective ⁵		3

Semester Credit Hours **15**

Spring

MGMT 466	Strategic Management	3
MKTG 448	Marketing Strategy ¹	3
Directed elective ⁴		3
Marketing elective ⁵		3
General elective ⁶		3

Semester Credit Hours **15**

Total Semester Credit Hours **60**

¹ This course is an approved writing-designated (W) or oral communication (C) business course. See your academic advisor for additional information.

² For those students under ROTC contract, see Requirement 7 of the "Requirements for a Baccalaureate Degree (p. 32)."

³ Six hours required. A complete list of approved courses is available in the Undergraduate Advising Office. Three of the six hours of approved international elective courses simultaneously fulfill the university's International and Cultural Diversity Graduation requirement.

⁴ Nine hours required. Select from MKTG 345, MKTG 347, MKTG 445, MKTG 447 and MKTG 438.

⁵ Three hours required. Any MKTG course (except required MKTG courses and MKTG 409) and IBUS 401-IBUS 403 (p. 1089).

⁶ Elective courses are open to any course offered for university credit, except ACCT 209, ACCT 210, FINC 409, IBUS 301, ISTM 209, MGMT 209, MGMT 309, MKTG 409, SCMT 309. Additional restrictions may apply; see academic advisor for information. May be taken on a satisfactory/unsatisfactory basis.

Marketing - BBA, Analytics and Consulting Track

This program prepares students for careers in marketing analytics and consulting across various domains.

The Bachelor of Business Administration (BBA) in Marketing prepares students to work effectively in corporate and nonprofit organizations that are part of a global economy. Marketing students will be proficient in marketing analytics, digital marketing, customer experience management, creativity, and brand management.

The BBA Marketing (MKTG) Analytics and Consulting track offers students interested in analytics and consulting several opportunities for building skills specific to this career path, and for networking with analytics and consulting professionals. In addition to taking courses geared to analytics and consulting, students can attend professional conferences and participate in local, regional, and national consulting competitions.

The BBA MKTG Analytics and Consulting track complements the student's degree and provides tangible evidence of rigorous academic and experiential preparation for a career in analytics or consulting. The curriculum emphasizes project-based learning with client-based organizations.

Students who complete the BBA MKTG Analytics and Consulting degree program are well-prepared to work in marketing analytics or consulting positions for marketing, information systems, or organizational structure.

Upper-Level Entry Requirements

Admission to the upper-level major of marketing (MKTG) requires satisfactory completion of specific coursework. To review requirements and application procedures see Upper-Level Entry Requirements and Application Procedures (p. 497).

Program Requirements

Lower-Level Business Program (BUAD)

First Year

		Semester Credit Hours
Fall		
BUSN 101	Freshman Business Initiative ¹	3
MATH 140	Mathematics for Business and Social Sciences ²	3
American history (p. 30) ³		3
Life and physical sciences (p. 27)		3
Communication (p. 27)		3
Semester Credit Hours		15
Spring		
ECON 202	Principles of Economics	3
MATH 142	Business Calculus ⁴	3
American history (p. 30) ³		3
Life and physical sciences (p. 27)		3
Social and behavioral sciences (p. 31)		3
Semester Credit Hours		15

Second Year

Fall

ACCT 229	Introductory Accounting	3
ECON 203	Principles of Economics	3
ISTM 210	Fundamentals of Information Systems	3
POLS 206	American National Government ³	3
Communication (p. 27) ¹		3
Semester Credit Hours		15

Spring

ACCT 230	Introductory Accounting	3
BUSN 203	Statistical Methods for Business ⁵	3
Creative arts (p. 30) ¹		3
Language, philosophy and culture (p. 28)		3
Life and physical sciences (p. 27)		3
Semester Credit Hours		15
Total Semester Credit Hours		60

¹ Refer to the specific major notes below for variations from the Business (lower level) requirements.

² MATH 148, MATH 152, MATH 168 and MATH 172 will be accepted in lieu of MATH 140.

³ For those students under ROTC contract, see Requirement 7 of the "Requirements for a Baccalaureate Degree." (p. 32)

⁴ MATH 147, MATH 151 and MATH 171 will be accepted in lieu of MATH 142.

⁵ STAT 211 will be accepted in lieu of BUSN 203.

Management Information Systems: Students intending to major in Management Information Systems must add ISTM 250 Business Programming Logic and Design (3 credits) to second year fall curriculum in Business (lower level). The communication elective can be taken during the third year fall.

Business Honors: Students admitted to Business Honors take BUSN 125 Business Learning Community I (3 credits) in place of BUSN 101 in the first year fall curriculum and must add BUSN 225 Business Competency (3 credits) to the second year spring curriculum in Business (lower level). The creative arts elective can be taken during the third year fall.

Finance: Students intending to major in Finance must add FINC 210 to freshman year curriculum in Business (lower-level). The general elective taken in the fourth year can be reduced by 1 credit.

Upper-Level Marketing Program

Third Year

Fall

		Semester Credit Hours
Fall		
FINC 341	Business Finance	3
MGMT 363	Managing People in Organizations	3
MKTG 321	Marketing ¹	3
POLS 207	State and Local Government ²	3
SCMT 364	Operations Management	3
Semester Credit Hours		15

Spring

MGMT 311	Legal and Social Environment of Business	3
MKTG 322	Consumer Behavior	3
MKTG 323	Marketing Research	3
MKTG 335	Professional Selling	3
MKTG 404	Data Visualization for Marketers	3

Semester Credit Hours 15

Fourth Year**Fall**

MKTG 430	Marketing Consulting ³	3
MKTG 438	Strategic Digital Marketing ³	3
International elective ⁴		3
Marketing elective ⁵		3
General elective ⁶		3

Semester Credit Hours 15

Spring

MGMT 466	Strategic Management	3
MKTG 431	Marketing Analytics ³	3
MKTG 448	Marketing Strategy ¹	3
International elective ⁵		3
General elective ⁶		3

Semester Credit Hours 15

Total Semester Credit Hours 60

¹ This course is an approved writing-designated (W) or oral communication (C) business course. See your academic advisor for additional information.

² For those students under ROTC contract, see Requirement 7 of the "Requirements for a Baccalaureate Degree (p. 32)."

³ Directed elective. Required courses MKTG 430, MKTG 431 and MKTG 438.

⁴ Six hours required. A complete list of approved courses is available in the Undergraduate Advising Office. Three of the six hours of approved international elective courses simultaneously fulfill the university's International and Cultural Diversity Graduation requirement.

⁵ Three hours required. Any MKTG course (except required MKTG courses and MKTG 409) and IBUS 401-403 (p. 1089).

⁶ General electives are any courses offered for university credit except ACCT 209, ACCT 210, FINC 409, IBUS 301, ISTM 209, MGMT 209, MGMT 309, MKTG 409, SCMT 309. Additional restrictions may apply; see academic advisor for information. May be taken on a satisfactory/unsatisfactory basis.

Marketing - BBA, Healthcare Marketing Track

This program prepares students with the skills needed for roles in healthcare marketing, focusing on service quality and healthcare technology.

The Bachelor of Business Administration (BBA) in Marketing prepares students to work effectively in corporate and nonprofit organizations that are part of a global economy. Marketing students will be proficient in marketing analytics, digital marketing, customer experience management, creativity, and brand management.

The BBA Marketing (MKTG) Healthcare Marketing track complements the student's degree and provides tangible evidence of rigorous academic and experiential preparation for a career in healthcare marketing. The curriculum emphasizes healthcare service quality, the business of healthcare, and healthcare technology.

Upper-Level Entry Requirements

Admission to the upper-level major of marketing (MKTG) requires satisfactory completion of specific coursework. To review requirements and application procedures see Upper-Level Entry Requirements and Application Procedures (p. 497).

Program Requirements

Lower-Level Business Program (BUAD)

First Year**Fall**

		Semester Credit Hours
BUSN 101	Freshman Business Initiative ¹	3
MATH 140	Mathematics for Business and Social Sciences ²	3
American history (p. 30) ³		3
Life and physical sciences (p. 27)		3
Communication (p. 27)		3

Semester Credit Hours 15

Spring

ECON 202	Principles of Economics	3
MATH 142	Business Calculus ⁴	3
American history (p. 30) ³		3
Life and physical sciences (p. 27)		3
Social and behavioral sciences (p. 31)		3

Semester Credit Hours 15

Second Year**Fall**

ACCT 229	Introductory Accounting	3
ECON 203	Principles of Economics	3
ISTM 210	Fundamentals of Information Systems	3
POLS 206	American National Government ³	3
Communication (p. 27) ¹		3

Semester Credit Hours 15

Spring

ACCT 230	Introductory Accounting	3
BUSN 203	Statistical Methods for Business ⁵	3
Creative arts (p. 30) ¹		3
Language, philosophy and culture (p. 28)		3
Life and physical sciences (p. 27)		3

Semester Credit Hours 15

Total Semester Credit Hours 60

¹ Refer to the specific major notes below for variations from the Business (lower level) requirements.

² MATH 148, MATH 152, MATH 168 and MATH 172 will be accepted in lieu of MATH 140.

³ For those students under ROTC contract, see Requirement 7 of the "Requirements for a Baccalaureate Degree." (p. 32)

⁴ MATH 147, MATH 151 and MATH 171 will be accepted in lieu of MATH 142.

⁵ STAT 211 will be accepted in lieu of BUSN 203.

Management Information Systems: Students intending to major in Management Information Systems must add ISTM 250 Business Programming Logic and Design (3 credits) to second year fall curriculum in Business (lower level). The communication elective can be taken during the third year fall.

Business Honors: Students admitted to Business Honors take BUSN 125 Business Learning Community I (3 credits) in place of BUSN 101 in the first year fall curriculum and must add BUSN 225 Business Competency (3 credits) to the second year spring curriculum in Business (lower level). The creative arts elective can be taken during the third year fall.

Finance: Students intending to major in Finance must add FINC 210 to freshman year curriculum in Business (lower-level). The general elective taken in the fourth year can be reduced by 1 credit.

Upper-Level Marketing Program

Third Year

		Semester Credit Hours
Fall		
FINC 341	Business Finance	3
MGMT 363	Managing People in Organizations	3
MKTG 321	Marketing ¹	3
POLS 207	State and Local Government ²	3
SCMT 364	Operations Management	3
Semester Credit Hours		15

Spring

MGMT 311	Legal and Social Environment of Business	3
MKTG 322	Consumer Behavior	3
MKTG 323	Marketing Research	3
MKTG 335	Professional Selling	3
International elective ³		3
Semester Credit Hours		15

Fourth Year

Fall		
MKTG 404	Data Visualization for Marketers	3
MKTG 443/PHLT 426	The Business of Healthcare ⁴	3
MKTG 444	HealthTech for Improving Customer Care ⁴	3
International elective ³		3
General elective ⁵		3
Semester Credit Hours		15

Spring

MGMT 466	Strategic Management	3
MKTG 441	Improving Healthcare Service ⁴	3
MKTG 448	Marketing Strategy ¹	3
Marketing elective ⁶		3

General elective ⁵	3
Semester Credit Hours	15
Total Semester Credit Hours	60

¹ This course is an approved writing-designated (W) or oral communication (C) business course. See your academic advisor for additional information.

² For those students under ROTC contract, see Requirement 7 of the "Requirements for a Baccalaureate Degree (p. 32)."

³ Six hours required. A complete list of approved courses is available in the Undergraduate Advising Office. Three of the six hours of approved international elective courses simultaneously fulfill the university's International and Cultural Diversity Graduation requirement.

⁴ Nine hours required. Select from MKTG 441, MKTG 443/PHLT 426 and MKTG 444.

⁵ Elective courses are open to any course offered for university credit, except ACCT 209, ACCT 210, FINC 409, IBUS 301, ISTM 209, MGMT 209, MGMT 309, MKTG 409, SCMT 309. Additional restrictions may apply; see academic advisor for information. May be taken on a satisfactory/unsatisfactory basis.

⁶ Three hours required. Any MKTG course (except required MKTG courses and MKTG 409) and IBUS 401-IBUS 403 (p. 1089).

Marketing - BBA, Professional Selling and Sales Management Track

This program prepares students for diverse roles in sales and marketing, with enhanced communication skills and extensive networking opportunities.

The Bachelor of Business Administration in Marketing (BBA MKTG) prepares students to work effectively in corporate and nonprofit organizations that are part of a global economy. Marketing students will be proficient in marketing analytics, digital marketing, customer experience management, creativity, and brand management.

Students who are looking to expand their communication and relationship-building skills should consider the BBA MKTG Professional Selling and Sales Management track. Students in this program take three sales-related directed electives that provide real-world scenarios and role-plays that help them build skills that are critical for a successful career in sales and marketing.

In addition to taking sales courses, students in the BBA MKTG Professional Selling and Sales Management track benefit from the many opportunities offered by the Reynolds and Reynolds Sales Leadership Institute which is part of the Department of Marketing at Mays Business School. The Sales Leadership Institute provides students opportunities to explore different careers in sales, to learn and hone the skill set that will differentiate them in the workforce, and to network with sales professionals in a wide range of roles and industries. Students will have opportunities to attend professional conferences, participate in local, regional, national, and international sales competitions, and network with sales partners.

Students completing the BBA MKTG Professional Selling and Sales Management degree will have enhanced their interpersonal communication skills in a business environment, giving them a distinct advantage in the job market regardless of the planned career path.

Upper-Level Entry Requirements

Admission to the upper-level major of marketing (MKTG) requires satisfactory completion of specific coursework. To review requirements and application procedures see Upper-Level Entry Requirements and Application Procedures (p. 497).

Program Requirements

Lower-Level Business Program (BUAD)

First Year

		Semester Credit Hours
Fall		
BUSN 101	Freshman Business Initiative ¹	3
MATH 140	Mathematics for Business and Social Sciences ²	3
American history (p. 30) ³		3
Life and physical sciences (p. 27)		3
Communication (p. 27)		3

Semester Credit Hours 15

Spring

ECON 202	Principles of Economics	3
MATH 142	Business Calculus ⁴	3
American history (p. 30) ³		3
Life and physical sciences (p. 27)		3
Social and behavioral sciences (p. 31)		3

Semester Credit Hours 15

Second Year

Fall		
ACCT 229	Introductory Accounting	3
ECON 203	Principles of Economics	3
ISTM 210	Fundamentals of Information Systems	3
POLS 206	American National Government ³	3
Communication (p. 27) ¹		3

Semester Credit Hours 15

Spring

ACCT 230	Introductory Accounting	3
BUSN 203	Statistical Methods for Business ⁵	3
Creative arts (p. 30) ¹		3
Language, philosophy and culture (p. 28)		3
Life and physical sciences (p. 27)		3

Semester Credit Hours 15

Total Semester Credit Hours 60

¹ Refer to the specific major notes below for variations from the Business (lower level) requirements.

² MATH 148, MATH 152, MATH 168 and MATH 172 will be accepted in lieu of MATH 140.

³ For those students under ROTC contract, see Requirement 7 of the "Requirements for a Baccalaureate Degree." (p. 32)

⁴ MATH 147, MATH 151 and MATH 171 will be accepted in lieu of MATH 142.

⁵ STAT 211 will be accepted in lieu of BUSN 203.

Management Information Systems: Students intending to major in Management Information Systems must add ISTM 250 Business Programming Logic and Design (3 credits) to second year fall curriculum in Business (lower level). The communication elective can be taken during the third year fall.

Business Honors: Students admitted to Business Honors take BUSN 125 Business Learning Community I (3 credits) in place of BUSN 101 in the first year fall curriculum and must add BUSN 225 Business Competency (3 credits) to the second year spring curriculum in Business (lower level). The creative arts elective can be taken during the third year fall.

Finance: Students intending to major in Finance must add FINC 210 to freshman year curriculum in Business (lower-level). The general elective taken in the fourth year can be reduced by 1 credit.

Upper-Level Marketing Program

Third Year

		Semester Credit Hours
Fall		
FINC 341	Business Finance	3
MGMT 363	Managing People in Organizations	3
MKTG 321	Marketing ¹	3
POLS 207	State and Local Government ²	3
SCMT 364	Operations Management	3

Semester Credit Hours 15

Spring

MGMT 311	Legal and Social Environment of Business	3
MKTG 322	Consumer Behavior	3
MKTG 323	Marketing Research	3
MKTG 335	Professional Selling	3
International elective ³		3

Semester Credit Hours 15

Fourth Year

Fall		
MKTG 404	Data Visualization for Marketers	3
Directed elective ⁴		3
Directed elective ⁴		3
International elective ³		3
General elective ⁵		3

Semester Credit Hours 15

Spring

MGMT 466	Strategic Management	3
MKTG 448	Marketing Strategy ¹	3
Directed elective ⁴		3
Marketing elective ⁶		3
General elective ⁵		3

Semester Credit Hours 15

Total Semester Credit Hours 60

¹ This course is an approved writing-designated (W) or oral communication (C) business course. See your academic advisor for additional information.

² For those students under ROTC contract, see Requirement 7 of the "Requirements for a Baccalaureate Degree (p. 32)."

³ Six hours required. A complete list of approved courses is available in the Undergraduate Advising Office. Three of the six hours of approved international elective courses simultaneously fulfill the university's International and Cultural Diversity Graduation requirement.

⁴ Nine hours required. Select from MKTG 336, MKTG 435, MKTG 436 and MKTG 437.

⁵ Elective courses are open to any course offered for university credit, except ACCT 209, ACCT 210, FINC 409, IBUS 301, ISTM 209, MGMT 209, MGMT 309, MKTG 409, SCMT 309. Additional restrictions may apply; see academic advisor for information. May be taken on a satisfactory/unsatisfactory basis.

⁶ Three hours required. Any MKTG course (except required MKTG courses and MKTG 409) and IBUS 401-IBUS 403 (p. 1089).

Marketing - BBA, Strategic Retailing Track

This program prepares students for careers in management, merchandising, retail financial planning, and marketing.

The Bachelor of Business Administration (BBA) in Marketing prepares students to work effectively in corporate and nonprofit organizations that are part of a global economy. Marketing students will be proficient in marketing analytics, digital marketing, customer experience management, creativity, and brand management.

The BBA Marketing (MKTG) Strategic Retailing track offers students interested in retail several opportunities for building skills specific to this career path and for networking with retailing professionals. In addition to taking retail courses, students can attend professional conferences, and participate in regional and national retailing campaign competitions.

The BBA MKTG Strategic Retailing track supplements the degree by tailoring directed elective courses and building specific retailing skills. Also, it provides recruiters with a means of identifying top students interested in retailing. Completion of the program provides tangible evidence of commitment to and expertise in retailing.

The Center for Retailing Studies is a nationally known and respected center that is part of the Department of Marketing in Mays Business School at Texas A&M University. The Center is a bridge between the academic and business community, and serves students, faculty, and partner firms in a variety of ways, one of which is the Strategic Retailing track of the BBA in Marketing.

Upper-Level Entry Requirements

Admission to the upper-level major of marketing (MKTG) requires satisfactory completion of specific coursework. To review requirements and application procedures see Upper-Level Entry Requirements and Application Procedures (p. 497).

Program Requirements

Lower-Level Business Program (BUAD)

First Year		Semester
Fall		Credit Hours
BUSN 101	Freshman Business Initiative ¹	3
MATH 140	Mathematics for Business and Social Sciences ²	3
American history (p. 30) ³		3
Life and physical sciences (p. 27)		3
Communication (p. 27)		3
Semester Credit Hours		15
Spring		
ECON 202	Principles of Economics	3
MATH 142	Business Calculus ⁴	3
American history (p. 30) ³		3
Life and physical sciences (p. 27)		3
Social and behavioral sciences (p. 31)		3
Semester Credit Hours		15
Second Year		
Fall		
ACCT 229	Introductory Accounting	3
ECON 203	Principles of Economics	3
ISTM 210	Fundamentals of Information Systems	3
POLS 206	American National Government ³	3
Communication (p. 27) ¹		3
Semester Credit Hours		15
Spring		
ACCT 230	Introductory Accounting	3
BUSN 203	Statistical Methods for Business ⁵	3
Creative arts (p. 30) ¹		3
Language, philosophy and culture (p. 28)		3
Life and physical sciences (p. 27)		3
Semester Credit Hours		15
Total Semester Credit Hours		60

¹ Refer to the specific major notes below for variations from the Business (lower level) requirements.

² MATH 148, MATH 152, MATH 168 and MATH 172 will be accepted in lieu of MATH 140.

³ For those students under ROTC contract, see Requirement 7 of the "Requirements for a Baccalaureate Degree." (p. 32)

⁴ MATH 147, MATH 151 and MATH 171 will be accepted in lieu of MATH 142.

⁵ STAT 211 will be accepted in lieu of BUSN 203.

Management Information Systems: Students intending to major in Management Information Systems must add ISTM 250 Business Programming Logic and Design (3 credits) to second year fall curriculum in Business (lower level). The communication elective can be taken during the third year fall.

Business Honors: Students admitted to Business Honors take BUSN 125 Business Learning Community I (3 credits) in place of BUSN 101 in the first year fall curriculum and must add BUSN 225 Business Competency (3 credits) to the second year spring curriculum in Business (lower level). The creative arts elective can be taken during the third year fall.

Finance: Students intending to major in Finance must add FINC 210 to freshman year curriculum in Business (lower-level). The general elective taken in the fourth year can be reduced by 1 credit.

Upper-Level Marketing Program

Third Year

		Semester Credit Hours
Fall		
FINC 341	Business Finance	3
MGMT 363	Managing People in Organizations	3
MKTG 321	Marketing ¹	3
POLS 207	State and Local Government ²	3
SCMT 364	Operations Management	3
Semester Credit Hours		15

Spring

MGMT 311	Legal and Social Environment of Business	3
MKTG 322	Consumer Behavior	3
MKTG 323	Marketing Research	3
MKTG 335	Professional Selling	3
International elective ³		3
Semester Credit Hours		15

Fourth Year

Fall		
MKTG 404	Data Visualization for Marketers	3
Directed elective ⁴		3
Directed elective ⁴		3
International elective ³		3
General elective ⁵		3
Semester Credit Hours		15

Spring

MGMT 466	Strategic Management	3
MKTG 448	Marketing Strategy ¹	3
Directed elective ⁴		3
Marketing elective ⁶		3
General elective ⁵		3
Semester Credit Hours		15
Total Semester Credit Hours		60

¹ This course is an approved writing-designated (W) or oral communication (C) business course. See your academic advisor for additional information.

² For those students under ROTC contract, see Requirement 7 of the "Requirements for a Baccalaureate Degree (p. 32)."

³ Six hours required. A complete list of approved courses is available in the Undergraduate Advising Office. Three of the six hours of approved international elective courses simultaneously fulfill the university's International and Cultural Diversity Graduation requirement.

⁴ Nine hours required. Select

from MKTG 325, MKTG 326, MKTG 425, MKTG 427, MKTG 438.

⁵ Elective courses are open to any course offered for university credit, except ACCT 209, ACCT 210, FINC 409, IBUS 301, ISTM 209, MGMT 209, MGMT 309, MKTG 409, SCMT 309. Additional restrictions may apply; see academic advisor for information. May be taken on a satisfactory/unsatisfactory basis.

⁶ Three hours required. Any MKTG course (except required MKTG courses and MKTG 409) and IBUS 401-403 (p. 1089).

University Studies

The Bachelor of Science in University Studies is offered by Texas A&M University.

Students who earn a Bachelor of Science (BS) in University Studies are able to tailor their undergraduate coursework to align with future personal and career objectives. Specific requirements, course offerings, and restrictions exist for the University Studies-Business degree.

The University Studies-Business curriculum consists of a 24 credit hour business concentration and two minors of 15 to 18 hours each. The degree program offers a number of unique features and benefits:

- **Foundational knowledge:** The business concentration provides students with a firm grasp of the basic aspects of business including accounting, finance, management, management information systems, marketing and supply chain management.
- **Interdisciplinary study:** Students pursue two minors that involve coursework in other Texas A&M colleges and departments. Students are encouraged to identify minors that complement the business concentration and reflect their individual interests and strengths.
- **Flexibility for the future:** Students who earn this degree find they have flexible options after graduation since they are prepared to pursue a wide range of careers and graduate programs.

Careers pursued by University Studies-Business graduates include financial advisor, account manager, marketing coordinator, sales representative, web developer, public relations specialist, consultant, and human resource specialist.

Majors

- Bachelor of Science in University Studies, Business Concentration (p. 541)

University Studies - BS, Business Concentration

This program enables students to tailor their undergraduate coursework to align with future personal and career objectives.

Specific requirements, course offerings, and restrictions exist for the Bachelor of Science (BS) in University Studies degree. The degree program offers a number of unique features and benefits:

Foundational knowledge: The business concentration provides students with a firm grasp of the basic aspects of business including accounting, finance, management, management information systems, marketing and supply chain management.

Interdisciplinary study: Students pursue two minors that involve coursework in other Texas A&M colleges and departments. Students are encouraged to identify minors that complement the business concentration and reflect their individual interests and strengths.

Flexibility for the future: Students who earn this degree find they have flexible options after graduation since they are prepared to pursue a wide range of careers and graduate programs.

Careers pursued by University Studies-Business graduates include financial advisor, account manager, marketing coordinator, sales representative, web developer, public relations specialist, consultant, and human resource specialist.

Program Requirements

First Year

Fall		Semester Credit Hours
American history (p. 30)		3
Communication (p. 27)		3
Life and physical sciences (p. 27)		3
Mathematics (p. 27)		3
Social and behavioral sciences (p. 31)		3
Semester Credit Hours		15
Spring		
American history (p. 30)		3
Language, philosophy and culture (p. 28)		3
Life and physical sciences (p. 27)		3
Mathematics (p. 27)		3
General elective ^{1, 2, 3}		3
Semester Credit Hours		15

Second Year

Fall		
ISTM 209	Business Information Systems Concepts	3
Communication (p. 27)		3
Government/Political science (p. 31)		3
Life and physical sciences (p. 27)		3
Minor ¹		3
Semester Credit Hours		15
Spring		
ACCT 209	Survey of Accounting Principles	3
MGMT 209	Principles of Business Regulations and Law	3
Creative arts (p. 30)		3
Government/Political science (p. 31)		3
Minor ¹		3
Semester Credit Hours		15

Third Year

Fall		
Minor ¹		3
Minor ¹		3
Minor or General elective ^{1,2,3}		3
General elective ^{1,2,3}		3

General elective ^{1,2,3}		3
Semester Credit Hours		15
Spring		
FINC 409	Survey of Finance Principles	3
Minor ¹		3
Minor ¹		3
Minor or General elective ^{1,2,3}		3
General elective ^{1,2,3}		3
Semester Credit Hours		15
Fourth Year		
Fall		
BUSN 403	Business Writing and Communication ⁴	3
MGMT 309	Survey of Management	3
MKTG 409	Principles of Marketing	3
Minor ¹		3
Minor ¹		3
Semester Credit Hours		15
Spring		
Minor ¹		3
Minor ¹		3
General elective ^{1,2,3}		3
General elective ^{1,2,3}		3
General elective ^{1,2,3}		3
Semester Credit Hours		15
Total Semester Credit Hours		120

¹ Two university approved minors are required for this degree program. The minors must be completed in colleges other than Mays Business School. Includes the 30-36 hours used to satisfy the two minor requirements.

² 21-27 hours selected from any 100-499 course not used elsewhere.

³ Enrollment of University Studies majors in courses offered at Mays Business School is limited to the required business concentration courses plus the following courses to be used as electives: ACCT 210, BUSN 481, and MGMT 312.

⁴ This course is an approved writing-designated (UWRT) business course. See your academic advisor for additional information.

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) coursework and 3 hours of Cultural Discourse (p. 48) coursework. A course satisfying a core category, a college/department requirement, or a general elective can be used to satisfy this requirement. See academic advisor.

COLLEGE OF DENTISTRY

Administrative Officers

- Dean – Lily T. García, DDS, MS
- Associate Dean, Academic Affairs – Douglas J. Gould, PhD, FAAA
- Associate Dean, Clinical Affairs – Jennifer J. Barrington, DDS
- Associate Dean, Faculty Affairs - Lisa F. Mallonee, MPH
- Associate Dean, Graduate and Professional Programs - Reginald W. Taylor, DMSc, DMD
- Associate Dean, Research - Chunlin Qin, PhD, DDS, MS
- Associate Dean, Student Affairs - Ernestine S. Lacy, DDS, MA
- Assistant Dean, Finance - Sarah Barron, MEd
- Interim Director, Recruitment and Admissions - Alicia M. Spence, DDS

General Statement

The College of Dentistry has been a distinguished resource for dental education in Texas for more than 100 years and is dedicated to combining higher education and research with community service.

Known internationally for producing excellent clinicians, the college opened in 1905. Since then, it has graduated more than 8,000 dentists and dental hygienists. Nearly one-third of all dentists in Texas are College of Dentistry graduates. The college also graduates a large number of dental hygienists with bachelor's degrees in the state. In addition to a doctor of dental surgery and bachelor's degree in dental hygiene, postdoctoral certificate and degree programs are offered.

Today, the college works toward innovative treatments, leading-edge technology, and better ways to deliver care. It not only ensures that Texas has qualified generations of dentists, dental hygienists, and scientists, but also provides care for patients who have no other access to oral health care.

This program prepares students for the opportunity to pursue an occupational license. Please refer to the Notification for Students Pursuing an Occupational License in our catalog for additional information. If you are unsure if your program is affected by the recent approval of this new law (HB 1508), you will need to contact the accrediting agency and inquire.

Location

The College of Dentistry is located in Dallas, Texas, adjacent to the rapidly expanding Baylor University Medical Center. The Dallas-Fort Worth metroplex is an area noted for the vigor, optimism, and friendliness of its population. The ever-changing skyline reflects the continuing growth of the area.

Opportunities for educational, cultural, and religious enrichment are numerous. Within a 100-mile radius of Dallas are more than 40 colleges and universities. Dallas has a professional theater, opera, symphony, and dance companies. Among the many museums and galleries in the area, the Dallas Museum of Art has received international acclaim for both its design and its exhibits.

For sports enthusiasts, Dallas has professional and college football, basketball, baseball, hockey, and soccer teams. The metroplex annually hosts competitions in golf, tennis, bowling, soccer, and running that attracts many of the world's best athletes. Numerous lakes and parks

provide recreational opportunities for boating, fishing, swimming, jogging, biking, and horseback riding.

Dallas is served by a variety of transportation modes, including several interstate highways, the Amtrak rail system, and the Dallas Area Rapid Transit system. The Dallas/Fort Worth International Airport, with many major and feeder airline connections, is one of the busiest air terminals in the nation. Airline connections also can be made at nearby Love Field, which is a 20-minute car ride from the college.

The College of Dentistry is centrally located in the city of Dallas, about one mile east of the downtown business district. This is an area where restored historic homes and varied types of new construction create diverse neighborhoods. The Texas State Fairgrounds and the downtown arts district, with its world-class performance halls and art museum, help make this part of Dallas an exciting place to live and work. Living accommodations are located as close as one block from the campus.

Office of Recruitment and Admissions

College of Dentistry
3302 Gaston Ave., Suite 525
Dallas, TX 75246
(214) 828-8231
<https://dentistry.tamu.edu/>

Majors

Caruth School of Dental Hygiene

- Bachelor of Science in Dental Hygiene (p. 544)

Masters

College of Dentistry

- Master of Science in Oral Biology (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/dentistry/interdepartmental/oral-biology-ms/>)

Doctoral

College of Dentistry

- Doctor of Philosophy in Oral and Craniofacial Biomedical Sciences (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/dentistry/interdepartmental/oral-and-craniofacial-biomedical-sciences-phd/>)

Professional

College of Dentistry

- Doctor of Dental Surgery in Dentistry (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/dentistry/interdepartmental/dds/>)

Caruth School of Dental Hygiene

The Caruth School of Dental Hygiene is an integral part of the College of Dentistry. The dental hygiene program was equipped in 1954 through a generous gift from the Caruth Foundation of Dallas and W.W. Caruth, Jr., in honor of W.W. Caruth, Sr., a pioneer Texas philanthropist.

The first dental hygiene students were accepted in fall 1955. At that time, there was no requirement for previous college experience. In 1964, the Caruth School of Dental Hygiene established prerequisite courses prior

to professional study. During the same year, the Bachelor of Science degree was offered in addition to the traditional certificate program. All graduates since 1973 have received the degree of Bachelor of Science in Dental Hygiene. In 1997, the Master of Science degree was added.

Purpose

The purpose of the Caruth School of Dental Hygiene is to educate preventive oral health professionals, eligible for licensure as dental hygienists, who are capable of providing educational, clinical and therapeutic services that support total health through the promotion of optimal oral health.

Opportunities

The services of a dental hygienist are offered in private dental practices and clinics, public health agencies, school systems, hospitals, nursing homes and corporate health facilities. Dental hygienists also teach in dental and dental hygiene programs and participate in health research. The baccalaureate degree offered through the Caruth School of Dental Hygiene by the College of Dentistry satisfies the educational requirement for eligibility for state licensure. Graduates are provided with diverse experiences to prepare for a variety of employment settings and to pursue graduate education. A Master of Science in Education for Healthcare Professionals with a focus in dental hygiene is also offered.

This program prepares students for the opportunity to pursue an occupational license. Please refer to the Notification for Students Pursuing an Occupational License (p. 1416) in our catalog for additional information.

Faculty

Brown, Maureen D, Clinical Assistant Professor
Dental Hygiene
MS, Texas A&M University Commerce, 2020

Cotter, Jane C, Associate Professor
Dental Hygiene
MS, Texas A&M University, 2009

Cowen, Brandy Sue, Clinical Assistant Professor
Dental Hygiene
MS, Texas Woman's University, 2018

Estrada, Martha Alicia, Clinical Assistant Professor
Dental Hygiene
MS, Texas A&M University Commerce, 2025

Estrada, Rocio Yvette, Clinical Faculty
Dental Hygiene
BS, Texas A&M University, 2014

Fox, Eric, Clinical Assistant Professor
Dental Hygiene
MS, Texas A&M University, 2005

Gauthier, Eliska, Clinical Assistant Professor
Dental Hygiene
MBA, Texas Woman's University, 2018

Graham, Chelsi Gallina, Clinical Assistant Professor
Dental Hygiene
BS, Tyler Junior College, 2021

Kim, Thao Catherine, Clinical Faculty
Dental Hygiene
BS, Baylor University, 2022

King, Tracy Michelle, Clinical Associate Professor
Dental Hygiene
MS, Texas A&M University, 2002

Mallonee, Lisa F, Professor
Dental Hygiene
MPH, University of North Carolina at Chapel Hill, 2000

Martinez, Joanne Joanne, Clinical Faculty
Dental Hygiene
BS, Texas A&M University, 2003

McNiel, Amanda Danielle, Clinical Faculty
Dental Hygiene
MS, Texas A&M College of Dentistry, 2009

Moorman, Chelsea Gayle, Clinical Faculty
Dental Hygiene
BS, Texas A&M College of Dentistry, 2016

Nurick, Leigh Ann, Clinical Associate Professor
Dental Hygiene
MS, Texas A&M University, 2014

Spittle, Leah Sarai, Clinical Assistant Professor
Dental Hygiene
MS, Texas A&M University, 2016

Tolentino, Mary Vu, Clinical Faculty
Dental Hygiene
MS, Texas A&M University, 2013

Vargas, Ariana, Clinical Assistant Professor
Dental Hygiene
MPH, University of North Texas Health Science Center, 2023

Majors

- Bachelor of Science in Dental Hygiene (p. 544)

Dental Hygiene - BS

Dental Hygiene is an exciting career choice for anyone interested in promoting oral health. A dental hygienist is a licensed preventive oral health professional who provides educational, clinical and therapeutic services supporting total health through the promotion of optimal oral health.

The Caruth School of Dental Hygiene is dedicated to delivering the most innovative techniques for educating future dental hygienists, as well as provide respectful public clinical services with the utmost integrity and ethical standards. The program fosters a sense of community, embraces a diverse group of students and faculty, and supports personal growth. The Caruth School of Dental Hygiene is committed to being a national leader in dental hygiene education and with that our school takes pride in the students who choose to maintain a high level of diligence, are dedicated, and achieve success within our program.

The goals of the Dental Hygiene Program are:

- The curricular program will support student competency and prepare them for dental hygiene practice.
- The Dental Hygiene program facilitates student learning.
- The Dental Hygiene faculty will demonstrate participation in teaching, service and scholarly activity.
- The Dental Hygiene students will provide quality care to patients.

Dental hygiene offers an excellent opportunity to serve the community. The services of a dental hygienist are offered in private dental practices and clinics, public health agencies, school systems, hospitals, nursing homes and corporate health facilities. Dental hygienists also teach in dental and dental hygiene programs and participate in health research. The baccalaureate degree offered through the Caruth School of Dental Hygiene by Texas A&M University College of Dentistry satisfies the educational requirement for eligibility for state licensure. Graduates are provided with diverse experiences to prepare for a variety of employment settings and to pursue graduate education.

Registered dental hygienists assess a patient's oral condition in order to offer patient-specific preventive and educational services. In addition to providing tailored treatment plans, dental hygienists motivate their patients to understand and improve their current oral conditions. A major role of a dental hygienist is to perform periodontal therapy which includes evaluating the current state of the oral cavity through periodontal charting and providing treatment based upon the health of the gingival tissues and surrounding periodontium.

This program in dental hygiene is accredited by the Commission on Dental Accreditation and has been granted the accreditation status of "approved without reporting requirements." The Commission is a specialized accrediting body recognized by the United States Department of Education. The Commission on Dental Accreditation can be contacted at (312) 440-4653 or at 211 East Chicago Avenue, Chicago, IL 60611-2678. The Commission's web address is <https://coda.ada.org/en> (<https://coda.ada.org/en>).

The length of the program is two years. Application deadline is January 5 of the year of anticipated entrance into the program with a start term in the Fall.

The BS in Dental Hygiene is offered in Dallas, Texas.

Program Requirements

Coursework totaling 60 semester credit hours, including core courses for BS degree.

Third Year

Fall		Semester Credit Hours
DDHS 3110	Introduction To Dentistry	1
DDHS 3120	Dental Anatomy	2
DDHS 3160	Preclinical Dental Hygiene	6
DDHS 3220	Oral Radiology	
DDHS 3250	Biomedical Sciences I	5
DDHS 3425	Health Promotion and Disease Prevention	2.5
Semester Credit Hours		16.5

Spring

DDHS 3020	Theory of Dental Hygiene Practice I	2
DDHS 3220	Oral Radiology	2

DDHS 3340	Biomedical Sciences II	4
DDHS 3310	Health Education and Behavioral Science	1
DDHS 3410	Introduction to Pathology	1
DDHS 3325	Microbiology	2.5
DDHS 3530	Applied Dental Materials	3
DDHS 3830	Clinical Dental Hygiene I	3

Semester Credit Hours 18.5

Summer

DDHS 4110	Medical Emergencies	1
DDHS 4220	Comprehensive Care Seminar ¹	2
DDHS 4310	Oral Radiography ¹	1
DDHS 4510	Pediatric Dentistry	1
DDHS 4820	Clinical Dental Hygiene II	2

Semester Credit Hours 7

Fourth Year

Fall

DDHS 4015	Pharmacology	1.5
DDHS 4025	Oral Pathology	2.5
DDHS 4110	Medical Emergencies ¹	
DDHS 4140	Clinical Dental Hygiene III	4
DDHS 4210	Professional Ethics	1
DDHS 4220	Comprehensive Care Seminar	
DDHS 4310	Oral Radiography (continued) ¹	
DDHS 4410	Gerontology	1
DDHS 4530	Public and Community Health	
DDHS 4610	Periodontics	1
DDHS 4620	Theory of Dental Hygiene Practice II	2
DDHS 4715	Research Methods	1.5

Semester Credit Hours 14.5

Spring

DDHS 4010	National Board Review	1
DDHS 4220	Comprehensive Care Seminar	
DDHS 4240	Clinical Dental Hygiene IV	4
DDHS 4310	Oral Radiography (continued) ¹	
DDHS 4320	Perspectives in Dental Hygiene	2
DDHS 4530	Public and Community Health	3
DDHS 4710	Applied Research Methods	1
DDHS 4810	Local Anesthesia and Nitrous Oxide/ Oxygen Sedation	1

Semester Credit Hours 12

Total Semester Credit Hours 68.5

¹ Scheduled by course director

COLLEGE OF EDUCATION AND HUMAN DEVELOPMENT

Administrative Officers

Dean - Michael de Miranda, PhD

Senior Associate Dean for Academic Affairs - Beverly Irby, EdD

Associate Dean for Undergraduate Academic Affairs - Christopher Cherry, PhD

Associate Dean for Research - James Fluckey, PhD

Associate Dean for Faculty Affairs - Dalun Zhang, PhD

Assistant Dean for Finance and Business Services - Jill Hobbs

General Statement

The College of Education and Human Development is dedicated to transforming and enriching lives with programs built on the core Aggie values of leadership, excellence, integrity, loyalty, respect and selfless service.

Consistent with the land grant mission of our university, the teaching, research and service activities of the college foster innovation and development, influence policy and practice, and transform the lives of individuals in our state and across the nation. With outstanding faculty and students, the college creates a community of scholars who impact the world. Its faculty provide innovative, high-impact educational experiences with an emphasis on transformational learning opportunities.

The college has a history of preparing high-quality teachers and administrators and is consistently among the leading institutions in the state for producing the highest number of certified teachers in high-need areas. It continues this tradition of preparing professionals and leaders in education, sport, business, government, and kinesiology through programs in four academic departments: Educational Administration and Human Resource Development (EAHR), Educational Psychology (EPSY), Kinesiology and Sport Management (KNSM), and Teaching, Learning and Culture (TLAC).

The college manages programs for the preparation of certified school personnel as well as human service professionals in the private sector, state and community agencies. Undergraduate majors include education leading to certification in early childhood, early childhood through sixth grade, middle grades, bilingual and special education; human resource development; kinesiology; and sport management. Students interested in any programs should meet with a college advisor regarding all program options.

Requirements for Admission to Teacher Education Programs

The State of Texas establishes standards for teacher education programs. All certification programs at Texas A&M are in compliance with these requirements. Students must meet state, University, College of Education and Human Development and department/program requirements for matriculation into a teacher education program. Students are responsible for contacting the departmental advisors

to obtain information about specific requirements for their major and program areas.

Teacher Education Retention Policy

A student, after being admitted to teacher education, who fails to continue to meet all requirements, will be dropped from the program and may not continue in or register for any professional teacher education course. Any student removed from or who discontinues student teaching because of unsatisfactory performance will be dropped from the teacher education program. A student dropped from the teacher education program may apply through their respective department for readmission to the teacher education program.

Majors

Department of Educational Administration and Human Resource Development

- Bachelor of Science in Human Resource Development (p. 549)
- Bachelor of Science in Learning Technology and Performance Systems (p. 550)

Department of Educational Psychology

- Bachelor of Science in Education, Bilingual Education-EC6 (p. 555)
- Bachelor of Science in Education, Special Education-EC12 (p. 556)
- Bachelor of Science in Human Development and Family Sciences (p. 557)

Department of Kinesiology and Sport Management

- Bachelor of Science in Kinesiology, Exercise and Sport Science Track (p. 563)
- Bachelor of Science in Kinesiology, Exercise Science Track, Applied Exercise Physiology Concentration (p. 564)
- Bachelor of Science in Kinesiology, Exercise Science Track, Basic Exercise Physiology Concentration (p. 566)
- Bachelor of Science in Kinesiology, Exercise Science Track, Motor Behavior Concentration (p. 567)
- Bachelor of Science in Kinesiology and Master of Science in Athletic Training, 5-Year Degree Program (p. 568)
- Bachelor of Science in Sport Management (p. 570)

Department of Teaching, Learning and Culture

- Bachelor of Science in Early Childhood Development and Education, Leadership Track (p. 575)
- Bachelor of Science in Early Childhood Development and Education, Teaching (Non-Licensure) Track (p. 576)
- Bachelor of Science in Education, Early Childhood-3 Certification (p. 577)
- Bachelor of Science in Education, English Language Arts/Social Studies, Middle Grades Certification (p. 578)
- Bachelor of Science in Education, Math/Science, Middle Grades Certification (p. 579)
- Bachelor of Science in Education, Pre-K-6, Generalist Certification (p. 580)

Certification

- Secondary Graduate Certification Program (p. 582)

Minors

Department of Educational Administration and Human Resource Development

- Human Resource Development Minor (p. 552)
- Learning Technology and Performance Systems Minor (p. 552)

Department of Educational Psychology

- Creative Studies Minor (p. 558)
- Educational Supports for Individuals with Disabilities Minor (p. 559)

Department of Kinesiology and Sport Management

- Coaching Minor (p. 571)
- Sports Management Minor (p. 571)

Department of Teaching, Learning and Culture

- Secondary Education - Clinical Teaching Minor (p. 581)
- Secondary Education Minor (p. 582)

Certificates

Department of Educational Psychology

- Interdisciplinary Studies Certificate (p. 559)

Masters

Department of Educational Administration and Human Resource Development

- Master of Education in Educational Administration (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/education-human-development/educational-administration-human-resource-development/administration-med/>)
- Master of Science in Educational Administration (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/education-human-development/educational-administration-human-resource-development/administration-ms/>)
- Master of Science in Educational Human Resource Development (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/education-human-development/educational-administration-human-resource-development/human-resource-development-ms/>)

Department of Educational Psychology

- Master of Education in Bilingual/ESL Education (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/education-human-development/educational-psychology/bilingual-med/>)
- Master of Education in Educational Psychology (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/education-human-development/educational-psychology/med/>)

- Master of Education in Special Education (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/education-human-development/educational-psychology/special-education-med/>)
- Master of Science in Bilingual/ESL Education (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/education-human-development/educational-psychology/bilingual-ms/>)
- Master of Science in Educational Psychology (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/education-human-development/educational-psychology/ms/>)
- Master of Science in Special Education (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/education-human-development/educational-psychology/special-education-ms/>)

Department of Kinesiology and Sport Management

- Master of Science in Athletic Training (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/education-human-development/health-kinesiology/athletic-training-ms/>)
- Master of Science in Kinesiology (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/education-human-development/health-kinesiology/kinesiology-ms/>)
- Master of Science in Nutrition and Master of Science in Kinesiology Combined Degree Program (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/agriculture-life-sciences/nutrition-combined-ms-nutr-ms-kine/>)
- Master of Science in Sport Management (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/education-human-development/health-kinesiology/sport-management-ms/>)

Department of Teaching, Learning and Culture

- Master of Education in Curriculum and Instruction (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/education-human-development/teaching-learning-culture/curriculum-instruction-med/>)
- Master of Education in Learning Design and Technology (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/education-human-development/teaching-learning-culture/learning-design-and-technology-med/>)

Doctoral

Department of Educational Administration and Human Resource Development

- Doctor of Education in Educational Administration (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/education-human-development/educational-administration-human-resource-development/administration-edd/>)
- Doctor of Philosophy in Educational Administration (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/education-human-development/educational-administration-human-resource-development/administration-phd/>)
- Doctor of Philosophy in Educational Human Resource Development (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/education-human-development/educational-administration-human-resource-development/administration-phd/>)

administration-human-resource-development/human-resource-development-phd/)

- Master of Public Service and Administration and Doctor of Philosophy (EDAD) Collaborative Degree Program (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/government-public-service/public-service-administration/psaa-edad/>)

Department of Educational Psychology

- Doctor of Education in Bilingual, English as a Second Language, and Dual Language Education (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/education-human-development/educational-psychology/bilingual-esl-dual-language-edd/>)
- Doctor of Philosophy in Counseling Psychology (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/education-human-development/educational-psychology/counseling-phd/>)
- Doctor of Philosophy in Educational Psychology (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/education-human-development/educational-psychology/phd/>)
- Doctor of Philosophy in School Psychology (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/education-human-development/educational-psychology/school-psychology-phd/>)

Department of Kinesiology and Sport Management

- Doctor of Philosophy in Kinesiology (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/education-human-development/health-kinesiology/kinesiology-phd/>)

Department of Teaching, Learning and Culture

- Doctor of Education in Curriculum and Instruction (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/education-human-development/teaching-learning-culture/curriculum-instruction-edd/>)
- Doctor of Philosophy in Curriculum and Instruction (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/education-human-development/teaching-learning-culture/curriculum-instruction-phd/>)

Department of Educational Administration and Human Resource Development

The Department of Educational Administration and Human Resource Development prepares people for many professional careers associated with the broad fields of corporate education. The Bachelor of Science in Human Resource Development is designed to encourage students to achieve a bachelor's degree and to enter the profession in their area of specialty. The programs prepare graduates to assume responsibility for enhancing technology, developing workplace competence and strengthening student achievement in their career paths.

Faculty

Alagaraja, Meera, Associate Professor
Educ Admn & Human Resource Dev
PHD, Texas A&M University, 2010

Bailey, Krista J, Clinical Professor
Educ Admn & Human Resource Dev
PHD, Texas A&M University, 2011

Bowen, Daniel H, Associate Professor
Educ Admn & Human Resource Dev
PHD, University of Arkansas, 2013

Chai, Dae Seok, Associate Professor
Educ Admn & Human Resource Dev
PHD, Texas A&M University, 2016

Charkasova, Aynur, Clinical Assistant Professor
Educ Admn & Human Resource Dev
PHD, Southern Illinois University, 2021

Davison, Chayla H, Associate Professor
Educ Admn & Human Resource Dev
PHD, University of Denver, 2013

Dirani, Khalil M, Professor
Educ Admn & Human Resource Dev
PHD, University of Illinois at Urbana-Champaign, 2007

Fahrenwald, Carl, Clinical Associate Professor
Educ Admn & Human Resource Dev
EDD, University of South Dakota, 1999

Fowler, Rhonda M, Clinical Professor
Educ Admn & Human Resource Dev
PHD, Texas A&M University, 2013

Gonzalez, Elsa M, Associate Professor
Educ Admn & Human Resource Dev
PHD, Texas A&M University, 2004

Hill-Jackson, Valerie L, Assistant Professor
Educ Admn & Human Resource Dev
PHD, St. Joseph's University, 2003

Holzman, Brian, Assistant Professor
Educ Admn & Human Resource Dev
PHD, Stanford University, 2016

Hwang, Jihee, Clinical Associate Professor
Educ Admn & Human Resource Dev
PHD, Pennsylvania State University, 2015

Irby, Beverly J, Professor
Educ Admn & Human Resource Dev
PHD, University of Mississippi, 1983

James-Gallaway, Chaddrick, Assistant Professor
Educ Admn & Human Resource Dev
PHD, University of Illinois Urbana Champaign, 2020

Kim, Johyun, Associate Professor
Educ Admn & Human Resource Dev
PHD, University of Illinois at Urbana-Champaign, 2006

Kim, Junghwan, Associate Professor
Educ Admn & Human Resource Dev
PHD, The Pennsylvania State University, 2012

Lechuga, Vicente M, Associate Professor
Educ Admn & Human Resource Dev
PHD, University of Southern California, 2005

Madsen, Jean A, Professor
Educ Admn & Human Resource Dev
PHD, The University of Kansas, 1986

Munoz, Eva, Visiting Lecturer
Educ Admn & Human Resource Dev
PHD, Northcentral University, 2017

Musoba, Glenda D, Associate Professor
Educ Admn & Human Resource Dev
PHD, Indiana University, 2004

Ponjuan, Luis, Associate Professor
Educ Admn & Human Resource Dev
PHD, University of Michigan, 2005

Pugh, Daniel J, Professor of the Practice
Educ Admn & Human Resource Dev
PHD, University of Georgia, 2000

Rice, Douglas, Clinical Associate Professor
Educ Admn & Human Resource Dev
PHD, Texas A&M University, College Station, 2020

Roumell, Elizabeth A, Professor
Educ Admn & Human Resource Dev
PHD, University of Wyoming, 2009

Saavedra, Abelardo, Professor of the Practice
Educ Admn & Human Resource Dev
PHD, University of Michigan, Ann Arbor, 1976

Santos, Rose Anna, Visiting Clinical Assistant Professor
Educ Admn & Human Resource Dev
PHD, Texas A&M University, 2013

Stanley, Christine A, Professor
Educ Admn & Human Resource Dev
PHD, Texas A&M University, 1990

Stephens, Mattyna, Clinical Assistant Professor
Educ Admn & Human Resource Dev
PHD, Texas A&M University, 2014

Turner, John, Associate Professor
Educ Admn & Human Resource Dev
PHD, University of North Texas, 2015

Wang, Jia, Professor
Educ Admn & Human Resource Dev
PHD, University of Georgia, 2004

Webb, Gwendolyn Carol, Associate Professor
Educ Admn & Human Resource Dev
PHD, Illinois State University, 1994

Yang, Mohan, Assistant Professor
Educ Admn & Human Resource Dev
PHD, Purdue University, 2021

Yi, Jieun, Visiting Assistant Professor
Educ Admn & Human Resource Dev
PHD, Texas A&M University, 2023

Yoder, Paula, Clinical Assistant Professor
Educ Admn & Human Resource Dev
EDD, Tarleton State University, 2018

Yoon, Seung Won, Professor
Educ Admn & Human Resource Dev
PHD, University of Illinois Urbana Champaign, 2003

Majors

- Bachelor of Science in Human Resource Development (p. 549)
- Bachelor of Science in Learning Technology and Performance Systems (p. 550)

Minors

- Human Resource Development Minor (p. 552)
- Learning Technology and Performance Systems Minor (p. 552)

Human Resource Development - BS

The curricula for Human Resource Development provides students with the content and course sequence to enter the workforce in either education, business or industry.

This program stresses application in real settings as well as strong foundations in knowledge, and has strong field-based components. The courses have been combined to give students a well-rounded foundation in the roles and responsibilities in education and business settings.

This program is approved to be offered at the Texas A&M Higher Education Center in McAllen, Texas.

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition or Composition and Rhetoric	3
KINE 120	The Science of Basic Health and Fitness	1
MATH 140	Mathematics for Business and Social Sciences ¹	3
POLS 206	American National Government	3
	American history (p. 30)	3
	Creative arts (p. 30)	3
Semester Credit Hours		16

Spring

MATH 142	Business Calculus ²	3
POLS 207	State and Local Government	3
	American history (p. 30)	3
	Life and physical sciences (p. 27)	4

Social and behavioral science (p. 31)	3
Semester Credit Hours	16
Second Year	
Fall	
ACCT 209 Survey of Accounting Principles ³	3
EHRD 203 Foundations of Human Resource Development ³	3
Language, philosophy and culture (p. 28)	3
Life and physical sciences (p. 27)	4
General elective ⁴	3
Semester Credit Hours	16
Spring	
COMM 203 Public Speaking	3
EHRD 210 Legal and Ethical Environment of Human Resource Development ³	3
ENGL 210 Technical and Professional Writing ³	3
ISTM 209 Business Information Systems Concepts ³	3
MGMT 209 Principles of Business Regulations and Law ³	3
Semester Credit Hours	15
Third Year	
Fall	
EHRD 315 Applied Human Resource Development in the Workplace ³	3
EHRD 372 Learning and Development in HRD ³	3
EHRD 391 Measurement and Evaluation in Human Resource Development and Technology Management ³	3
EHRD 481 Seminar ³	3
MGMT 309 Survey of Management ³	3
Semester Credit Hours	15
Spring	
EHRD 325 Human Capital Acquisition, Management, and Development ³	3
EHRD 371 Applied Learning Principles ³	3
EHRD 374 Organizational Development ³	3
FINC 409 Survey of Finance Principles ³	3
Select one of the following: ³	3
COMM 315 Interpersonal Communication	
COMM 320 Organizational Communication	
COMM 335 Intercultural Communication	
Semester Credit Hours	15
Fourth Year	
Fall	
EHRD 402 Instructional Technology and Design ³	3
EHRD 408 Globalization and Diversity in the Workplace ³	3
EHRD 413 Conflict Management and Dialogue ³	3
EHRD 490 Research in Human Resource Development/Technology Management ^{3,5,6}	3
MKTG 409 Principles of Marketing ³	3
Semester Credit Hours	15

Spring

EHRD 405	Principles and Practices of Leadership in Human Resource Development and Technology Management ³	3
EHRD 477	Project Management in Organizations ³	3
EHRD 484	Professional Internship ^{3,6}	6
Semester Credit Hours		12
Total Semester Credit Hours		120

¹ MATH 148, MATH 152, MATH 168, and MATH 172 will be accepted in lieu of MATH 140.

² MATH 147, MATH 151, and MATH 171 will be accepted in lieu of MATH 142.

³ Must make a grade of C or better.

⁴ To be chosen in consultation with academic advisor, if necessary.

⁵ Writing or Communication Intensive course requirement.

⁶ Professional Phase.

Students must have completed 60 hours to register for 300- or 400-level courses.

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. Selection must be from courses on the approved list. Selection can be courses that also satisfy the requirement for social and behavioral sciences, creative arts, language, philosophy and culture, or electives.

Foreign Language Requirement - 2 years of the same foreign language in high school or 1 full year (2 semesters) of the same foreign language in college.

Learning Technology and Performance Systems - BS

The Learning Technology and Performance Systems (LTPS) program focuses on the profound importance of connecting people, information and technology from a multidisciplinary perspective for the betterment of society.

The students of the Learning Technology and Performance Systems program can expect to obtain integrated knowledge of human development, management, and technology competencies within a dynamic and rapidly evolving environment through innovative learning.

The Bachelor of Science degree in Learning Technology and Performance Systems will inculcate students with the knowledge, skills, abilities, and attitudes to leverage technology opportunities in all organizations.

The BS LTPS program will provide students with in-depth knowledge, hands-on experience, and practical skills of managing information technology and developing IT personnel to achieve organizational goals. Through our program, graduates will:

- Gain in-depth knowledge that covers the full spectrum of information technology, including database, networking, systems administration, data analytics, and information security
- Obtain hands-on experience with a wide variety of technical tools commonly used in today's IT industry
- Understand the human decision making process and managerial implications when interacting with information technology

- Learn practical skills of managing the various technology, human, and business components in an organizational environment to achieve goals

Our strong internship program provides graduates with direct experience in the development and management of information technology in a real-world organizational environment. These internships are designed to match the backgrounds and career interests of students.

The program could lead to a wide variety of careers in IT/data analytic fields, such as:

- IT Support
- Business Analyst
- Data analyst
- User Experience Technologist
- Information Security Analyst

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition or Composition and Rhetoric	3
KINE 120	The Science of Basic Health and Fitness	1
MATH 140	Mathematics for Business and Social Sciences ¹	3
POLS 206	American National Government	3
American history (p. 30)		3
Creative arts (p. 30)		3
Semester Credit Hours		16

Spring

LTPS 130	Introduction to Learning Technology and Performance Systems ²	3
MATH 142	Business Calculus ³	3
American history (p. 30)		3
Life and physical sciences (p. 27)		4
Social and behavioral sciences (p. 31)		3
Semester Credit Hours		16

Second Year

Fall		
ACCT 209	Survey of Accounting Principles ²	3
COMM 203	Public Speaking	3
EHRD 210	Legal and Ethical Environment of Human Resource Development ²	3
LTPS 210	Introduction to Learning Management Systems ²	3
Language, philosophy and culture (p. 28)		3
Semester Credit Hours		15

Spring

ENGL 210	Technical and Professional Writing	3
LTPS 240	Introduction to Instructional Design Systems ²	3
MGMT 209	Principles of Business Regulations and Law ²	3

POLS 207	State and Local Government	3
Life and physical sciences (p. 27)		4
Semester Credit Hours		16

Third Year

Fall

EHRD 391	Measurement and Evaluation in Human Resource Development and Technology Management ²	3
EHRD 477	Project Management in Organizations ²	3
LTPS 311	Database Learning Management for Learning Technology and Performance Systems ²	3
LTPS 350	Program Management for Learning Technology and Performance Systems ²	3
MGMT 309	Survey of Management ²	3
Semester Credit Hours		15

Spring

Select one of the following: ²		3
COMM 315	Interpersonal Communication	
COMM 320	Organizational Communication	
COMM 335	Intercultural Communication	
EHRD 481	Seminar ²	3
FINC 409	Survey of Finance Principles ²	3
LTPS 312	Use of Information Systems and Networking in Learning Technology and Performance Systems ²	3
LTPS 360	Organizational Governance and Learning Development ²	3
Semester Credit Hours		15

Fourth Year

Fall

EHRD 402	Instructional Technology and Design ²	3
EHRD 405	Principles and Practices of Leadership in Human Resource Development and Technology Management ²	3
ISTM 209	Business Information Systems Concepts ²	3
MKTG 409	Principles of Marketing ²	3
PSAA 442	Cross#Sector Collaboration ²	3
Semester Credit Hours		15

Spring

LTPS 484	Internship ⁴	6
LTPS 440	Advanced HRIS and LMS Technology and Instructional Design Integration ²	3
General elective ⁵		3
Semester Credit Hours		12
Total Semester Credit Hours		120

¹ MATH 147, MATH 151, and MATH 171 will be accepted in lieu of MATH 140.

² Must make a grade of C or better.

³ MATH 148, MATH 152, MATH 168, and MATH 172 will be accepted in lieu of MATH 142.

⁴ Must be taken on a satisfactory/unsatisfactory basis.

⁵ Consult with an advisor, select from any 100-499 course not used elsewhere.

Students must have completed 60 hours to register for 300- to 400-level courses.

Three hours of International and Cultural Diversity (p. 49) and three hours of Cultural Discourse (p. 48) are required. Selection must be from courses on the approved list. Selection can be courses that also satisfy the requirement for social and behavioral sciences, creative arts, language, philosophy and culture, or electives.

Foreign Language Requirement - two years same foreign language in high school OR one full year (two semesters) of same foreign language in college.

Human Resource Development - Minor

Human Resource Development (HRD) is the process of improving learning and performance in individual, group and organization contexts through domains of expertise such as lifelong learning, career development, training and development, and organization development. A minor in HRD allows for a wider range of potential employment and accommodation to a diverse education professional experience.

Please refer to the website <https://eahr.tamu.edu/> for information, requirements, and application deadlines for adding the minor.

Program Requirements

Code	Title	Semester Credit Hours
EHRD 203	Foundations of Human Resource Development	3
EHRD 210	Legal and Ethical Environment of Human Resource Development	3
EHRD 372	Learning and Development in HRD	3
EHRD 374	Organizational Development	3
Select 6 credit hours from the following:		6
EHRD 315	Applied Human Resource Development in the Workplace	
EHRD 371	Applied Learning Principles ¹	
EHRD 405	Principles and Practices of Leadership in Human Resource Development and Technology Management	
EHRD 408	Globalization and Diversity in the Workplace	
EHRD 413	Conflict Management and Dialogue	
Total Semester Credit Hours		18

¹ Writing or Communication Intensive course.

Students must make a grade of C or better in each course taken towards the minor.

Students must have completed 60 hours to register for 300/400-level courses.

Minimum required GPA to declare minor is a 2.5.

Achieve overall GPA of 2.5 in approved minor coursework. Student must enroll after completing 12 hours at Texas A&M and a maximum of 75 hours total.

Learning Technology and Performance Systems - Minor

The Learning Technology and Performance Systems Minor is designed to provide the knowledge and skills to succeed in a variety of roles using technology applications. The minor allows for a wider range of potential employment and accommodation to a diverse education and professional experience.

Program Requirements

Code	Title	Semester Credit Hours
ITSV 272	Foundations of Information Technology Management	3
ITSV 274	Foundations of Networking	3
Select three from the following:		9
ITSV 303	Unix System Administration Practices	
ITSV 308	Cybersecurity and Digital Ethics	
ITSV 316	Database Systems Administration and Application	
ITSV 412	Contemporary Issues in Technology Management	
TCMG 476	Technical Network Capstone	
Total Semester Credit Hours		15

Minimum required GPA to declare minor is a 2.5.

Obtain a C or better in each courses taken towards minor

Achieve overall GPA of 2.5 in approved minor coursework.

Students must enroll after completing 12 hours at Texas A&M and a maximum of 75 hours total.

Department of Educational Psychology

The Department of Educational Psychology offers a Bachelor of Science (BS) degree in Education with teacher certification concentrations in Bilingual Education or Special Education. The department currently has two minors: 1) Creative Studies focuses on developing and growing one's creative thinking ability for personal and professional situations, and 2) Educational Supports for Individuals with Disabilities provides students with increased knowledge of supporting individuals with disabilities in school and community settings. Students interested in EPSY should contact the EPSY undergraduate advisor in Harrington Tower.

Requirements for Admission to Professional Phase

The undergraduate curricula in the Department of Educational Psychology are composed of two phases: the pre-professional phase

and the professional phase. Upon acceptance into the department, all students enter the pre-professional phase. The pre-professional phase consists of University Core Curriculum requirements and introductory courses to the major field of study. After successful completion of these requirements, students are eligible to apply for admission into the professional phase. Cohorts in bilingual and special education are limited in number and students are admitted on a competitive basis; meeting the minimum program prerequisites does not guarantee admission to the professional phase. The professional phase consists of advanced work in the major field of study and professional development courses with field-based experiences.

Requirements for Admission to the Professional Phase of Teacher Education Programs

The State of Texas establishes standards for teacher education programs. All certification programs at Texas A&M are in compliance with these requirements. Students must meet state, University, college and department/program requirements for matriculation into a teacher education program. Below are the requirements for the traditional certification program. Students are responsible for contacting a departmental advisor to obtain information about specific requirements for majors and program areas, as some programs have requirements beyond those listed below. University-wide requirements for admission to teacher education include the following:

- An approved degree plan or certification and teaching field plan(s).
- Minimum GPA of 2.75 for the special education program and 2.75 for the bilingual education program based on all coursework completed at Texas A&M University. (See departmental advisor for additional grade requirements.)
- Completion of all required University core courses.
- A grade of B or higher in all certification courses. (See departmental advisor for additional grade requirements).
- Satisfaction of English proficiency requirement by:
 - Earning a grade of B or higher in ENGL 103 or ENGL 104 (or receiving credit by exam for the course); or
 - Earning a grade of B or higher in ENGL 210, ENGL 235 or ENGL 241; and
 - Earning no grade below C in any course taken in (a) or (b) above.
- Pass the THEA, ACCUPLACER, ASSET or COMPASS test or show proof of exemption from the test with appropriate STAAR, SAT or ACT scores.
- Oral interview required for admission to upper level for Hispanic Bilingual Education.
- Documentation of foreign language and computer literacy requirements on file in the Texas A&M University Office of Admissions.
- Transcripts from all institutions of higher education on file in the Texas A&M University Office of Admissions.

Requirements for Admission to Student Teaching

- Successful admission to Professional Phase of Teacher Education.
- Complete Application for Clinical Teaching by the given deadlines for each semester.

- Completion of all courses listed on the degree plan. All coursework must have a grade of C or better. See departmental advisor for additional grade requirements.
- A minimum GPA of 3.0 in upper-level courses in Special Education. See departmental advisor for additional grade requirements.
- A minimum GPA of 2.75 on all coursework completed at Texas A&M. See departmental advisor for additional grade requirements.
- Satisfaction of Spanish proficiency requirements (Hispanic Bilingual Education ONLY).
 - Additionally, satisfactory performance on the written and oral Spanish proficiency component of the Hispanic Bilingual Education program admission process.

Faculty

Acosta, Sandra T, Associate Professor
Educational Psychology
PHD, Texas A&M University, 2010

Allen, Justin P, Assistant Professor
Educational Psychology
PHD, University of Kansas, 2016

Ashcraft, Sandra M, Assistant Lecturer
Educational Psychology
MS, Texas A&M University, 1999

Baek, Eunkyeng, Associate Professor
Educational Psychology
PHD, University of South Florida, 2015

Barroso Garcia, Connie, Assistant Professor
Educational Psychology
PHD, Florida State University, 2020

Byrns, Glenda E, Visiting Clinical Professor
Educational Psychology
PHD, Texas A&M University, 2007

Castillo, Linda, Professor
Educational Psychology
PHD, University of Utah, 1999

Castro Olivo, Sara M, Associate Professor
Educational Psychology
PHD, University of Oregon, 2007

Chang, Heesun, Assistant Professor
Educational Psychology
PHD, The University of Georgia, 2022

Chang, Wen-Hsuan, Assistant Professor
Educational Psychology
PHD, University of North Carolina at Charlotte, 2021

Erbeli, Florina, Associate Professor
Educational Psychology
PHD, University of Ljubljana, 2015

Ettekal, Andrea V, Associate Professor
Educational Psychology
PHD, Arizona State University, 2014

Ettekal, Idean, Associate Professor
Educational Psychology
PHD, Arizona State University, 2016

Fogarty, Melissa S, Clinical Professor
Educational Psychology
PHD, Texas A&M University, 2012

Gagne, Jeffrey R, Associate Professor
Educational Psychology
PHD, Boston University, 2008

Hajovsky, Daniel Bernard, Associate Professor
Educational Psychology
PHD, University of Kansas, 2015

Kahn, David Andrew, Clinical Assistant Professor
Educational Psychology
PHD, Texas A&M University, 2011

Kwok, Oi-Man, Professor
Educational Psychology
PHD, Arizona State University, 2005

Lara-Alecio, Rafael, Professor
Educational Psychology
PHD, University of Utah, 1991

Lawrence, Timothy I, Assistant Professor
Educational Psychology
PHD, Prairie View A&M University, 2022

Lee, Kelly, Clinical Associate Professor
Educational Psychology
PHD, University of Houston, 2016

Liew, Jeffrey C, Professor
Educational Psychology
PHD, Arizona State University, 2005

Luo, Wen, Professor
Educational Psychology
PHD, Texas A&M University, 2007

Malala, Dina, Clinical Assistant Professor
Educational Psychology
PHD, University of Denver, 2022

McCord, Carly E, Clinical Associate Professor
Educational Psychology
PHD, Texas A&M University, 2013

Montague, Marcia L, Clinical Associate Professor
Educational Psychology
PHD, Texas A&M University, 2009

Nagro, Sarah A., Associate Professor
Educational Psychology
EDD, Johns Hopkins University, 2015

Nguyen, Nguyen P, Assistant Professor
Educational Psychology
MA, Texas Tech University, 2020

Ojeda, Lizette, Associate Professor
Educational Psychology
PHD, University of Missouri at Columbia, 2009

Orozco, Elizabeth, Lecturer
Educational Psychology
MED, Texas A&M University, 2012

Padron, Yolanda, Professor
Educational Psychology
PHD, University of Houston, 1985

Pashmforoosh, Roya, Assistant Professor
Educational Psychology
PHD, Texas A&M University, 2021

Perrott, Lisa J, Associate Professor
Educational Psychology
PHD, University of Virginia, 2001

Ramos Garcimartin, Hector, Lecturer
Educational Psychology
PHD, Texas A&M University, 2015

Ramos, Suzanna J, Clinical Assistant Professor
Educational Psychology
PHD, Texas A&M University, 2015

Ridley, Charles R, Professor
Educational Psychology
PHD, University of Minnesota, 1978

Rivera, Hector H, Associate Professor
Educational Psychology
PHD, University of California at Santa Cruz, 2001

Sohn McCormick, Anita, Clinical Associate Professor
Educational Psychology
PHD, Texas A&M University, 2000

Sweany, Noelle Wall, Clinical Professor
Educational Psychology
PHD, The University of Texas at Austin, 1999

Thompson, Christopher G, Associate Professor
Educational Psychology
PHD, Florida State University, 2016

Thompson, Julie L, Associate Professor
Educational Psychology
PHD, University of North Carolina at Charlotte, 2014

Tiwari, Ananya, Assistant Professor
Educational Psychology
PHD, University of Illinois, 2023

Tong, Fuhui, Professor
Educational Psychology
PHD, Texas A&M University, 2006

Walichowski, Miranda F, Clinical Associate Professor
Educational Psychology
PHD, Texas A&M University, 2009

Wang, Zhe, Associate Professor
Educational Psychology
PHD, Virginia Tech, 2013

Watkins, Laci, Associate Professor
Educational Psychology
PHD, University of Texas at Austin, 2017

Whiteside, Erinn, Clinical Associate Professor
Educational Psychology
PHD, University of Georgia, 2019

Woltering, Steven, Associate Professor
Educational Psychology
PHD, University of Toronto, 2012

Woodward, Robert S, Clinical Professor
Educational Psychology
PHD, Texas A&M University, 2004

Yoon, Myeongsun, Associate Professor
Educational Psychology
PHD, Arizona State University, 2007

Zhang, Dan D, Professor
Educational Psychology
PHD, University of New Orleans, 1998

Majors

- Bachelor of Science in Education, Bilingual Education-EC-6 (p. 555)
- Bachelor of Science in Education, Special Education-EC-12 (p. 556)
- Bachelor of Science in Human Development and Family Sciences (p. 557)

Minors

- Creative Studies Minor (p. 558)
- Educational Supports for Individuals with Disabilities Minor (p. 559)

Certificates

- Interdisciplinary Studies Certificate (p. 559)

Education - BS, Bilingual Education EC-6

This program prepares teacher candidates to instruct students who are served in bilingual/ESL classes at the elementary level.

The Department of Educational Psychology (EPSY) offers an undergraduate degree program, Bachelor of Science in Education that includes certification in bilingual/ESL education and general elementary education, grades EC through 6. Classes also include a minor in Spanish. Students interested in certification should contact the EPSY undergraduate advisor in Harrington Tower or the Bilingual/ESL Undergraduate Program at undergraduate.besl@tamu.edu

Program Requirements

The following curriculum leads to the Bachelor of Science degree in Education with certification in Bilingual Education, EC-6. Students

are required to meet with their assigned academic advisor prior to registration each semester.

First Year

Fall		Semester Credit Hours
HIST 105 or HIST 106	History of the United States ¹ or History of the United States	3
TEFB 273	Introduction to Culture, Community, Society and Schools ¹	3
	Communication (p.) ¹	3
	Life and physical sciences (p. 27) ¹	4
	Mathematics (p. 27) ¹	3
Semester Credit Hours		16
Spring		
HIST 226	History of Texas ¹	3
SPAN 201	Intermediate Spanish I ¹	3
	Communication (p.) ¹	3
	Life and physical sciences (p. 27) ¹	4
	Mathematics (p. 27) ¹	3
Semester Credit Hours		16
Summer		
POLS 206	American National Government ¹	3
POLS 207	State and Local Government ¹	3
Semester Credit Hours		6

Second Year

Fall		
EDCI 353	Early Childhood through Adolescent Education ¹	3
EPSY 320 or EPSY 321	Child Development ¹ or Adolescent Development	3
INST 210	Understanding Special Populations ²	3
MATH 365	Structure of Mathematics I ^{1,3}	3
SPAN 202	Intermediate Spanish II ¹	3
	Life and physical sciences (p. 27) ¹	1
Semester Credit Hours		16
Spring		
EDCI 365	Using Technology Classrooms ¹	3
EPFB 210	Family Engagement and Empowerment ¹	3
MATH 366	Structure of Mathematics II ^{1,3}	3
	Language, philosophy and culture (p.) ¹	3
	Spanish elective ^{1,4}	3
Semester Credit Hours		15
Summer		
EPSY 435 or STAT 303	Educational Statistics ¹ or Statistical Methods	3
	Creative arts (p. 30) ¹	3
Semester Credit Hours		6

Third Year

Fall		
BEFB 472	Bilingual and Dual Language Methodologies ¹	3

BEFB 474	Biliteracy for Bilingual and Dual Language Classrooms ¹	3
BEFB 482	Seminar in Teachers as Effective Communicators ¹	1
RDNG 351	Foundational Skills of Decoding for Elementary Students ¹	3
RDNG 373	Foundational Skills of Language Comprehension for Elementary Students ¹	3
Spanish elective ^{1,4}		3
Semester Credit Hours		16
Spring		
BEFB 470	Bilingual Assessment and Monitoring ¹	3
BEFB 476	Content Area Instruction for Bilingual Programs ¹	3
RDNG 473	Assessment in Reading Instruction ¹	3
TEFB 371	Dynamics and Management in Multicultural/Inclusionary Learning Environments ¹	3
Semester Credit Hours		12
Fourth Year		
Fall		
RDNG 467	Reading and the Language Arts ¹	3
TEFB 410	Social Studies and the Humanities in the Elementary School ¹	3
TEFB 412	Mathematics in the Elementary School ¹	3
TEFB 413	Science in the Elementary School ¹	3
Semester Credit Hours		12
Spring		
BEFB 425	Student Teaching in Hispanic Bilingual Education ⁵	3
BEFB 426	Effective Instruction of Hispanic Students of Diverse Abilities ⁵	3
Semester Credit Hours		6
Total Semester Credit Hours		121

¹ Must make a grade of C or better.

² Must make a grade of B or better.

³ Must be taken at Texas A&M University.

⁴ Select from SPAN 302, SPAN 303, SPAN 311, SPAN 312, SPAN 320, SPAN 331, SPAN 332, SPAN 341, SPAN 342, SPAN 350, SPAN 410, SPAN 411, SPAN 413, SPAN 421, SPAN 445, SPAN 450.

⁵ Must be taken S/U.

A minimum of 2.75 GPA on all coursework that applies to the degree plan and a minimum of 2.5 GPA on all coursework completed at Texas A&M is required for this degree.

Education - BS, Special Education EC-12

The Special Education program focuses on preparing teachers to instruct students with disabilities in both general education and special education settings.

The Department of Educational Psychology (EPSY) offers an undergraduate degree program, Bachelor of Science in Education, that

prepares students to become special education teachers. Completion of this program leads to teaching certifications in special education (EC through grade 12) and general education (EC through grade 6) within the constraints of the Texas Education Agency (TEA). Students interested in becoming special education teachers should contact the EPSY undergraduate advisor in Harrington Tower.

Program Requirements

The following curriculum leads to a Bachelor of Science degree in Education with certification in Special Education K-12. Students are required to meet with their assigned academic advisor prior to registration each semester.

First Year

Fall		Semester Credit Hours
HIST 105 or HIST 106	History of the United States ¹ or History of the United States	3
POLS 206	American National Government ¹	3
Communication (p. 27) ¹		3
Life and physical sciences (p. 27) ¹		4
Mathematics (p. 27) ¹		3
Semester Credit Hours		16

Spring		
HIST 226	History of Texas ¹	3
INST 210	Understanding Special Populations ²	3
Life and physical sciences (p. 27) ¹		4
Mathematics (p. 27) ¹		3
Semester Credit Hours		13
Summer		
POLS 207	State and Local Government ¹	3
Communication (p. 27) ¹		3
Semester Credit Hours		6

Second Year

Fall		
EPFB 210	Family Engagement and Empowerment ¹	3
EPSY 320 or EPSY 321	Child Development ¹ or Adolescent Development	3
INST 301	Educational Psychology ¹	3
INST 362	English as a Second Language Methods I ¹	3
MATH 135	Mathematics for Teachers I ¹	3
Life and physical sciences (p. 27) ¹		1
Semester Credit Hours		16
Spring		
INST 363	English as a Second Language Methods II ¹	3
SPED 302	Planning and Teaching with Explicit Instruction ²	3
MATH 136	Mathematics for Teachers II ¹	3
TEFB 273	Introduction to Culture, Community, Society and Schools ¹	3
General Elective ⁴		3
Semester Credit Hours		15

Summer

Creative arts (p. 30) ¹	3
Semester Credit Hours	3

Third Year**Fall**

RDNG 468	Essential Foundations of Language and Literacy for All Learners ¹	3
SPED 314	Effective Mathematics Strategies for Students with Disabilities ¹	3
SEFB 315	Clinical Teaching I - Collaborative Practices in Education to Support Students with Disabilities ¹	3
SPED 316	Classroom Management and Behavioral Interventions - Tier 1 and 2 Supports ¹	3
HIST 300-499 (p. 1069) ¹		3

Semester Credit Hours **15**

Spring

EDCI 365	Using Technology Classrooms ¹	3
SEFB 325	Clinical Teaching II - Academic Data-Based Interventions ¹	4
SPED 321	Assessment of Students with Disabilities ¹	3
SPED 325	Professional Skills and Dispositions I ⁵	1
SPED 326	Classroom Management and Behavior Interventions: Tier 3 Supporting and Managing Intensive Behavior ¹	3

Semester Credit Hours **14**

Summer

Language, philosophy and culture (p. 28) ¹	3
Semester Credit Hours	3

Fourth Year**Fall**

SEFB 410	Clinical Teaching III - Specialized Instruction in High Support Needs ¹	4
SPED 410	Professional Skills and Dispositions II ⁵	1
SPED 411	Assessment in Action: Writing and Implementing Individualized Education Programs ¹	3
SPED 412	Adapting the General Curriculum ¹	3
SPED 418	Transition Planning and Preparation for Students with Disabilities ¹	3

Semester Credit Hours **14**

Spring

SEFB 425	Clinical Teaching IV ⁵	6
Semester Credit Hours		6

Total Semester Credit Hours **121**

¹ Must make a grade of C or better.

² Must make a grade of B or better.

³ Must be taken at Texas A&M University.

⁴ Depending upon your catalog, you may choose any 100 - 499 course except MATH 102 - 104. Only 1 credit KINE 199 may be used. Please consult with your academic advisor to confirm your choice.

⁵ Must be taken S/U.

A minimum of 2.75 GPA on all coursework that applies to the degree plan and a minimum of 2.5 GPA on all coursework completed at Texas A&M is required for this degree.

Human Development and Family Sciences - BS

The Bachelor of Science in Human Development and Family Sciences (HDFS) degree program will allow undergraduates to study how people develop physically, cognitively, emotionally, and socially across their life spans.

This program is geared towards individuals interested in careers that address the needs of youth ages 5-17 (grades K-12), adults, and the family unit. Upon graduation from the degree, students will be equipped to serve and optimize positive developmental outcomes and family well-being across civic, social, or educational sectors, including: family and community services, social or religious organizations, hospitals or non-profit organizations, private practice, or school systems.

Program Requirements

First Year**Fall**

		Semester Credit Hours
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition or Composition and Rhetoric	3
HIST 105	History of the United States	3
TEFB 273	Introduction to Culture, Community, Society and Schools ¹	3
Mathematics (p. 27)		3
Language, philosophy and culture (p. 28)		3
Semester Credit Hours		15

Spring

HIST 106 or HIST 226	History of the United States or History of Texas	3
INST 222	Foundations of Education in a Multicultural Society ¹	3
Communication (p. 27)		3
Mathematics (p. 27)		3
Life and physical sciences (p. 27)		4
Semester Credit Hours		16

Second Year**Fall**

INST 210	Understanding Special Populations ¹	3
POLS 206	American National Government	3
Creative arts (p. 30)		3
Life and physical sciences (p. 27)		4
Directed elective ^{1,2}		3
Semester Credit Hours		16

Spring

EPFB 210	Family Engagement and Empowerment ¹	3
KINE 282	Culture of Wellness ¹	3
POLS 207	State and Local Government	3
Select one of the following: ^{1,3}		3

EPSY 284	Internship	
EPSY 285	Directed Studies	
EPSY 291	Research	
EPSY 459	Practicum in Educating the Gifted and Talented	
EPSY 484	Field Experiences	
EPSY 485	Directed Studies	
EPSY 491	Research	
Life and physical sciences (p. 27)		1
Directed elective ^{1,2}		3

Semester Credit Hours 16

Third Year

Fall

ALEC 370	Principles of Positive Youth Development ¹	3
EPSY 320	Child Development ¹	3
INST 301	Educational Psychology ¹	3
NUTR 222 or KINE 223	Nutrition for Health and Health Care ¹ or Introduction to the Science of Health and Fitness	3
SPED 321	Assessment of Students with Disabilities ¹	3

Semester Credit Hours 15

Spring

EPSY 321	Adolescent Development ¹	3
EPSY 322	Adult Development and Aging ¹	3
EPSY 435	Educational Statistics ¹	3
PHLT 336	Health Disparities and Diversity in Society ¹	3
Select one of the following: ¹		3

ALEC 371	Skills and Techniques for Youth Development Professionals	
ALEC 372	Designing and Delivering Effective Youth Programs	
ALEC 375	Youth Development Programming in Sport and Physical Activities	
ALEC 377	Camp Management and Administration	

Semester Credit Hours 15

Fourth Year

Fall

ALEC 473	Diversity, Equity, and Inclusion in Youth Development Organizations ¹	3
EPSY 441	Family Development and Relationships ¹	3
EPSY 442	Parenting and Family Caregiving ¹	3
Select one of the following: ¹		3

ALEC 371	Skills and Techniques for Youth Development Professionals	
ALEC 372	Designing and Delivering Effective Youth Programs	
ALEC 375	Youth Development Programming in Sport and Physical Activities	
ALEC 377	Camp Management and Administration	
Directed elective ^{1,2}		3

Semester Credit Hours 15

Spring

EPSY 443	Techniques of Coaching and Counseling ¹	3
EPSY 444	Professional Ethics in Decision-Making ¹	3

Select one of the following: ¹ 3

ALEC 371	Skills and Techniques for Youth Development Professionals	
ALEC 372	Designing and Delivering Effective Youth Programs	
ALEC 375	Youth Development Programming in Sport and Physical Activities	
ALEC 377	Camp Management and Administration	

Select one of the following: ^{1,4} 3

EPSY 459	Practicum in Educating the Gifted and Talented	
EPSY 484	Field Experiences	
EPSY 485	Directed Studies	
EPSY 491	Research	

Semester Credit Hours 12

Total Semester Credit Hours 120

¹ Must make a grade of C or better.

² Select from HIST 458, KINE 214/HLTH 214, PBSI 107, PBSI 210/WGST 210, PHLT 302, PHLT 303, PHLT 304, POLS 304, SOCI 205, SPED 411, SPED 412, SPED 418.

³ Students must have completed a minimum of 45 credit hours prior to enrolling in this course.

⁴ Students must have completed a minimum of 90 credit hours prior to enrolling in this course.

A minimum of 2.25 GPA on all coursework completed at Texas A&M is required for this degree.

Creative Studies - Minor

The Department of Educational Psychology offers a minor in Creative Studies. This minor provides students with increased knowledge and innovative thinking that can be applied to one's professional and personal life. Students interested in declaring the Creative Studies minor may seek additional information from the EPSY Undergraduate Advisor in Harrington Tower.

Program Requirements

Code	Title	Semester Credit Hours
EPSY 430	Creativity Theories and Research	3
EPSY 433	Lateral Thinking	3
Select one of the following options:		9

Option 1

Select three of the following:

ENDS 101	Design Process	
EPSY 431	Personal Creativity and Giftedness	
EPSY 432	Creativity and Creative Problem Solving	
EPSY 485	Directed Studies	

Option 2

Select two of the following:

ENDS 101	Design Process	
EPSY 431	Personal Creativity and Giftedness	

EPSY 432	Creativity and Creative Problem Solving	
EPSY 485	Directed Studies	
Select one of the following:		
ARCH 115	Visual Communication Foundations I	
ARTS 111	Drawing I	
ARTS 115	Drawing for Visualization	
ENGL 347	Writers' Workshop: Prose	
ENGL 348	Writers' Workshop: Poetry	
EPSY 459	Practicum in Educating the Gifted and Talented	
HORT 203	Floral Design	
MKTG 345	Social Media Strategy	
MKTG 442	Innovation and Product Management	
Total Semester Credit Hours		15

Educational Supports for Individuals with Disabilities - Minor

This minor provides students with increased knowledge of supporting individuals with disabilities in school and community settings.

The Department of Educational Psychology offers a minor in Educational Supports for Individuals with Disabilities (ESID). This minor does not provide teacher certification. Students interested in declaring the ESID minor may seek additional information from the EPSY Undergraduate Advisor in Harrington Tower.

Program Requirements

Code	Title	Semester Credit Hours
EPFB 210	Family Engagement and Empowerment ¹	3
or SEFB 315	or Clinical Teaching I - Collaborative Practices in Education to Support Students with Disabilities	
INST 210	Understanding Special Populations ¹	3
Select three of the following: ¹		9
EPFB 210	Family Engagement and Empowerment	
SEFB 315	Clinical Teaching I - Collaborative Practices in Education to Support Students with Disabilities	
SPED 302	Planning and Teaching with Explicit Instruction	
SPED 303	Characteristics and Educational Considerations of Disabilities	
SPED 316	Classroom Management and Behavioral Interventions - Tier 1 and 2 Supports	
SPED 321	Assessment of Students with Disabilities	

SPED 326	Classroom Management and Behavior Interventions: Tier 3 Supporting and Managing Intensive Behavior	
SPED 411	Assessment in Action: Writing and Implementing Individualized Education Programs	
SPED 412	Adapting the General Curriculum	
SPED 418	Transition Planning and Preparation for Students with Disabilities	
Total Semester Credit Hours		15

¹ Must make a grade of C or better.

Interdisciplinary Studies - Certificate

The Interdisciplinary Studies Certificate through the Department of Educational Psychology is designed for the Aggie ACHIEVE Program.

Aggie ACHIEVE is a four-year postsecondary program for young adults with intellectual and developmental disabilities (IDD) at Texas A&M University. Aggie ACHIEVE aims to provide an inclusive and immersive college education and equip students for employment in the community. The program aligns coursework, internship opportunities, and extracurricular activities with each student's academic interests and employment goals. Please reference the program requirements tab for information on course of study requirements for the Interdisciplinary Studies certificate. For additional information about the program, please reference the Aggie ACHIEVE website (<https://aggieachieve.tamu.edu/>).

Program Requirements

Code	Title	Semester Credit Hours
EPSY 284	Internship	7
INST 181	Seminar ¹	0
INST 210	Understanding Special Populations	0
or INST 301	or Educational Psychology	
KINE 199	Required Physical Activity	6
UGST 181	First Year Seminar	0
or FYEX 101	or First Year Experience	
Electives ²		0
Total Semester Credit Hours		13

¹ Eight zero-credit courses are required. See advisor for complete list of options.

² Five zero-credit courses are required. See advisor for complete list of options.

Department of Kinesiology and Sport Management

The department offers Bachelor of Science degrees in Kinesiology and Sport Management. Kinesiology majors can choose from a variety of tracks to best suit their professional preparation. Sport Management majors apply for a Culminating Experience and can choose between an internship, research, international experience, or capstone to support their

professional goals. All students majoring in the department are assigned an advisor in accordance with their career choice.

The curricula offer opportunities to obtain professional preparation for careers such as sport managers, clinical and applied exercise physiologists, exercise scientists, recreational leaders, sports marketing professionals, coaches, and athletic administrators. The department also provides academic preparation for students interested in athletic training and medical related professional schools, (e.g., physical therapy, occupational therapy, physicians' assistant, or medicine). Students in Kinesiology and Sport Management are provided opportunities for practical experiences as well as undergraduate research and directed studies under the guidance of experienced faculty members.

In addition to undergraduate degrees, the department offers a broad array of activity-based electives as well as core curriculum courses in Life and Physical Science; Social and Behavioral Science; Creative Arts; Language, Philosophy and Culture; and International and Cultural Diversity. The Kinesiology and Sport Management graduate program includes Master of Science and Doctor of Philosophy degrees.

Departmental Advising

Because of the wide variety of careers in Kinesiology and Sport Management and the difference in course requirements for each, it is essential for students to take advantage of the opportunity to work with their academic advisor during their time at Texas A&M. Students are assigned to an academic advisor in accordance with their degree choice and are encouraged to consult with their advisor on course sequencing and timing for completion of degree plan requirements. It is recommended for students to declare career intentions early so appropriate coursework may be planned. The advisors in the Undergraduate Advising Office (<https://education.tamu.edu/undergraduate-advising/>) handle all undergraduate advising matters. Information concerning entrance to professional schools in health-related fields is available from the Office of Professional School Advising.

Students are encouraged to become engaged in professional organizations and extracurricular activities that afford opportunities for involvement in their respective professions.

Faculty

Arrants, Courtlandt, Instructional Assistant Professor
Kinesiology & Sport Management
MS, Texas A&M University, 2023

Ballouli, Khalid W, Adjunct Assistant Professor
Kinesiology & Sport Management
PHD, Texas A&M University, 2011

Batista, Paul J, Associate Professor
Kinesiology & Sport Management
JD, Baylor University, 1976

Benavides Espinoza, Claudia, Clinical Associate Professor
Kinesiology & Sport Management
PHD, Texas A&M University, 2009

Bennett, Gregg R, Professor
Kinesiology & Sport Management
PHD, Auburn University, 1997

Boucher, Tony M, Clinical Associate Professor
Kinesiology & Sport Management
PHD, Texas Women's University, 2008

Breithaupt, Charles, Visiting Professor
Kinesiology & Sport Management
EDD, The University of Texas at Austin, 1996

Brekken, Kirstin L, Instructional Professor
Kinesiology & Sport Management
MS, Texas A&M University, 1982

Buchanan, John J, Professor
Kinesiology & Sport Management
PHD, Florida Atlantic University, 1996

Campbell, August J, Instructional Professor
Kinesiology & Sport Management
MED, Texas State University, 2005

Carson, James, Professor
Kinesiology & Sport Management
PHD, The Ohio State University, 1993

Chatziefstathiou, Dikaia, Instructional Assistant Professor
Kinesiology & Sport Management
PHD, Loughborough University, 2005

Colvin, Lisa Cooper, Clinical Associate Professor
Kinesiology & Sport Management
PHD, University of Southern Mississippi, 2003

Deutz, Nicolaas, Professor
Kinesiology & Sport Management
MD, University of Amsterdam, 1988

Dixon, Marlene A, Professor
Kinesiology & Sport Management
PHD, Ohio State University, 2002

Dixon, Stuart M, Instructional Associate Professor
Kinesiology & Sport Management
MED, Concordia University Texas, 2009

Droleskey, Suzanne, Visiting Lecturer
Kinesiology & Sport Management
PHD, Texas A&M University, 2000

Ellis, Robert B, Instructional Assistant Professor
Kinesiology & Sport Management
BA, Oklahoma State University, 1964

Elza, Susan, Visiting Lecturer
Kinesiology & Sport Management
EDD, Lamar University, 2014

Engelen, Marielle P, Professor
Kinesiology & Sport Management
PHD, Maastricht University, Netherlands, 2000

Fluckey, James D, Professor
Kinesiology & Sport Management
PHD, The Pennsylvania State University, 1995

Fulk, Craig, Visiting Assistant Professor
Kinesiology & Sport Management
MS, The University of North Texas, 2020

Gegg, Gretchen, Instructional Associate Professor
Kinesiology & Sport Management
MED, Texas A&M University, 2009

Geyer, Becky B., Professor of the Practice
Kinesiology & Sport Management
MS, Illinois State University, 1988

Gomez, Daniel, Instructional Professor
Kinesiology & Sport Management
MED, Texas A&M University, 2010

Gomez, Lorinda B, Instructional Professor
Kinesiology & Sport Management
MS, Texas A&M University, 2006

Greenwood, Lori, Clinical Professor
Kinesiology & Sport Management
PHD, Oregon State University, 1995

Guinn, James R, Clinical Assistant Professor
Kinesiology & Sport Management
EDD, Abilene Christian University, 2017

Hanik, Kathleen, Instructional Assistant Professor
Kinesiology & Sport Management
MFA, Florida State University, 2008

Hanik, Michael G, Instructional Associate Professor
Kinesiology & Sport Management
MS, Northwestern State University of Louisiana, 1996

Heidtke, Jonathan, Professor of the Practice
Kinesiology & Sport Management
BS, Texas A&M University, 1981

Henthorne, Mary B, Instructional Associate Professor
Kinesiology & Sport Management
MS, Texas A&M University, 2008

Hodge, Courtney, Visiting Lecturer
Kinesiology & Sport Management
PHD, Texas A&M University, 2015

Hudson, Shane L, Clinical Professor
Kinesiology & Sport Management
PHD, Texas A&M University, 2007

Janini Gomes, Mariana, Assistant Professor
Kinesiology & Sport Management
PHD, Sao Paulo State University-Medical School, 2019

Jensen, Jonathan A., Associate Professor
Kinesiology & Sport Management
PHD, The Ohio State University, 2015

Johnson, Donald, Lecturer
Kinesiology & Sport Management
BS, Texas A&M University, 1955

Jones, Kayla D, Instructional Assistant Professor
Kinesiology & Sport Management
MS, Texas A&M University, 2011

Keiper, Paul, Clinical Associate Professor
Kinesiology & Sport Management
PHD, Texas A&M University, 2002

Kennedy, Deanna M, Associate Professor
Kinesiology & Sport Management
PHD, Texas A&M University, 2015

Kim, Min Jung, Assistant Professor
Kinesiology & Sport Management
PHD, Florida State University, 2015

Kreider, Richard, Professor
Kinesiology & Sport Management
PHD, University of Southern Mississippi, 1987

Kuppersmith, Nicole, Instructional Assistant Professor
Kinesiology & Sport Management
MA, Houston Baptist University, 1996

LaSota, Mark, Clinical Assistant Professor
Kinesiology & Sport Management
PHD, The University of New Mexico, 2020

Lawler, John, Professor
Kinesiology & Sport Management
PHD, University of Florida, 1991

Lee, Hannah Malcomb, Instructional Assistant Professor
Kinesiology & Sport Management
MS, Texas A&M University, 2016

Lee, Hyun-Woo, Associate Professor
Kinesiology & Sport Management
PHD, Florida State University, 2014

Lei, Yuming, Associate Professor
Kinesiology & Sport Management
PHD, University of Wisconsin at Milwaukee, 2015

Lintz, Leah E, Instructional Assistant Professor
Kinesiology & Sport Management
MS, Texas A&M University, 2003

Liu, Jiling, Clinical Associate Professor
Kinesiology & Sport Management
PHD, Texas A&M University, 2016

Locklear, Alyssa D, Instructional Professor
Kinesiology & Sport Management
MPH, Texas A&M University, 2003

Lu, Mark Zhi, Associate Professor
Kinesiology & Sport Management
PHD, The Pennsylvania State University, 2016
PHD, East China Normal University, 2000

Mann, Bryan, Clinical Associate Professor
Kinesiology & Sport Management
PHD, University of Missouri, 2003

Marek, Kristen Willingham, Instructional Associate Professor
Kinesiology & Sport Management
MS, Texas A&M University, 2014

Marques, Tiago, Instructional Assistant Professor
Kinesiology & Sport Management
MA1, Faculty of Sports of University of Porto, 2016

Martin, Steven E, Clinical Associate Professor
Kinesiology & Sport Management
PHD, Texas A&M University, 2008

Morton, Aaron, Assistant Professor
Kinesiology & Sport Management
PHD, University of Florida, 2018

Mulkerrins, Martin, Instructional Assistant Professor
Kinesiology & Sport Management
MAR, University College Dublin, 2018

Neal, Adrienne, Visiting Lecturer
Kinesiology & Sport Management
MA, Sam Houston State University, 2009

Neff, Patrick, Visiting Assistant Professor
Kinesiology & Sport Management
PHD, Texas A&M University, 2024

Netherland, Beth M, Instructional Associate Professor
Kinesiology & Sport Management
MS, Miami University, 2000

Penry, Jason, Professor of the Practice
Kinesiology & Sport Management
PHD, Texas A&M University, 2008

Riechman, Steven E, Professor
Kinesiology & Sport Management
PHD, University of Pittsburgh, 2000

Salaga, Steven H, Clinical Assistant Professor
Kinesiology & Sport Management
PHD, University of Michigan, 2012

Schakel, David J, Instructional Assistant Professor
Kinesiology & Sport Management
MA, Ball State University, 1978

Schriever, John, Visiting Professor of the Practice
Kinesiology & Sport Management
BBA, Stephen F Austin State University, 1983

Singer, John N, Associate Professor
Kinesiology & Sport Management
PHD, Ohio State University, 2002

Slagel, Kristin N, Instructional Associate Professor
Kinesiology & Sport Management
MS, Texas A&M University, 2002

Slavov, Arden Anderson, Visiting Lecturer
Kinesiology & Sport Management
PHD, Texas A&M University, 2019

Soltis, Alison, Instructional Assistant Professor
Kinesiology & Sport Management
MS, Texas A&M University, 2023

Springer, Daniel L, Visiting Lecturer
Kinesiology & Sport Management
PHD, Texas A&M University, 2021

St. Louis, Pat, Clinical Assistant Professor
Kinesiology & Sport Management
EDD, Concordia University Portland, 2020

Sullins, Alex DALE, Clinical Assistant Professor
Kinesiology & Sport Management
PHD, Texas A&M University, 2021

Szura, Jordan, Instructional Assistant Professor
Kinesiology & Sport Management
MS, Texas A&M University, 2019

Templin, Mai Phuong L, Instructional Assistant Professor
Kinesiology & Sport Management
MAR, University of Houston, 1992

Thomas, Francis E, Instructional Professor
Kinesiology & Sport Management
MS, Texas A&M University, 1980

Thomas, Laura E, Visiting Lecturer
Kinesiology & Sport Management
MS, Texas A&M University, 2013

Thornton, Hailey N, Instructional Assistant Professor
Kinesiology & Sport Management
MS, Texas A&M University, 2024

Thornton, Michael A, Clinical Assistant Professor
Kinesiology & Sport Management
PHD, Texas A&M University, 2007

Waltemyer, David S, Clinical Associate Professor
Kinesiology & Sport Management
PHD, Texas A&M University, 2006

Wenzel, Theresa M, Instructional Professor
Kinesiology & Sport Management
MED, Baylor University, 1992

White-Springer, Sarah H, Associate Professor
Kinesiology & Sport Management
PHD, University of Florida, 2014

Wimer, Forest, Instructional Assistant Professor
Kinesiology & Sport Management
MA1, Texas A&M University, 2022

Wolfe, Joda, Instructional Assistant Professor
Kinesiology & Sport Management
MS, Ohio University, 2012

Woodard, Denise D, Instructional Associate Professor
Kinesiology & Sport Management
MS, University of Central Missouri, 2000

Woodman, Christopher R, Associate Professor
Kinesiology & Sport Management
PHD, University of Arizona, 1995

Woosley, James R, Instructional Professor
Kinesiology & Sport Management
MS, Western Illinois University, 1975

Wright, David L, Professor
Kinesiology & Sport Management
PHD, Pennsylvania State University, 1989

Wright, Scott, Instructional Assistant Professor
Kinesiology & Sport Management
MA, The University of Texas - Pan American, 1997

Xiang, Ping, Professor
Kinesiology & Sport Management
PHD, Louisiana State University, 1996

Yentes, Jenna, Associate Professor
Kinesiology & Sport Management
PHD, University of Nebraska Medical Center, 2013

Zimmer, Wendi N, Clinical Assistant Professor
Kinesiology & Sport Management
PHD, Texas A&M University, 2019

Majors

- Bachelor of Science in Kinesiology, Exercise and Sport Science Track (p. 563)
- Bachelor of Science in Kinesiology, Exercise Science Track, Applied Exercise Physiology Concentration (p. 564)
- Bachelor of Science in Kinesiology, Exercise Science Track, Basic Exercise Physiology Concentration (p. 566)
- Bachelor of Science in Kinesiology, Exercise Science Track, Motor Behavior Concentration (p. 567)
- Bachelor of Science in Kinesiology and Master of Science in Athletic Training 5-Year Program (p. 568)
- Bachelor of Science in Sport Management (p. 570)

Minors

- Coaching Minor (p. 571)
- Sport Management Minor (p. 571)

Kinesiology - BS, Exercise and Sport Science Track

The Exercise and Sport Science track option is offered to students wishing to pursue careers in exercise development and coaching/sport training.

The Bachelor of Science degree in Kinesiology offers several tracks designed to prepare students for a variety of careers. The track options available develop a strong science background making students excellent candidates for employment opportunities in human movement/exercise related areas (corporate or private fitness) or advanced graduate studies (motor neuroscience, kinesiology, exercise physiology). Additional program and track information is available on the Department of

Kinesiology and Sport Management website or may be obtained by contacting the advising office in the department.

This program offers a solid foundation in scientific principles related to the biology of sport, and practical knowledge in various areas of coaching (pedagogy) and exercise training, preparing students to be future coaches and trainers. Students planning to pursue a graduate degree in Exercise or Sport Science may enroll in independent study leading to an undergraduate research project.

Program Requirements

This degree plan has been laid out showing students the number of hours they must take each semester in order to complete the degree in four years without attending summer school. This is a suggested plan and does not have to be followed as laid out below. Students should use this information in conjunction with advising documents available from their advisor or the department website when scheduling courses each semester to ensure they are meeting all prerequisites, taking courses for admission to professional phase in a timely manner and meeting all grade requirements.

First Year

Fall		Semester Credit Hours
BIOL 107	Zoology ¹	4
Select one of the following: ¹		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 103	Introduction to Rhetoric and Composition	
ENGL 104	Composition and Rhetoric	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
MATH 140	Mathematics for Business and Social Sciences ^{1,2,3}	3
Language, philosophy and culture (p. 28) ^{2,4}		3
General elective ⁵		3
Semester Credit Hours		16

Spring

PBSI 107	Introduction to Psychology	3
PHYS 201	College Physics ¹	4
POLS 206	American National Government	3
MATH 142	Business Calculus ^{1,2,6}	3
American history (p. 30) ^{2,4}		3
Semester Credit Hours		16

Second Year

Fall

NUTR 202	Fundamentals of Human Nutrition ¹	3
POLS 207	State and Local Government	3
Select one of the following: ¹		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	

ENGL 103	Introduction to Rhetoric and Composition	
ENGL 104	Composition and Rhetoric	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
Creative arts (p. 30) ^{2,4}		3
Directed elective ⁷		3

Semester Credit Hours 15

Spring

KINE 199	Required Physical Activity ^{1,8,9}	1
KINE 213	Foundations of Kinesiology ¹	3
KINE 215	Fundamentals of Coaching ¹	3
American history (p. 30) ^{2,4}		3
General elective ⁵		3
General elective ⁵		3

Semester Credit Hours 16

Third Year

Fall

BIOL 319	Integrated Human Anatomy and Physiology I ¹	4
KINE 121	Physical and Motor Fitness Assessment ^{1,10}	2
KINE 305	Sport Nutrition ¹	3
KINE 307	Lifespan Motor Development ¹	3
Coaching minor elective ^{1,5,10,11}		2

Semester Credit Hours 14

Spring

BIOL 320	Integrated Human Anatomy and Physiology II ¹	4
KINE 318	Care of the Athlete ¹	3
PBSI 225 or PBSI 307	Lifespan Development or Developmental Psychology	3
General elective ⁵		3

Semester Credit Hours 13

Fourth Year

Fall

KINE 340	Essentials of Strength and Conditioning ^{1,12}	3
KINE 404	Coaching Psychology ¹	3
KINE 433	Physiology of Exercise ¹	3
KINE 435	Physiology of Exercise Lab ^{1,13}	1
Coaching minor elective ^{1,5,10,11}		2
Directed elective ⁷		3

Semester Credit Hours 15

Spring

KINE 406	Motor Learning and Skill Performance ¹	3
KINE 407	Motor Control and Learning Lab ^{1,13}	1
KINE 426	Exercise Biomechanics ¹	3
KINE 427	Therapeutic Principles ¹	3
KINE 428	Exercise Biomechanics Laboratory ¹	1
KINE 324	Career Development in Coaching and Youth Development ¹	3

Life and physical sciences (p. 27) ¹	1

Semester Credit Hours 15

Total Semester Credit Hours 120

¹ Must make a grade of C or better.

² Must meet Core Curriculum (p. 26) requirements.

³ MATH 148, MATH 152, MATH 168, or MATH 172 will be accepted in lieu of MATH 140.

⁴ Course selection should meet the International and Cultural Diversity (p. 49) (ICD) or the Cultural Discourse (p. 48) (CD) graduation requirement, if needed.

⁵ Courses must be chosen in consultation with your advisor.

⁶ MATH 147, MATH 151, or MATH 171 will be accepted in lieu of MATH 142.

⁷ Must be chosen from the following courses and in consultation with your advisor BIOL 112, BIOL 206; CHEM 119, CHEM 120; HLTH 354/PHLT 354; KINE 216/HLTH 216, KINE 325, KINE 485, KINE 491; NUTR 222, NUTR 300-499 (p. 1175); PHIL 111, PHIL 251; PHYS 202; PBSI 300-499 (p. 1184); STAT 201, or STAT 301, or STAT 302, or STAT 303; SOCI 205; SPMT 304.

⁸ Must take KINE 199 Majors Resist Flex. Participation in band or athletics cannot be used for KINE 199 credit. KINE 199 activities cannot be repeated for credit and must be taken for a grade. Must have HKAE attribute.

⁹ Must be taken at Texas A&M University.

¹⁰ Meets Coaching Minor requirement.

¹¹ Select from the following courses KINE 312, KINE 314, KINE 317, KINE 321, KINE 334, KINE 335, KINE 345, KINE 351, KINE 353, and KINE 355.

¹² Recommend KINE 199 Majors Aerobic Movement, KINE 199 Majors Resist Flex prior to registering.

¹³ Meets Core Curriculum (p. 26) writing requirement.

Kinesiology - BS, Exercise Science Track, Applied Exercise Physiology Concentration

The Applied Exercise Physiology track prepares students to become clinical exercise physiologists working in cardiopulmonary rehabilitation programs.

The Bachelor of Science degree in Kinesiology offers several tracks designed to prepare students for a variety of careers. The track options available develop a strong science background making students excellent candidates for employment opportunities in human movement/exercise related areas (cardiac rehabilitation, corporate or private fitness), advanced graduate studies (motor neuroscience, kinesiology, exercise physiology), or professional school (physical or occupational therapy or medical and dental school). Course prerequisites are included in the various programs under all tracks to support students wishing to pursue professional school study or graduate school study. Additional program and track information is available on the Department of Kinesiology and Sport Management website or may be obtained by contacting the advising office in the department.

This program contains a strong science background making students excellent candidates for professional schools such as Physical Therapy School. Students can also prepare for immediate employment in clinical fields to include areas like cardiac and pulmonary rehabilitation, pharmaceutical sales and medical equipment sales and service. In

addition, students also train for jobs as personal trainers or corporate/private fitness specialists. This track also enables students to continue their education in fields such as Clinical Exercise Physiology, Sport Physiology and Nutrition.

Program Requirements

This degree plan has been laid out showing students the number of hours they must take each semester in order to complete the degree in four years without attending summer school. This is a suggested plan and does not have to be followed as laid out below. Students should use this information in conjunction with advising documents available from their advisor or the department website when scheduling courses each semester to ensure they are meeting all prerequisites, taking courses for admission to professional phase in a timely manner and meeting all grade requirements.

First Year

Fall		Semester Credit Hours
BIOL 111	Introductory Biology I ¹	4
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	3
KINE 121	Physical and Motor Fitness Assessment ^{1,2}	2
MATH 140	Mathematics for Business and Social Sciences ^{1,3}	3
Language, philosophy and culture (p. 28) ^{4,5}		3
Semester Credit Hours		15
Spring		
BIOL 112	Introductory Biology II ¹	4
CHEM 119	Fundamentals of Chemistry I ¹	4
KINE 213	Foundations of Kinesiology ¹	3
American history elective (p. 30) ^{4,5}		3
Professional development elective ^{1,4,6}		3
Semester Credit Hours		17

Second Year

Fall		
CHEM 120	Fundamentals of Chemistry II ¹	4
MATH 142	Business Calculus ^{1,7}	3
PBSI 107	Introduction to Psychology	3
American history (p. 30) ^{4,5}		3
Creative arts (p. 30) ^{4,5}		3
Semester Credit Hours		16
Spring		
BIOL 319	Integrated Human Anatomy and Physiology ^{1,2}	4
KINE 199	Required Physical Activity ^{1,2,8}	1
KINE 305	Sport Nutrition ¹	3
PHYS 201	College Physics ¹	4
POLS 207	State and Local Government	3
Semester Credit Hours		15

Third Year

Fall		
BIOL 320	Integrated Human Anatomy and Physiology II ^{1,2}	4

KINE 318	Care of the Athlete ¹	3
PHYS 202	College Physics ¹	4
POLS 206	American National Government	3
Select one of the following: ¹		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 210	Technical and Professional Writing	
Semester Credit Hours		17

Spring

KINE 199	Required Physical Activity ²	1
KINE 307	Lifespan Motor Development ¹	3
KINE 340	Essentials of Strength and Conditioning ¹	3
KINE 433	Physiology of Exercise ¹	3
KINE 435	Physiology of Exercise Lab ^{1,9}	1
KINE 439	Exercise Evaluation and Prescription ^{1,9}	4
Semester Credit Hours		15

Fourth Year

Fall		
KINE 404	Coaching Psychology ¹	3
KINE 406	Motor Learning and Skill Performance ¹	3
KINE 426	Exercise Biomechanics ¹	3
KINE 427	Therapeutic Principles ¹	3
KINE 428	Exercise Biomechanics Laboratory ¹	1
KINE 483	Practicum in Kinesiology ¹	3
Semester Credit Hours		16
Spring		
KINE 484	Internship in Kinesiology ¹	9
Semester Credit Hours		9
Total Semester Credit Hours		120

¹ Must make a grade of C or better.

² Must be taken at Texas A&M University.

³ MATH 148, MATH 152, MATH 168, or MATH 172 will be accepted in lieu of MATH 140.

⁴ Course selection should meet the International and Cultural Diversity (p. 49) (ICD) and/or Cultural Discourse (p. 48) (CD) graduation requirement, if needed.

⁵ Must meet Core Curriculum (p. 26) requirements.

⁶ To be chosen in consultation with your academic advisor from HLTH 354/PHLT 354; NUTR 202 or PBSI 225.

⁷ MATH 147, MATH 151, or MATH 171 will be accepted in lieu of MATH 142.

⁸ Must take Majors Majors Res/Flex. Participation in band or athletics cannot be used for KINE 199 credit. KINE 199 activity cannot be repeated for credit and must be taken for a grade.

⁹ Meets Core Curriculum (p. 26) writing requirement.

Kinesiology - BS, Exercise Science Track, Basic Exercise Physiology Concentration

The Basic Exercise Physiology track provides a background in the physical and biological sciences required for additional graduate study in Exercise Physiology or entry into medical or dental professional school.

The Bachelor of Science degree in Kinesiology offers several tracks designed to prepare students for a variety of careers. The track options available develop a strong science background making students excellent candidates for employment opportunities in human movement/exercise related areas (cardiac rehabilitation, corporate or private fitness), advanced graduate studies (motor neuroscience, kinesiology, exercise physiology), or professional school (physical or occupational therapy or medical and dental school). Course prerequisites are included in the various programs under all tracks to support students wishing to pursue professional school study or graduate school study. Additional program and track information is available on the Department of Kinesiology and Sport Management website or may be obtained by contacting the advising office in the department.

Students pursuing medical or dental school use professional directed elective hours to meet professional school entrance requirements.

Students planning to pursue a graduate degree in Exercise Physiology may enroll in independent study leading to an undergraduate research project.

Program Requirements

This degree plan has been laid out showing students the number of hours they must take each semester in order to complete the degree in four years without attending summer school. This is a suggested plan and does not have to be followed as laid out below. Students should use this information in conjunction with advising documents available from their advisor or the department website when scheduling courses each semester to ensure they are meeting all prerequisites, taking courses for admission to professional phase in a timely manner and meeting all grade requirements.

First Year

Fall		Semester Credit Hours
BIOL 111	Introductory Biology I ¹	4
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ^{1,2} or Composition and Rhetoric	3
KINE 213	Foundations of Kinesiology ¹	3
PBSI 107	Introduction to Psychology	3
MATH 140	Mathematics for Business and Social Sciences ^{1,2,3}	3
Semester Credit Hours		16
Spring		
BIOL 112	Introductory Biology II ¹	4
CHEM 119	Fundamentals of Chemistry I ¹	4
KINE 121	Physical and Motor Fitness Assessment ^{1,4}	2
MATH 142	Business Calculus ^{1,2,5}	3

Professional development elective ^{1,6,7}		3
Semester Credit Hours		16
Second Year		
Fall		
BIOL 319	Integrated Human Anatomy and Physiology I ^{1,4}	4
CHEM 120	Fundamentals of Chemistry II ¹	4
Select one of the following: ^{1,2}		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 210	Technical and Professional Writing	
American history (p. 30) ^{2,6}		3
Semester Credit Hours		14
Spring		
BIOL 320	Integrated Human Anatomy and Physiology II ^{1,4}	4
CHEM 257	Organic Chemistry I - Structure and Function ¹	4
American history (p. 30) ^{2,6}		3
Professional development elective ^{1,6,7}		3
Semester Credit Hours		14
Third Year		
Fall		
BIOL 351	Fundamentals of Microbiology ¹	4
CHEM 258	Organic Chemistry II - Reactivity and Applications ¹	4
KINE 318	Care of the Athlete ¹	3
POLS 206	American National Government	3
Language, philosophy and culture (p. 28) ^{2,6}		3
Semester Credit Hours		17
Spring		
BICH 410	Comprehensive Biochemistry I ¹	3
KINE 199	Required Physical Activity ^{4,8}	1
KINE 307	Lifespan Motor Development ¹	3
PHYS 201	College Physics ¹	4
STAT 302 or STAT 303	Statistical Methods ¹ or Statistical Methods	3
Semester Credit Hours		14
Fourth Year		
Fall		
GENE 301	Comprehensive Genetics ¹	3
GENE 312	Comprehensive Genetics Laboratory ¹	1
KINE 433	Physiology of Exercise ¹	3
KINE 435	Physiology of Exercise Lab ^{1,9}	1
PHYS 202	College Physics ¹	4
POLS 207	State and Local Government	3
Semester Credit Hours		15
Spring		
KINE 406	Motor Learning and Skill Performance ¹	3
KINE 407	Motor Control and Learning Lab ^{1,9}	1
KINE 426	Exercise Biomechanics ¹	3
KINE 427	Therapeutic Principles ¹	3

KINE 428	Exercise Biomechanics Laboratory ¹	1
Creative arts (p. 30) ^{2,7}		3
Semester Credit Hours		14
Total Semester Credit Hours		120

¹ Must make a grade of C or better.

² Course must meet Core Curriculum (p. 26) requirements.

³ MATH 148, MATH 152, MATH 168, or MATH 172 will be accepted in lieu of MATH 140.

⁴ Must be taken at Texas A&M University.

⁵ MATH 147, MATH 151, or MATH 171 will be accepted in lieu of MATH 142.

⁶ Course selection should meet the International and Cultural Diversity (p. 49) and/or Cultural Discourse (p. 48) graduation requirement, if needed.

⁷ To be chosen in consultation with your academic advisor. Select from BICH 411, BICH 412; BIOL 206, BIOL 213, BIOL 405, BIOL 434/NRSC 434, BIOL 454; COMM 370; GENE 310, GENE 320/BIMS 320; HLTH 240, HLTH 354/PHLT 354; KINE 216/HLTH 216, KINE 285, KINE 305, KINE 340, KINE 485, KINE 491; NUTR 202, NUTR 300-499 (p. 1175); PHIL 111, PHIL 251, PHIL 480; PBSI 300-499 (p. 1184); PBSI 225 or PBSI 307; SOCI 205; SPMT 304; VTPB 409, VTPP 425; ISTM 209 or ISTM 210.

⁸ Activities should be chosen in consultation with advisor. Participation in band or athletics cannot be used for KINE 199 credit. KINE 199 activities cannot be repeated for credit.

⁹ Meets Core Curriculum (p. 26) writing requirement.

Kinesiology - BS, Exercise Science Track, Motor Behavior Concentration

The Motor Behavior track provides students a broad science background with special emphasis on aligning the cognitive/perceptual processes underlying human movement with the neural areas associated with those processes.

The Bachelor of Science degree in Kinesiology offers several tracks designed to prepare students for a variety of careers. The track options available develop a strong science background making students excellent candidates for employment opportunities in human movement/exercise related areas (cardiac rehabilitation, corporate or private fitness), advanced graduate studies (motor neuroscience, kinesiology, exercise physiology) or professional school (physical or occupational therapy or medical and dental school). Course pre-requisites are included in the various programs under all tracks to support students wishing to pursue professional school study or graduate school study. Additional program and track information is available on the Department of Kinesiology and Sport Management website or may be obtained by contacting the advising office in the department.

Professional directed electives allow students to obtain the prerequisites unique to the professional school of choice, physical or occupational therapy, medical or dental school. This track provides the background for students that wish to pursue graduate work in Motor Neuroscience or Human Movement Science programs. Students in this track may enroll in independent study leading to an undergraduate research project in motor behavior areas (development, learning, or control).

Program Requirements

This degree plan has been laid out showing students the number of hours they must take each semester in order to complete the degree in four years without attending summer school. This is a suggested plan and does not have to be followed as laid out below. Students should use this information in conjunction with advising documents available from their advisor or the department website when scheduling courses each semester to ensure they are meeting all prerequisites, taking courses for admission to professional phase in a timely manner and meeting all grade requirements.

First Year

Fall		Semester Credit Hours
BIOL 111	Introductory Biology I ¹	4
KINE 199	Required Physical Activity ^{2,3}	1
KINE 213	Foundations of Kinesiology ¹	3
MATH 140	Mathematics for Business and Social Sciences ^{1,4}	3
American history (p. 30) ^{5,6}		3
Semester Credit Hours		14

Spring

BIOL 112	Introductory Biology II ¹	4
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	3
MATH 142	Business Calculus ^{1,7}	3
American history (p. 30) ^{5,6}		3
Professional development elective ^{1,8}		3
Semester Credit Hours		16

Second Year

Fall		
CHEM 119	Fundamentals of Chemistry I ¹	4
PBSI 107	Introduction to Psychology	3
POLS 206	American National Government	3
Creative arts (p. 30) ^{5,6}		3
Professional development elective ^{1,8}		3
Semester Credit Hours		16

Spring

CHEM 120	Fundamentals of Chemistry II ¹	4
KINE 121	Physical and Motor Fitness Assessment ^{1,3}	2
PHYS 201	College Physics ¹	4
SOCI 205	Introduction to Sociology ¹	3
Select one of the following: ¹		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 210	Technical and Professional Writing	
Semester Credit Hours		16

Third Year

Fall		
BIOL 319	Integrated Human Anatomy and Physiology ^{1,3}	4
KINE 199	Required Physical Activity ^{2,3}	1

KINE 307	Lifespan Motor Development ¹	3
PBSI 306	Psychological Disorders ¹	3
POLS 207	State and Local Government	3
Semester Credit Hours		14
Spring		
BIOL 320	Integrated Human Anatomy and Physiology II ^{1,3}	4
KINE 318	Care of the Athlete ¹	3
PBSI 225	Lifespan Development ¹	3
or PBSI 307	or Developmental Psychology	
Language, philosophy and culture (p. 28) ^{5,6}		3
Professional development elective ^{1,8}		3
Semester Credit Hours		16
Fourth Year		
Fall		
KINE 427	Therapeutic Principles ¹	3
KINE 433	Physiology of Exercise ¹	3
KINE 435	Physiology of Exercise Lab ^{1,9}	1
PHYS 202	College Physics ¹	4
STAT 302	Statistical Methods ¹	3
or STAT 303	or Statistical Methods	
Semester Credit Hours		14
Spring		
KINE 406	Motor Learning and Skill Performance ¹	3
KINE 407	Motor Control and Learning Lab ^{1,9}	1
KINE 426	Exercise Biomechanics ¹	3
KINE 428	Exercise Biomechanics Laboratory ¹	1
Professional development elective ^{1,8}		3
Professional development elective ^{1,8}		3
Semester Credit Hours		14
Total Semester Credit Hours		120

¹ Must make a grade of C or better.

² Activities should be chosen in consultation with your advisor.
Participation in band or athletics cannot be used for KINE 199 credit.

³ Must be taken at Texas A&M University.

⁴ MATH 148, MATH 152, MATH 168, or MATH 172 will be accepted in lieu of MATH 140.

⁵ Course selection should meet the International and Cultural Diversit (p. 49)y and/or Cultural Discourse (p. 48) graduation requirement, if needed.

⁶ Must meet Core Curriculum (p. 26) requirements.

⁷ MATH 147, MATH 151, or MATH 171 will be accepted in lieu of MATH 142.

⁸ To be chosen in consultation with your academic advisor.
Select from BICH 410, BICH 411, BICH 412; BIOL 206, BIOL 213, BIOL 351, BIOL 405, BIOL 434/NRSC 434, BIOL 454; CHEM 257, CHEM 258; COMM 370; GENE 301 and GENE 312 or GENE 310 or GENE 320/BIMS 320; HLTH 354/PHLT 354; KINE 216/HLTH 216, KINE 285, KINE 305, KINE 340, KINE 485, KINE 491, NUTR 202, NUTR 300-499 (p. 1175); PHIL 111, PHIL 251, PHIL 480; PBSI 225, 300-305 (p. 1184), PBSI 308-499 (p. 1184); SPMT 304; VTPB 409, VTPP 425; HLTH 240 or ISTM 209 or ISTM 210.

⁹ Meets University writing requirement.

Kinesiology - 5-Year Bachelor of Science and Master of Science in Athletic Training

This combination program enables motivated students to efficiently complete both the Bachelor of Science in Athletic Training and the Master of Science in Athletic Training in five years.

The combination degree program allows undergraduate Kinesiology students to enter the Master of Science in Athletic Training (MSAT) program at the beginning of their fourth year at Texas A&M University and earn a Bachelor of Science in Kinesiology and a Master of Science in Athletic Training (MSAT) degree in five years.

Students will follow departmental requirements for admission into the professional phase of the BS in Kinesiology. Kinesiology majors who have at least a 3.25 GPA by the end of the fall semester of their junior year and who will have completed all of their prescribed courses by the spring of their junior year will be eligible to apply for the five-year program.

Applicants to the combination program will follow the same criteria as traditional students with the addition of having earned a B or better in specific courses. They will submit the same materials as other MSAT applicants by the spring deadline of their junior year. Students applying to the MSAT program from the combination option will receive priority review for admission into the MSAT program with the top five applicants from the combination option having a secured seat in the MSAT program. Other combination applicants who meet minimum requirements will have their applications reviewed on a competitive basis.

Students continuing into the 4th year of the combination program must finish all required hours to obtain both the Bachelor's and Master's degrees. Students will be conferred with two degrees once they complete the 5th year of the concurrent combination program.

Students in the combination program are required to complete the same two-year curriculum as other students admitted to the MSAT program. Students will take undergraduate courses, and graduate course work which will be applied to the undergraduate degree. Students are required to maintain a 3.25 GPA through the first 24 hours of graduate course work at which time the student must maintain a 3.0 GPA as is required of all graduate students. Students continuing in the dual degree program will change from U4 to G7 status upon completion of 96 hours.

Students not accepted or unable to continue with the combination program may complete the remaining requirements for the BS degree in Kinesiology in a concentration that best suits their needs (e.g., Motor Behavior, Applied Exercise Physiology). Students who transition to the traditional bachelor's degree will still be welcome to apply to the MSAT program upon completion of their bachelor's degree.

Program Requirements

This degree plan has been laid out showing students the number of hours they must take each semester in order to complete the program. The undergraduate portion of the plan is a suggested plan and should be followed closely. There may be some modifications in course order that can occur but students should consult with the departmental academic advisor for the combined degree program before changes are made in order to ensure they are meeting all requirements.

First Year**Fall**

		Semester Credit Hours
BIOL 111	Introductory Biology I ¹	4
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	3
KINE 121	Physical and Motor Fitness Assessment ^{1,2}	2
MATH 140	Mathematics for Business and Social Sciences ^{1,3}	3
PBSI 107	Introduction to Psychology	3
Semester Credit Hours		15

Spring

BIOL 112	Introductory Biology II ¹	4
CHEM 119	Fundamentals of Chemistry I ¹	4
KINE 213	Foundations of Kinesiology ¹	3
MATH 142	Business Calculus ^{1,4}	3
POLS 206	American National Government	3
Semester Credit Hours		17

Second Year**Fall**

ATTR 201	Field Experience in Athletic Training I ⁵	1
CHEM 120	Fundamentals of Chemistry II ¹	4
HLTH 354/ PHLT 354	Medical Terminology for the Health Professions ¹	3
KINE 199	Required Physical Activity ^{2,6}	1
PHYS 201	College Physics ¹	4
American history (p. 30) ^{7,8}		3
Semester Credit Hours		16

Spring

ATTR 202	Field Experience in Athletic Training II ⁵	1
BIOL 319	Integrated Human Anatomy and Physiology I ^{1,2}	4
NUTR 202	Fundamentals of Human Nutrition ¹	3
PHYS 202	College Physics ¹	4
American history (p. 30) ^{7,8}		3
Language, philosophy and culture (p. 28) ^{7,8}		3
Semester Credit Hours		18

Third Year**Fall**

ATTR 301	Field Experience in Athletic Training I ⁵	1
BIOL 320	Integrated Human Anatomy and Physiology II ^{1,2}	4
KINE 406	Motor Learning and Skill Performance ¹	3
KINE 407	Motor Control and Learning Lab ^{1,9}	1
Select one of the following: ¹		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 210	Technical and Professional Writing	
Creative arts (p. 30) ^{7,8}		3
Semester Credit Hours		15

Spring

ATTR 302	Field Experience in Athletic Training II ⁵	1
KINE 199	Required Physical Activity ^{2,6}	1
KINE 216/ HLTH 216	First Aid ¹	2
KINE 426	Exercise Biomechanics ¹	3
KINE 428	Exercise Biomechanics Laboratory ¹	1
KINE 433	Physiology of Exercise ¹	3
KINE 435	Physiology of Exercise Lab ^{1,9}	1
POLS 207	State and Local Government	3
Semester Credit Hours		15

Summer

ATTR 650	Emergency Management ^{1,10}	2
ATTR 651	Clinical Education I ^{1,10}	1
ATTR 660	Foundations of Athletic Training Practice ^{1,10}	2
ATTR 661	Essential Clinical Skills ^{1,10}	2
Semester Credit Hours		7

Fourth Year**Fall**

ATTR 642	Clinical Decision Making and Evidence Based Practice I ^{1,10}	1
ATTR 652	Clinical Education II ^{1,10}	2
ATTR 662	Clinical Examination and Diagnosis - Lower Extremity and Spine ^{1,10}	4
ATTR 668	Therapeutic Intervention I - Therapeutic Modalities ^{1,10}	4
ATTR 675	Evidence Based Practice and Clinical Research ¹	3
Semester Credit Hours		14

Spring

ATTR 643	Clinical Decision Making and Evidence Based Practice II ¹	1
ATTR 653	Clinical Education III ^{1,10}	2
ATTR 664	Clinical Examination and Diagnosis - Upper Extremity, Cervical Spine and Head ^{1,10}	4
ATTR 671	Healthcare Administration, Management, and Delivery Strategies in Athletic Training ¹	3
ATTR 676	Performance Enhancement in Sport ¹	3
Semester Credit Hours		13

Summer

ATTR 654	Clinical Education IV ¹	2
STAT 651	Statistics in Research I	3
Semester Credit Hours		5

Fifth Year**Fall**

ATTR 645	Corrective Techniques and Progressive Exercise for Return to Function ¹	1
ATTR 655	Clinical Education V ¹	2
ATTR 666	Therapeutic Intervention II - Therapeutic Exercise ¹	4
ATTR 670	General Medical Conditions and Therapeutic Medication ¹	2

ATTR 673	Therapeutic Interventions III - Manual Therapy ¹	2
ATTR 674	Behavioral Health ¹	1
Semester Credit Hours		12
Spring		
ATTR 646	Transition to Practice ¹	1
ATTR 656	Clinical Education VI ¹	2
ATTR 672	Professional Preparation and Issues in Athletic Training ¹	3
ATTR 677	Research Capstone ¹	3
Semester Credit Hours		9
Total Semester Credit Hours		156

¹ Must make a grade of C or better.

² Must be taken at Texas A&M University.

³ MATH 148, MATH 152, MATH 168, or MATH 172 will be accepted in lieu of MATH 140.

⁴ MATH 147, MATH 151, or MATH 171 will be accepted in lieu of MATH 142.

⁵ Must make a grade of B or better.

⁶ Activities should be chosen in consultation with your advisor. Participation in band or athletics cannot be used for KINE 199 credit. KINE 199 activities cannot be repeated for credit.

⁷ Course must meet core curriculum requirements.

⁸ Course selection should meet the International and Cultural Diversity (p. 49) and/or Cultural Discourse (p. 48) graduation requirement if needed.

⁹ Meets core curriculum writing requirement.

¹⁰ Course will count in undergraduate and graduate program.

Students may elect to take PHYS or CHEM courses during the summer semester between freshman and sophomore year to reduce the fall course load.

The program includes a total of 180 hours, of which up to 24 hours may be applied toward both the Bachelor of Science in Kinesiology and the Master of Science in Athletic Training.

Sport Management - BS

The Bachelor of Science degree in Sport Management is designed to prepare students for careers as administrators and managers in athletic, health, and country club industries, as well as entry-level management positions in college and professional athletic organizations.

Through this program, students are prepared for diverse roles in the areas of sport marketing and promotions, sales, marketing analysis, and fan behavior along with proficiency in facility and event management and planning, financial management, leadership management, and business planning. The curriculum stays in tune with the sport industry to ensure graduating students are competitive in the field. Students complete their degree plan with a culminating experience that consists of four (4) options; (1) internship, (2) capstone project, (3) international experience, and (4) undergraduate research. The internship, following coursework, provides students with on-the-job experience and networking opportunities. The capstone project is a multifaceted assignment that serves as a culminating academic and intellectual experience for students. The international experience is a unique blend of academic programming which provides students with global experience. The undergraduate research option provides an opportunity for students to

develop and investigate their own research project under the guidance of SPMT faculty. The degree plan allows freedom for students to obtain a minor from a list of approved minors (i.e., business, journalism, speech communications, etc.).

Program Requirements

First Year

Fall

		Semester Credit Hours
ENGL 104 or ENGL 103	Composition and Rhetoric ¹ or Introduction to Rhetoric and Composition	3
SPMT 260	Overview of Practices in Sport ¹	2
SPMT 270	Sport Marketing ¹	2
SPMT 304 or SPMT 319/ SOCI 319	Sport Psychology Management and Practice ¹ or Sociology of Sport	3
MATH 140	Mathematics for Business and Social Sciences ²	3
Semester Credit Hours		13

Spring

SPMT 262	Human Capital Management in Sport ¹	3
SPMT 272	Sport Marketing Issues ¹	2
MATH 142	Business Calculus ³	3
Select one of the following: ¹		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
Life and Physical Sciences (p. 27)		3
Semester Credit Hours		14

Second Year

Fall

SPMT 265	Professional Communication for the Sport Industry ¹	4
STAT 201	Elementary Statistical Inference	3
American History (p. 30)		3
Language, Philosophy and Culture (p. 28)		3
Life and Physical Sciences (p. 27)		3
Semester Credit Hours		16

Spring

POLS 206	American National Government	3
SPMT 295	Introduction to the Culminating Experience ¹	1
American History (p. 30)		3
Creative Arts (p. 30)		3
Life and Physical Sciences (p. 27)		3
Directed elective ^{1,4}		3
Semester Credit Hours		16

Third Year

Fall

POLS 207	State and Local Government	3
SPMT 360	Organizational Issues in Sport ¹	3
SPMT 362	Sport Leadership ¹	3

SPMT 364	Financial Management in Sport ¹	3
SPMT 366	Sport Facility and Event Management ¹	3
Semester Credit Hours		15
Spring		
SPMT 370	Fan Behavior in Sport ¹	3
SPMT 372	Sales Strategies in Sport Organizations ¹	3
SPMT 374	Strategic Sport Marketing ¹	3
Culminating experience ^{1,5}		3
Directed elective ^{1,4}		3
Semester Credit Hours		15
Fourth Year		
Fall		
SPMT 460	Sport Business Planning ¹	3
SPMT 470	Application of Marketing Strategies in Sport ¹	3
Culminating experience ^{1,5}		3
Directed electives ^{1,4}		6
Semester Credit Hours		15
Spring		
SPMT 462	Leadership Application in Sport ¹	3
SPMT 472	Data Analysis and Problem Solving in Sport ¹	3
Culminating experience ^{1,5}		7
Directed elective ^{1,4}		3
Semester Credit Hours		16
Total Semester Credit Hours		120

¹ Must make a grade of C or better.

² MATH 148, MATH 152, MATH 168, and MATH 172 will be accepted in lieu of MATH 140.

³ MATH 147, MATH 151, and MATH 171 will be accepted in lieu of MATH 142.

⁴ Select from ACCT 209, ACCT 210, ACCT 229; ALED 340, ALED 341; COMM 205, COMM 210, COMM 315, COMM 320, COMM 340; ECON 202, ECON 203; EHRD 408; FINC 409; FINP 235; HMG 301, HMG 302, HMG 211, HMG 331, HMG 340, HMG 426; IST 209; IST 210, KINE 199; MGMT 209, MGMT 430/WGST 430; MKTG 402/IBUS 402, MKTG 409; PBSI 107; SPMT 220, SPMT 230, SPMT 285, SPMT 291, SPMT 330, SPMT 336, SPMT 337 SPMT 340, SPMT 412, SPMT 420, SPMT 421, SPMT 483, SPMT 485, SPMT 489, SPMT 491; WGST 430/ MGMT 430. As part of the directed electives, students may choose courses to fulfill a minor in approved departments. Please contact your advisor for a list of approved minors. Up to 3 hours of KINE 199 may be taken; must be taken at Texas A&M University.

⁵ The culminating experience has 4 unique options; these options are explained in the Culminating Experience seminar SPMT 295. The following courses, among other courses, may satisfy the completion of the culminating experience: SPMT 401, SPMT 402, SPMT 450, SPMT 455, SPMT 481, SPMT 484, SPMT 485 and SPMT 491. Students will gain approval of additional courses through consultation with faculty.

Coaching - Minor

This minor is designed for students who are pursuing coaching in various settings, such as public and private schools, club sports, and youth sport leagues.

This program may also be useful for those who plan to work in the fitness industry. Admission to this minor is by application only and requires completion of BIOL 111. Students should consult with a College of Education and Human Development academic advisor (<https://education.tamu.edu/undergraduate-advising/>) for admission requirements and application. Students should allow a minimum of three semesters to complete this minor.

Program Requirements

Code	Title	Semester Credit Hours
KINE 215	Fundamentals of Coaching	3
KINE 318	Care of the Athlete	3
KINE 325	Administrative and Athletic Operations for Coaches	3
KINE 370	Basic Biology of Performance for Coaches	3
KINE 334	Coaching in Personal Training	2
or KINE 345	or Coaching of Weight Training	
Select two of the following:		4
KINE 312	Coaching of Baseball	
KINE 314	Coaching of Soccer	
KINE 317	Coaching of Football	
KINE 321	Coaching of Volleyball	
KINE 334	Coaching in Personal Training	
KINE 335	Coaching in Group Fitness	
KINE 345	Coaching of Weight Training	
KINE 351	Coaching of Basketball	
KINE 353	Coaching of Softball	
KINE 355	Coaching of Track	
Total Semester Credit Hours		18

Students must make a grade of C or better in all courses.

Sport Management - Minor

The Sport Management minor is designed for students who want an introduction to working with sport organizations.

The Sport Management Minor provides a foundational understanding of the multifarious sport industry from the perspectives of management, marketing, and other business principles. The minor provides an introductory understanding of the broadly defined sport management discipline and potential careers that can be leveraged in the sport industry.

Program Requirements

Code	Title	Semester Credit Hours
SPMT 260 & SPMT 270	Overview of Practices in Sport and Sport Marketing ¹	4

Select four of the following: ²	12
SPMT 220 Olympic Studies	
SPMT 230 Introduction to Leadership in Sport Organizations	
SPMT 304 Sport Psychology Management and Practice	
SPMT 319/ Sociology of Sport SOCI 319	
SPMT 330 Application of Leadership Skills in Sport Organizations	
SPMT 336 Diversity in Sport Organizations	
SPMT 337 International Sport Business	
SPMT 340 Sport Governance	
SPMT 489 Special Topics in...	
Total Semester Credit Hours	16

¹ Must be taken together as co-requisites.

² 9 hours must be 300-400 level.

Students must make a grade of C or better in all courses.

Department of Teaching, Learning and Culture

The Department of Teaching, Learning and Culture is responsible for undergraduate programs that lead to certification at the early childhood/elementary, middle and secondary levels. Note these exceptions:

- Students interested in teaching agricultural science must major in the Department of Agricultural Education;
- Students interested in secondary certification can be certified through the secondary Graduate Certification Program or the aggieTEACH program.

Early Childhood/Elementary or Middle Grades Certification

Baccalaureate Degree Programs. Most students interested in early childhood/elementary (PreK–6) or middle school (4–8) certification pursue a program leading to the Bachelor of Science degree (BS) with a major in Education. The EDUC degree certification programs prepare students for the many diverse instructional roles assumed by public school teachers. A minimum of 123 credit hours is required for the EDUC degree. Within this program, students may focus on:

- Early Childhood (PreK–Grade 6);
- Middle School (Grades 4–8 Math and Science); or
- Middle School (Grades 4–8 English Language Arts and Social Studies).

For complete information, see an advisor in the Department of Teaching, Learning and Culture's Office of Undergraduate Advising in Harrington Tower (EDCT 111).

Eligibility. Students must meet the requirements for a bachelor's degree in the college and the department in which they are majoring. Further, they must meet specific admission and performance standards established by the Department of Teaching, Learning and Culture as well as requirements for professional education and certification

established by the State of Texas. These requirements include admission to teacher education, admission to clinical teaching and qualification for initial certification. **It is the responsibility of the student to contact the Department of Teaching, Learning and Culture's Office of Undergraduate Advising for specific information pertaining to program changes.**

Please see an advisor in the Office of Undergraduate Advising for current information.

Requirements for Admission to Teaching Education Early Childhood/Elementary and Middle Grades Education Program

- Pass the THEA, ACCUPLACER, ASSET or COMPASS test or show proof of exemption from the test with appropriate STAAR, SAT or ACT scores.
- Completion of a minimum 45 hours of pre-professional coursework from degree program (includes University Core Curriculum courses).
- Completion of a minimum of 32 hours of University Core Curriculum courses with no grade lower than a C.
- Completion of TEFB 273 and INST 210 with a grade of B or higher (equivalent courses from a community college may be substituted), two three-hour core MATH and two four-hour Life and Physical Sciences (p. 27) core courses.
- Completion of Communications Core Course with no grade lower than a C.
- A GPA of 2.75 on all coursework on a degree plan with no grade lower than a C.
- Transcripts for all institutions of higher education on file in the Texas A&M University Office of the Registrar.
- Approved and signed degree plan on file in the Advising Office of the Department of Teaching, Learning and Culture.

These requirements must be seen as minimum standards only. Successful fulfillment of all of the above requirements does not guarantee admission to the program. Admission also depends upon the number of places available, and the number of applications received each year. If more qualified students apply than the available number of spaces, admission may be based on selection factors at the time of application, such as GPA in pre-professional courses, number of hours needed to complete the program, and enrollment in prerequisite courses.

Secondary Certification Pathways

Two routes leading to initial teacher certification at the secondary level are available. These include the aggieTEACH program and the Graduate Certification Program. Information is available from the Undergraduate Advising Office.

Requirements for Admission to Clinical Teaching

- Complete a clinical teaching application by the given deadlines and complete all coursework prior to Clinical 3. Students must see their advisors for deadlines.
- Admission to teacher education.
- Pass certification content exam required for Texas teacher certification aligned to the degree sought, and if required for

certification, the Science of Teaching Reading certification exam, by established Department of Teaching, Learning & Culture deadlines.

- Completion of all courses listed on the degree plan. All Education and professional courses with a grade of C or better.
- All certification coursework must be completed. Each emphasis/teaching field must have a grade of C or better in each course with a minimum GPA of 2.75 in teacher emphasis/teaching field.
- ENGL 103 or ENGL 104 must be completed with a grade of C or better.
- A minimum of 2.50 on all coursework completed at Texas A&M.
- A minimum of 2.75 on all coursework that applies to the degree plan, taken at Texas A&M.
- A minimum of 2.75 on all coursework that applies to the emphasis/teaching field, taken at Texas A&M.

Faculty

Aldemir, Tugce, Assistant Professor
Teaching, Learning & Culture
PHD, Pennsylvania State University, 2021

Alvarez, Adam, Associate Professor
Teaching, Learning & Culture
PHD, University of Pittsburgh, 2018

Ashley, Candice R, Lecturer
Teaching, Learning & Culture
PHD, Capella University, 2014

Barrett, Julie Ann, Senior Lecturer
Teaching, Learning & Culture
EDD, Sam Houston State University, 2013

Bicer, Ali, Associate Professor
Teaching, Learning & Culture
PHD, Texas A&M University, 2016

Cantrell, Emily S, Clinical Professor
Teaching, Learning & Culture
PHD, Texas A&M University, 2008

Clark, Kristie, Visiting Lecturer
Teaching, Learning & Culture
MED, Texas A&M University, 2019

Craig, Cheryl J, Professor
Teaching, Learning & Culture
PHD, University of Alberta, Canada, 1992

Davis, Trina J, Associate Professor
Teaching, Learning & Culture
PHD, Texas A&M University, 2005

De Miranda, Michael A, Professor
Teaching, Learning & Culture
PHD, University of California, Riverside, 1996

Fields, Susan S, Clinical Associate Professor
Teaching, Learning & Culture
EDD, Boston University, 2017

Fleming, Kenneth J, Instructional Assistant Professor
Teaching, Learning & Culture
PHD, Texas A&M University, 2017

Gerde, Hope Kenarr, Professor
Teaching, Learning & Culture
PHD, Purdue University, 2008

Gibson, Vicki, Professor of the Practice
Teaching, Learning & Culture
PHD, Texas A&M University, 1995

Goodrich, Marc, Associate Professor
Teaching, Learning & Culture
PHD, Florida State University, 2015

Griffith, Karee, Lecturer
Teaching, Learning & Culture
PHD, University of Mary Hardin-Baylor, 1993

Hawk, Nathan, Clinical Assistant Professor
Teaching, Learning & Culture
PHD, The Ohio State University, 2021

Herman, Benjamin, Professor
Teaching, Learning & Culture
PHD, Iowa State University, 2010

Hernandez, Paul Richard, Professor
Teaching, Learning & Culture
PHD, University of Connecticut, 2011

Hutchins, Shaun D, Clinical Associate Professor
Teaching, Learning & Culture
PHD, Colorado State University, 2015

James-Gallaway, ArCasia, Assistant Professor
Teaching, Learning & Culture
PHD, University of Illinois at Urbana Champaign, 2020

Johnson, Marcus Wayne, Associate Professor
Teaching, Learning & Culture
PHD, University of Texas at Austin, 2017

Jolly, Ashley Gabbard, Senior Lecturer
Teaching, Learning & Culture
MED, Sam Houston State University, 2007

Joshi, R M, Professor
Teaching, Learning & Culture
PHD, University of South Carolina, 1976

Jung, Hyunyi, Associate Professor
Teaching, Learning & Culture
PHD, Purdue University, 2015

Katz, Claire E, Professor
Teaching, Learning & Culture
PHD, University of Memphis, 1999

Kinskey, Melanie, Assistant Professor
Teaching, Learning & Culture
PHD, University of South Florida, 2020

Kipp, Andrew, Clinical Assistant Professor
Teaching, Learning & Culture
EDD, Kansas State University, 2022

Kogut, Ashlynn W, Associate Professor
Teaching, Learning & Culture
PHD, Texas A&M University, 2021

Kuo, Li-Jen, Associate Professor
Teaching, Learning & Culture
PHD, University of Illinois at Urbana-Champaign, 2006

Kwok, Andrew, Associate Professor
Teaching, Learning & Culture
PHD, University of Michigan, 2016

Kwok, Michelle, Assistant Professor
Teaching, Learning & Culture
PHD, University of Michigan, 2016

Li, Yeping, Professor
Teaching, Learning & Culture
PHD, University of Pittsburgh, 1999

Lucero, Rodrick, Professor of the Practice
Teaching, Learning & Culture
PHD, Colorado State University, 2005

Matthews, Sharon D, Clinical Professor
Teaching, Learning & Culture
PHD, New Mexico State University, 2007

McKeown, Debra, Professor
Teaching, Learning & Culture
PHD, Vanderbilt University, 2012

Ogletree, Quinita D, Clinical Assistant Professor
Teaching, Learning & Culture
PHD, Texas A&M University, 2012

Palma, Jose, Assistant Professor
Teaching, Learning & Culture
PHD, University of Minnesota, 2021

Parker, Dawn R, Clinical Professor
Teaching, Learning & Culture
PHD, Texas A&M University, 1997

Patron-Vargas, Jasmin, Assistant Professor
Teaching, Learning & Culture
PHD, Michigan State University, 2022

Perez, Gustavo, Clinical Assistant Professor
Teaching, Learning & Culture
MED, University of Texas Pan American, 2010

Pikus, Arianna, Assistant Professor
Teaching, Learning & Culture
PHD, Michigan State University, 2023

Pittman, Ramona T, Associate Professor
Teaching, Learning & Culture
PHD, Texas A&M University, 2007

Quinn, Margaret, Associate Professor
Teaching, Learning & Culture
PHD, Georgia State University, 2017

Rackley, Robin A, Clinical Professor
Teaching, Learning & Culture
PHD, Texas A&M University, 2004

Rambo-Hernandez, Karen, Professor
Teaching, Learning & Culture
PHD, University of Connecticut, 2011

Reynolds, Stephanie, Visiting Lecturer
Teaching, Learning & Culture
MED, Texas A&M University, 2024

Rife, Kimberly G, Lecturer
Teaching, Learning & Culture
MED, Texas A&M University, 2016

Rupley, William H, Professor
Teaching, Learning & Culture
PHD, University of Illinois at Urbana-Champaign, 1975

Sansom, Rebecca, Assistant Professor
Teaching, Learning & Culture
PHD, Brigham Young University, 2019

Shumbera, Kristen L, Senior Lecturer
Teaching, Learning & Culture
MS, University of Florida, 2007

Singer, Shaunta L, Lecturer
Teaching, Learning & Culture
PHD, University of Virginia, 2008

Singleton, Julie A, Clinical Associate Professor
Teaching, Learning & Culture
PHD, Texas A&M University, 2011

Slattery, George P, Professor
Teaching, Learning & Culture
PHD, Louisiana State University, 1989

Stiles, Misty, Lecturer
Teaching, Learning & Culture
MED, Southwest Texas State University, 2003

Su-Keene, Eleanor, Assistant Professor
Teaching, Learning & Culture
PHD, Florida Atlantic University, 2022

Svajda-Hardy, Megan, Clinical Assistant Professor
Teaching, Learning & Culture
PHD, Texas A&M University, 2022

Thomas, Daniel Josiah, Assistant Professor
Teaching, Learning & Culture
PHD, University of Texas at Austin, 2021

Thomas, Rebecca S, Senior Lecturer
Teaching, Learning & Culture
MED, Texas A&M University, 1998

Viruru, Radhika, Clinical Professor
Teaching, Learning & Culture
PHD, Texas A&M University, 1998

WAKEFIELD, JODIE, Lecturer
Teaching, Learning & Culture
MED, Texas A&M University, 2010

Wijekumar, Kay, Professor
Teaching, Learning & Culture
PHD, The Pennsylvania State University, 2000

Wilkins, Gwendolyn M, Lecturer
Teaching, Learning & Culture
PHD, Texas A&M University, 2018

Williams, John Andrew, Associate Professor
Teaching, Learning & Culture
PHD, University of North Carolina at Charlotte, 2019

Yalvac, Bugrahan, Associate Professor
Teaching, Learning & Culture
PHD, Pennsylvania State University, 2005

Young, Jamaal, Professor
Teaching, Learning & Culture
PHD, Texas A&M University, 2011

Young, Jemimah, Professor
Teaching, Learning & Culture
PHD, Texas A&M University, 2013

Zhuang, Yuling, Assistant Professor
Teaching, Learning & Culture
PHD, University of Georgia, 2020

Majors

- Bachelor of Science in Early Childhood Development and Education, Leadership Track (p. 575)
- Bachelor of Science in Early Childhood Development and Education, Teaching (Non-Licensure) Track (p. 576)
- Bachelor of Science in Education, Early Childhood-3 Certification (p. 577)
- Bachelor of Science in Education, English Language Arts/Social Studies, Middle Grades Certification (p. 578)
- Bachelor of Science in Education, Math/Science, Middle Grades Certification (p. 579)
- Bachelor of Science in Education, Pre-K-6, Generalist Certification (p. 580)

Certification

- Secondary Graduate Certification Program (p. 582)

Minors

- Secondary Education - Clinical Teaching Minor (p. 581)
- Secondary Education - Minor (p. 582)

Early Childhood Development and Education - BS, Leadership Track

The ECDE Leadership Track is ideal for students interested in leadership roles within service agencies or educational settings that support young children and their families.

The Department of Teaching, Learning and Culture (TLAC) offers a Bachelor of Science (BS) in Early Childhood Development and Education (ECDE), which equips students with the knowledge and experience necessary to serve children from birth to age 8 and their families. Graduates will be prepared to lead initiatives that positively impact early childhood development.

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition or Composition and Rhetoric	3
HIST 105 or HIST 106	History of the United States or History of the United States	3
INST 222	Foundations of Education in a Multicultural Society	3
	Language, philosophy and culture (p. 28)	3
	Mathematics (p. 27)	3
Semester Credit Hours		15
Spring		
HIST 226	History of Texas	3
	Communication (p. 27)	3
	Creative arts (p. 30)	3
	Life and physical sciences (p. 27)	3
	Mathematics (p. 27)	3
Semester Credit Hours		15

Second Year

Fall		
INST 210	Understanding Special Populations	3
POLS 206	American National Government	3
	Life and physical sciences (p. 27)	3
	General elective ¹	3
	General elective ¹	3
Semester Credit Hours		15
Spring		
EPFB 210	Family Engagement and Empowerment	3
POLS 207	State and Local Government	3
TEFB 273	Introduction to Culture, Community, Society and Schools	3
	Life and physical sciences (p. 27)	3
	General elective ¹	3
Semester Credit Hours		15

Third Year

Fall		
EDCI 353	Early Childhood through Adolescent Education	3
RDNG 351	Foundational Skills of Decoding for Elementary Students	3
RDNG 373	Foundational Skills of Language Comprehension for Elementary Students	3
SPED 302	Planning and Teaching with Explicit Instruction	3

General elective ¹		3
Semester Credit Hours		15
Spring		
DCED 304	Creative Dance for Children	3
ECDE 352	Partnering with Families in Early Childhood	3
EDCI 364	Interaction Processes with Children in Groups	3
ECDE 382	Supporting Diverse Learners and Their Families	3
General elective ¹		3
Semester Credit Hours		15
Fourth Year		
Fall		
ECDE 472	Evaluation of Human Service Programs	3
ECFB 422	Infant Development and Program Planning and Infant/Toddler Lab	3
RDNG 473	Assessment in Reading Instruction	3
SPED 321	Assessment of Students with Disabilities	3
General elective ¹		3
Semester Credit Hours		15
Spring		
ECDE 473	Administration and Supervision in Early Childhood Settings	3
ECDE 484	Internship	6
SPED 411	Assessment in Action: Writing and Implementing Individualized Education Programs	3
General elective ¹		3
Semester Credit Hours		15
Total Semester Credit Hours		120

¹ In consultation with advisor select from any 100-499 course not used elsewhere.

Must make a grade of C or better in each course.

Early Childhood Development and Education - BS, Teaching (Non-Licensure) Track

This track is designed for students who wish to pursue careers as teachers or caregivers for young children outside public school classrooms by providing the skills necessary to nurture and educate children in various settings.

The Department of Teaching, Learning and Culture (TLAC) offers a Bachelor of Science (BS) in Early Childhood Development and Education (ECDE) which prepares undergraduates interested in pursuing careers as teachers/caregivers of young children birth-age 8 and their families through a non-licensure program.

Program Requirements

First Year

Fall

		Semester Credit Hours
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition or Composition and Rhetoric	3
HIST 105 or HIST 106	History of the United States or History of the United States	3
INST 222	Foundations of Education in a Multicultural Society	3
	Language, philosophy and culture (p. 28)	3
	Mathematics (p. 27)	3
Semester Credit Hours		15
Spring		
HIST 226	History of Texas	3
	Communication (p. 27)	3
	Creative arts (p. 30)	3
	Life and physical sciences (p. 27)	3
	Mathematics (p. 27)	3
Semester Credit Hours		15

Second Year

Fall

INST 210	Understanding Special Populations	3
POLS 206	American National Government	3
	Life and physical sciences (p. 27)	3
	General elective ¹	3
	General elective ¹	3
Semester Credit Hours		15
Spring		
EPFB 210	Family Engagement and Empowerment	3
POLS 207	State and Local Government	3
TEFB 273	Introduction to Culture, Community, Society and Schools	3
	Life and physical sciences (p. 27)	3
	General elective ¹	3
Semester Credit Hours		15

Third Year

Fall

ECDE 352	Partnering with Families in Early Childhood	3
EDCI 353	Early Childhood through Adolescent Education	3
EDCI 364	Interaction Processes with Children in Groups	3
RDNG 351	Foundational Skills of Decoding for Elementary Students	3
RDNG 373	Foundational Skills of Language Comprehension for Elementary Students	3
Semester Credit Hours		15
Spring		
DCED 304	Creative Dance for Children	3
ECDE 382	Supporting Diverse Learners and Their Families	3

ECFB 321	Curriculum Design for Early Childhood Programs SEL and Literacy	3
RDNG 473	Assessment in Reading Instruction	3
SPED 302	Planning and Teaching with Explicit Instruction	3
Semester Credit Hours		15
Fourth Year		
Fall		
ECFB 421	Curriculum Design for Early Childhood Programs II	3
ECFB 422	Infant Development and Program Planning and Infant/Toddler Lab	3
SPED 321	Assessment of Students with Disabilities	3
General elective ¹		3
General elective ¹		3
Semester Credit Hours		15
Spring		
ECDE 473	Administration and Supervision in Early Childhood Settings	3
ECFB 424	Capstone Teaching in an Early Childhood Program	6
SPED 411	Assessment in Action: Writing and Implementing Individualized Education Programs	3
General elective ¹		3
Semester Credit Hours		15
Total Semester Credit Hours		120

¹ In consultation with advisor select from any 100-499 course not used elsewhere.

Must make a grade of C or better in each course.

Education - BS, Early Childhood-3 Certification

The EC-3 program focuses on preparing teachers to teach children in early childhood through 3rd grade general education settings, which is an area of specialization identified by the Texas Education Agency.

The Department of Teaching, Learning and Culture (TLAC) offers a Bachelor of Science (BS) in Education. Completion of this program leads to teacher certification in grades EC-3 General Education, with supplemental English as a Second Language certification within the constraints outlined by the Texas Education Agency. For additional information, see an academic advisor in the Education and Human Development Undergraduate Advising Office. Details and contact information can be found at <https://education.tamu.edu/undergraduate-advising/>.

Programs in the Department of Teaching, Learning and Culture are based upon State of Texas standards. Students should check with advisors for the most current program policies and procedures.

Program Requirements

The following curriculum leads to the Bachelor of Science degree in Education with certification in Early Childhood, EC-3. Students

are required to meet with their assigned academic advisor prior to registration each semester.

First Year

Fall

ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition or Composition and Rhetoric	3
HIST 105 or HIST 106	History of the United States or History of the United States	3
TEFB 273	Introduction to Culture, Community, Society and Schools	3
Creative arts (p. 30)		3
MATH 135	Mathematics for Teachers I	3
Semester Credit Hours		15

Spring

HIST 226	History of Texas	3
POLS 206	American National Government	3
Communication (p. 27)		3
Life and physical sciences (p. 27)		4
MATH 136	Mathematics for Teachers II	3
Semester Credit Hours		16

Second Year

Fall

INST 210	Understanding Special Populations	3
INST 222	Foundations of Education in a Multicultural Society	3
MASC 351	Problem Solving in Mathematics	3
POLS 207	State and Local Government	3
Language, philosophy and culture (p. 28)		3
Life and physical sciences (p. 27)		4
Semester Credit Hours		19

Spring

EDCI 353	Early Childhood through Adolescent Education	3
INST 362	English as a Second Language Methods I	3
MATH 365	Structure of Mathematics I	3
RDNG 351	Foundational Skills of Decoding for Elementary Students	3
RDNG 373	Foundational Skills of Language Comprehension for Elementary Students	3
Select one of the following:		3
ECON 202	Principles of Economics	
ECON 203	Principles of Economics	
GEOG 201	Introduction to Human Geography	
GEOG 202	Geography of the Global Village	
GEOG 304	Economic Geography	
Life and physical sciences (p. 27)		1
Semester Credit Hours		19

Third Year

Fall

EDCI 364	Interaction Processes with Children in Groups	3

EDCI 365	Using Technology Classrooms	3
HIST 300-499 (p. 1069)		3
INST 363	English as a Second Language Methods II	3
MASC 420	Inquiries in Life and Earth Sciences	3
MATH 366	Structure of Mathematics II	3
Semester Credit Hours		18
Spring		
DCED 304	Creative Dance for Children	3
ECFB 321	Curriculum Design for Early Childhood Programs SEL and Literacy	3
MASC 450	Integrated Mathematics	3
RDNG 468	Essential Foundations of Language and Literacy for All Learners	3
RDNG 473	Assessment in Reading Instruction	3
TEFB 371	Dynamics and Management in Multicultural/Inclusionary Learning Environments	3
Semester Credit Hours		18
Fourth Year		
Fall		
ECFB 421	Curriculum Design for Early Childhood Programs II	3
RDNG 467	Reading and the Language Arts	3
TEFB 410	Social Studies and the Humanities in the Elementary School	3
TEFB 412	Mathematics in the Elementary School	3
Semester Credit Hours		12
Spring		
TEFB 426 or TEED 425	Supervised Clinical Teaching or Supervised Clinical Teaching	6
Semester Credit Hours		6
Total Semester Credit Hours		123

Must make a grade of C or better in each course.

Education - BS, English Language Arts/Social Studies, Middle Grades Certification

This program is for those seeking Texas teacher certification in Language Arts/Social Studies for grades 4-8.

The Department of Teaching, Learning and Culture (TLAC) offers a Bachelor of Science (BS) in Education. Completion of this program leads to Texas teacher certification in Reading/Language Arts and Social Studies - Grades 4-8, and supplemental English as a Second Language certification within the constraints outlined by the Texas Education Agency. For complete information, see an academic advisor in the Education and Human Development Undergraduate Advising Office. Details and contact information can be found at <https://education.tamu.edu/undergraduate-advising/>

Programs in the Department of Teaching, Learning and Culture are based upon State of Texas standards. Students should check with advisors for the most current program policies and procedures.

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition or Composition and Rhetoric	3
GEOG 201 or GEOG 202	Introduction to Human Geography or Geography of the Global Village	3
HIST 105	History of the United States	3
TEFB 273	Introduction to Culture, Community, Society and Schools	3
Mathematics (p. 27)		3
Semester Credit Hours		15

Spring

HIST 106	History of the United States	3
Select one of the following:		3
ECON 202	Principles of Economics	
ECON 203	Principles of Economics	
GEOG 304	Economic Geography	
Communication (p. 27)		3
Life and physical sciences (p. 27)		4
Mathematics (p. 27)		3
Semester Credit Hours		16

Summer

POLS 206	American National Government	3
Life and physical sciences (p. 27)		4
Semester Credit Hours		7

Second Year

Fall

GEOG 300-499 (p. 1055)		3
INST 210	Understanding Special Populations	3
INST 222	Foundations of Education in a Multicultural Society	3
Creative arts (p. 30)		3
Language, philosophy and culture (p. 28)		3
Life and physical sciences (p. 27) ¹		1
Semester Credit Hours		16

Spring

EDCI 353	Early Childhood through Adolescent Education	3
EDCI 365	Using Technology Classrooms	3
ENGL 300-499 (p. 1021)		3
RDNG 371	Multicultural and Interdisciplinary Literature for Middle Grades	3
Select one of the following:		3
EPSY 435	Educational Statistics	
STAT 302	Statistical Methods	
STAT 303	Statistical Methods	
Semester Credit Hours		15

Summer

HIST 226	History of Texas	3

POLS 207	State and Local Government	3
Semester Credit Hours		6
Third Year		
Fall		
INST 362	English as a Second Language Methods I	3
HIST 300-499 (p. 1069)		3
MASC 351 or MASC 450	Problem Solving in Mathematics or Integrated Mathematics	3
RDNG 372	Reading and Writing across the Middle Grades Curriculum	3
RDNG 468	Essential Foundations of Language and Literacy for All Learners	3
Semester Credit Hours		15
Spring		
EDCI 354	Early Childhood and Adolescent Curriculum and Lesson Design	3
INST 363	English as a Second Language Methods II	3
MASC 320 or MASC 420	Inquiries in Physical Science or Inquiries in Life and Earth Sciences	3
TEFB 371	Dynamics and Management in Multicultural/Inclusionary Learning Environments	3
Select one of the following:		3
HIST 300-499 (p. 1069)		
POLS 300-499 (p. 1209)		
Semester Credit Hours		15
Fourth Year		
Fall		
MEFB 450	Social Studies Methods in the Middle Grades	3
MEFB 452	Curriculum and Instruction for Middle Grades	3
RDNG 470	Reading/Language Arts Methods in Middle Grades Education	3
RDNG 490	Assessment in Reading Instruction in Middle Grades	3
Semester Credit Hours		12
Spring		
MEFB 497 or TEED 425	Supervised Clinical Teaching or Supervised Clinical Teaching	6
Semester Credit Hours		6
Total Semester Credit Hours		123

¹ KINE 120 is recommended.

Must make a grade of C or better in each course.

A minimum of 2.75 GPA on all coursework that applies to the degree plan and a minimum of 2.5 GPA on all coursework completed at Texas A&M is required for this degree.

Education - BS, Math/Science, Middle Grades Certification

This program is for those seeking Texas teacher certification in Math/Science for grades 4-8.

The Department of Teaching, Learning and Culture (TLAC) offers a Bachelor of Science (BS) in Education. Completion of this program leads to teacher certification in Math and Science - Grades 4-8, and supplemental English as a Second Language certification within the constraints outlined by the Texas Education Agency. For complete information, see an academic advisor in the Education and Human Development Undergraduate Advising Office. Details and contact information can be found at <https://education.tamu.edu/undergraduate-advising/>.

Programs in the Department of Teaching, Learning and Culture are based upon State of Texas standards. Students should check with advisors for the most current program policies and procedures.

This program is approved to be offered at the Texas A&M Higher Education Center in McAllen, Texas.

Program Requirements

First Year

		Semester Credit Hours
Fall		
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition or Composition and Rhetoric	3
HIST 105 or HIST 106	History of the United States or History of the United States	3
TEFB 273	Introduction to Culture, Community, Society and Schools	3
Life and physical sciences (p. 27)		4
MATH 135	Mathematics for Teachers I	3
Semester Credit Hours		16
Spring		
HIST 226	History of Texas	3
Communication (p. 27)		3
Creative arts (p. 30)		3
Life and physical sciences (p. 27)		4
MATH 136	Mathematics for Teachers II	3
Semester Credit Hours		16
Summer		
POLS 206	American National Government	3
Life and physical sciences (p. 27)		4
Semester Credit Hours		7

Second Year

Fall		
INST 210	Understanding Special Populations	3
INST 222	Foundations of Education in a Multicultural Society	3
MASC 351	Problem Solving in Mathematics	3
MATH 365	Structure of Mathematics I ¹	3

Life and physical sciences (p. 27)		4
Semester Credit Hours		16
Spring		
MASC 420	Inquiries in Life and Earth Sciences	3
MATH 366	Structure of Mathematics II ¹	3
RDNG 468 or RDNG 460	Essential Foundations of Language and Literacy for All Learners or Language and Reading	3
Select one of the following:		3
EPSY 435	Educational Statistics	
STAT 302	Statistical Methods	
STAT 303	Statistical Methods	
Life and physical sciences (p. 27)		4
Semester Credit Hours		16
Summer		
POLS 207	State and Local Government	3
Language, philosophy and culture (p. 28)		3
Semester Credit Hours		6
Third Year		
Fall		
EDCI 353	Early Childhood through Adolescent Education	3
EDCI 365	Using Technology Classrooms	3
INST 362	English as a Second Language Methods I	3
MASC 450	Integrated Mathematics	3
MATH 367	Structure of Mathematics III	3
Life and physical sciences (p. 27) ²		1
Semester Credit Hours		16
Spring		
EDCI 354	Early Childhood and Adolescent Curriculum and Lesson Design	3
INST 363	English as a Second Language Methods II	3
MASC 320	Inquiries in Physical Science	3
RDNG 372	Reading and Writing across the Middle Grades Curriculum	3
TEFB 371	Dynamics and Management in Multicultural/Inclusionary Learning Environments	3
Semester Credit Hours		15
Fourth Year		
Fall		
MEFB 452	Curriculum and Instruction for Middle Grades	3
MEFB 460	Math Methods in Middle Grades	3
MEFB 470	Science Methods in Middle Grades	3
RDNG 490	Assessment in Reading Instruction in Middle Grades	3
Semester Credit Hours		12
Spring		
MEFB 497 or TEED 425	Supervised Clinical Teaching or Supervised Clinical Teaching	6
Semester Credit Hours		6
Total Semester Credit Hours		126

¹ Must be taken at Texas A&M University.

² KINE 120 is recommended.

Must make a grade of C or better in each course.

A minimum of 2.75 GPA on all coursework that applies to the degree plan and a minimum of 2.5 GPA on all coursework completed at Texas A&M is required for this degree.

Education - BS, Pre-K-6, Generalist Certification

This program is for those seeking Texas teacher certification in General Education for grades PreK-6.

The Department of Teaching, Learning and Culture (TLAC) offers a Bachelor of Science (BS) in Education. Completion of this program leads to teacher certification in grades PreK-6 General Education, with supplemental English as a Second Language certification within the constraints outlined by the Texas Education Agency. For complete information, see an academic advisor in the Education and Human Development Undergraduate Advising Office. Details and contact information can be found at <https://education.tamu.edu/undergraduate-advising/>.

Programs in the Department of Teaching, Learning and Culture are based upon State of Texas standards. Students should check with advisors for the most current program policies and procedures.

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition or Composition and Rhetoric	3
HIST 105 or HIST 106	History of the United States or History of the United States	3
TEFB 273	Introduction to Culture, Community, Society and Schools	3
Life and physical sciences (p. 27)		4
MATH 135	Mathematics for Teachers I	3
Semester Credit Hours		16
Spring		
HIST 226	History of Texas	3
Communication (p. 27)		3
Creative arts (p. 30)		3
Life and physical sciences (p. 27)		4
MATH 136	Mathematics for Teachers II	3
Semester Credit Hours		16
Summer		
POLS 206	American National Government	3
Language, philosophy and culture (p. 28)		3
Semester Credit Hours		6

Second Year**Fall**

INST 210	Understanding Special Populations	3
INST 222	Foundations of Education in a Multicultural Society	3
MASC 351	Problem Solving in Mathematics	3
RDNG 351	Foundational Skills of Decoding for Elementary Students	3
RDNG 373	Foundational Skills of Language Comprehension for Elementary Students	3
Life and physical sciences (p. 27) ¹		1

Semester Credit Hours 16

Spring

EDCI 353	Early Childhood through Adolescent Education	3
EDCI 365	Using Technology Classrooms	3
MASC 420	Inquiries in Life and Earth Sciences	3
MATH 365	Structure of Mathematics I ²	3
RDNG 468	Essential Foundations of Language and Literacy for All Learners	3

Semester Credit Hours 15

Summer

POLS 207	State and Local Government	3
Select one of the following:		3
ECON 202	Principles of Economics	
ECON 203	Principles of Economics	
GEOG 304	Economic Geography	

Semester Credit Hours 6

Third Year**Fall**

INST 362	English as a Second Language Methods I	3
GEOG 201 or GEOG 202	Introduction to Human Geography or Geography of the Global Village	3
MASC 320	Inquiries in Physical Science	3
MATH 366	Structure of Mathematics II ²	3
RDNG 473	Assessment in Reading Instruction	3

Semester Credit Hours 15

Spring

EDCI 354	Early Childhood and Adolescent Curriculum and Lesson Design	3
HIST 300-499 (p. 1069)		3
INST 363	English as a Second Language Methods II	3
TEFB 371	Dynamics and Management in Multicultural/Inclusionary Learning Environments	3
Select one of the following:		3
EPSY 435	Educational Statistics	
STAT 302	Statistical Methods	
STAT 303	Statistical Methods	

Semester Credit Hours 15

Fourth Year**Fall**

RDNG 467	Reading and the Language Arts	3

TEFB 410	Social Studies and the Humanities in the Elementary School	3
TEFB 412	Mathematics in the Elementary School	3
TEFB 413	Science in the Elementary School	3

Semester Credit Hours 12

Spring

TEFB 426 or TEED 425	Supervised Clinical Teaching or Supervised Clinical Teaching	6

Semester Credit Hours 6

Total Semester Credit Hours 123

¹ KINE 120 is recommended

² Must be taken at Texas A&M University.

Must make a grade of C or better in each course.

A minimum of 2.75 GPA on all coursework that applies to the degree plan and a minimum of 2.5 GPA on all coursework completed at Texas A&M is required for this degree.

Secondary Education - Clinical Teaching Minor

This program is for Secondary Education minors seeking Texas teacher certification, completing the required clinical teaching phase after Educator Preparation Program admission.

The Department of Teaching, Learning and Culture (TLAC) offers a minor in Secondary Education – Clinical Teaching to students with non-education majors seeking secondary teacher certification who are declared Secondary Education (SEED) minors previously admitted to the College of Education and Human Development's Educator Preparation Program (EPP). Only students who have added the Secondary Education (SEED) minor and accepted admission into the EPP can add the Secondary Education – Clinical Teaching minor. The SEED minor establishes and meets the mandatory 300-hour clock hour Texas Education Agency coursework, field experiences, and certification testing requirements. The Secondary Education – Clinical Teaching minor supports students in the capstone phase required for teacher certification.

Program Requirements

Code	Title	Semester Credit Hours
Select one of the following:		6-12
MEFB 497	Supervised Clinical Teaching	
TEFB 426	Supervised Clinical Teaching	
TEED 425	Supervised Clinical Teaching	
Educator content area ¹		3-9
Total Semester Credit Hours		15

¹ To be selected in consultation with advisor. Students will apply coursework taken for the certification area claimed.

Secondary Education - Minor

This minor is for non-education majors seeking middle or high school teacher certification.

The Department of Teaching, Learning and Culture (TLAC) offers a minor in Secondary Education to students with non-education majors. The minor requires 18 semester credit hours of education coursework, and 6 hours of clinical teaching, for students seeking teacher certification for middle and high school content areas. Students must declare a major in a subject area for which teacher certification options are available in order to be eligible for this minor. For complete information, see the College of Education and Human Development Secondary Education (SEED) minor program coordinator. Details and contact information are available at <https://tlac.tamu.edu/academics/aggieteach-secondary-education/>

To meet Teacher Certification requirements, student must also successfully complete clinical teaching (MEFB 497-6 hours). A 2.5 GPA is required in minor courses to pursue teacher certification and a 2.75 cumulative GPA to be admitted to Teacher Education.

Program Requirements

Code	Title	Semester Credit Hours
INST 210	Understanding Special Populations	3
INST 222	Foundations of Education in a Multicultural Society	3
RDNG 372	Reading and Writing across the Middle Grades Curriculum	3
or RDNG 465 or Reading in the Middle and Secondary Grades		
TEFB 322	Teaching and Schooling in Modern Society	3
or RDNG 47 or Reading/Language Arts Methods in Middle Grades Education		
TEFB 324	Teaching Skills II	3
Select one of the following:		3
DCED 401	Dance Pedagogy	
MEFB 450	Social Studies Methods in the Middle Grades	
TEFB 406	Science in the Middle and Secondary School	
RDNG 490	Assessment in Reading Instruction in Middle Grades	
TEFB 407	Mathematics in the Middle and Senior School	
Total Semester Credit Hours		18

¹ English majors must take RDNG 470. The course is taken concurrently with RDNG 490.

Students must make a grade of C or better in all courses.

A 2.75 GPA is required in minor courses to pursue teacher certification.

Substitutions must be approved by the Department of Teaching, Learning and Culture advisors.

A semester of clinical teaching is also required for teacher certification; clinical teaching is scheduled after all coursework is complete.

Secondary Graduate Certification Program

This program is designed for those candidates who have completed the baccalaureate degree and desire initial certification at the secondary level. Candidates are admitted upon recommendation of departmental advisors and progress through summer, fall and spring as a cohort. The certification program requires completion of 21 graduate semester credit hours and the successful completion of appropriate State examinations. A full public school year internship and the opportunity to apply all coursework toward the Master of Education degree are unique features of this program. The candidate may, upon approval by the department and a cooperating school district, serve as an intern in a full-time salaried teacher of record position, in a part-time salaried teaching position, or as a paid substitute teacher. All candidates will serve a full public school year internship whether in a salaried or non-salaried position.

Prerequisites

Completion of the following prior to the first summer session:

1. Baccalaureate degree from an accredited institution with a GPA of 2.75.
2.

Code	Title	Semester Credit Hours
Nine (9) semester credit hours		9
INST 210	Understanding Special Populations	
TEFB 322	Teaching and Schooling in Modern Society	
TEFB 324	Teaching Skills II	
3. Coursework for one teaching field as approved by the teaching field advisor.
4. Pass the appropriate content area TExES exam.

Course of Study for Secondary Certification at the Post-Baccalaureate Level

Enrollment in the following courses is limited to candidates pursuing initial secondary certification in the post-baccalaureate program.

Course	Title	Semester Credit Hours
First Year		
Summer		
BESL 622	Teaching English as a Second Language	3
TEED 602	Contemporary Perspectives on Education	3
TEED 649	Instructional Strategies in Academic Specialties in Middle and Senior HS: Principles & Applications	3
Semester Credit Hours		9
Fall		
TEED 682	Seminar	3

TEED 684	Professional Internship ²	3-6
Semester Credit Hours		6-9
Spring		
TEED 682	Seminar	3
TEED 684	Professional Internship ²	3-6
Semester Credit Hours		6-9
Total Semester Credit Hours		21-27

² Candidates in a one-half time paid or non-paid internship may, with approval of an advisor, enroll in 3 credit hours of approved coursework, providing it does not interfere with the internship day.

Recommendation for Certification. Upon successful completion of the three prerequisite courses, the teaching field plan (minimum of 24 credit hours) during the summer, fall and spring semesters, a demonstrated competency in speech and technology, and passing scores on all State-required examinations, candidates will be recommended for certification.

NOTE: To complete the Master of Education degree, candidates will enroll in Teaching, Learning and Culture foundation courses and courses in their teaching field(s) as approved by their graduate advisory committee. The department also offers a "certification only" option for secondary certification. Contact the TLAC office for information.

Secondary Certification through the aggieTEACH Program

Students interested in pursuing a secondary education minor should contact their content area undergraduate advising office. They can also meet with the Department of Teaching, Learning and Culture Secondary Education (SEED) Minor program coordinator. Details can be found at the aggieTeach Secondary Education (<https://tlac.tamu.edu/academics/aggieteach-secondary-education/>) webpage.

COLLEGE OF ENGINEERING

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General Statement

Engineering is the application of science and mathematics to the solution of relevant problems in our society. To a great extent, our current standard of living and high level of technology are due to the diligent and innovative efforts of engineers. In spite of the increasing expense of basic resources, modern engineers have succeeded in maintaining stable costs for a wide variety of goods, and at the same time have used their design and analysis abilities to introduce new products and technologies for the betterment of society.

The accelerating pace of industrial and technological developments has created an ever-increasing demand for highly qualified, professional engineers to maintain the momentum already achieved, and to extend and direct the course of these developments. The ever-expanding population and the increased demands for goods and services have imposed new challenges to provide effective solutions while minimizing unwanted side effects. Engineers recognize that all actions taken have their respective costs, and that solutions to long-standing societal problems are found in careful, thorough planning and study. With a pragmatic background in problem solving, engineers are perhaps best qualified to address society's problems.

The complexities of the current environment are such that all resources must be used in the best possible manner. Thus, the College of Engineering, through its curricula, strives to educate and train engineers who have the breadth of vision to formulate and solve the problems of today and the future. It is expected that students who conscientiously apply themselves and successfully complete an engineering program will

be technically trained and socially educated, thereby being well prepared to make a significant contribution to the world in which they work.

The mission of the College of Engineering is to serve Texas, the nation and the global community by providing engineering graduates who are well founded in engineering fundamentals, instilled with the highest standards of professional and ethical behavior, and prepared to meet the complex technical challenges of society.

To achieve this mission the College of Engineering is committed to:

- ensuring an academic environment conducive to our faculties achieving the highest levels of academic and research excellence;
- building upon our traditional partnerships with industry, engineering practitioners and former students, to enhance our impact on the profession of engineering;
- encouraging excellence, innovation and cross-disciplinary initiatives in education and research;
- providing national and international leadership in undergraduate and graduate engineering education;
- becoming the engineering college of choice for the increasingly diverse citizenry of the state; and
- encouraging and supporting opportunities for our students to grow beyond their chosen disciplines by participation in ethics courses, leadership programs, study-abroad programs and research.

A student engineer can pursue any one of several degree plans, according to personal ambitions, interests and abilities. The student may choose the traditional BS degree and consider advanced research-oriented graduate programs leading to the MS and PhD degrees. Alternatively, at the graduate level, the student may select the Master of Engineering or the Doctor of Engineering program which are directed toward professional engineering.

Within the College of Engineering, the undergraduate programs in aerospace engineering, architectural engineering, biological and agricultural engineering, biomedical engineering, chemical engineering, civil engineering, computer engineering, electrical engineering, environmental engineering, industrial engineering, interdisciplinary engineering, materials science and engineering, mechanical engineering, nuclear engineering, ocean engineering, and petroleum engineering are accredited by the Engineering Accreditation Commission (EAC) of ABET, www.abet.org (<https://www.abet.org/>). The electronic systems engineering technology program, manufacturing and mechanical engineering technology program, industrial distribution program, and multidisciplinary engineering technology program are accredited by the Engineering Technology Accreditation Commission (ETAC) of ABET, www.abet.org (<https://www.abet.org/>). The BS computer science program is accredited by the Computing Accreditation Commission (CAC) of ABET, www.abet.org (<https://www.abet.org/>).

Enrollment Requirements and First Year Curriculum

The minimum requirements for entrance to the University are listed in the earlier pages of this catalog. Because of the importance of science and mathematics to engineering, high school students who aspire to pursue a career in engineering are encouraged to take as many of these courses as possible. In particular, high school preparation should include four years of mathematics and four years of science emphasizing algebra, geometry, trigonometry, calculus, chemistry, physics and biology.

A critical step in an engineering education is proper individual placement in the first courses undertaken. The College of Engineering strongly recommends the following guidelines to students participating in the math advanced placement examinations in high school. Incoming engineering students can earn advanced placement (AP) credits for MATH 151 with a score of 4 on the Calculus AB exam or 3 on the BC exam, and for MATH 151 and MATH 152 by a score of 4 on the BC exam. While the student can accept these AP credits and enroll in the next course in the engineering mathematics sequence, the college recommends a more conservative decision about accepting advanced placement credits in math. Students who earn a 4 or 5 on the Calculus AB exam or a 3 or 4 on the BC exam are recommended to begin in MATH 151. Students who score a 5 on the Calculus BC exam are recommended to begin in MATH 151 or MATH 152. These conservative recommendations help ensure students have thoroughly mastered the content that is fundamental to the engineering curriculum. Students should discuss their choice with their assigned undergraduate academic advisor before registering for mathematics classes. All first time in college students admitted into the College of Engineering are required to complete the Math Placement Exam (MPE) (<https://engineering.tamu.edu/academics/undergraduate/math-placement-exam/>) and should review algebra, trigonometry, and geometry prior to taking the MPE.

Students who begin in general engineering programs in College Station (<https://engineering.tamu.edu/admissions-and-aid/incoming-students/>), (<https://engineering.tamu.edu/admissions-and-aid/incoming-students/>) Galveston (<https://engineering.tamu.edu/admissions-and-aid/engineering-at-galveston/>) or McAllen (<https://engineering.tamu.edu/admissions-and-aid/engineering-at-mcallen/>) or who are in Texas A&M Engineering at Blinn (<https://engineering.tamu.edu/admissions-and-aid/engineering-at-blinn-bryan/>), or the Texas A&M Engineering Academy Programs (<https://engineering.tamu.edu/academics/>) pursue a common first year engineering curriculum to provide them opportunities to explore the various engineering majors (<https://engineering.tamu.edu/academics/explore-engineering/>). Students are introduced to the different engineering majors in the first year engineering courses, ENGR 102, ENGR 216/PHYS 216 and ENGR 217/PHYS 217. Additionally, students are encouraged to leverage additional resources, including the Career Center (<https://careercenter.tamu.edu/>), faculty, and academic advisors, to gain more information about engineering majors. All general engineering students must complete the following first year engineering curriculum requirements over the course of at least two semesters before applying to an engineering major: two engineering courses, two math courses, and two science courses. The entry-to-a-major (ETAM) process (<https://engineering.tamu.edu/academics/undergraduate/entry-to-a-major/>) enables general engineering students to take ownership of their future by identifying at least three majors that are a good match for their academic and career goals. The ETAM process is designed to place students in the highest rank major possible based upon academic performance, ETAM application content, and program capacities. Students who begin in general engineering programs in College Station (<https://engineering.tamu.edu/admissions-and-aid/incoming-students/>), (<https://engineering.tamu.edu/admissions-and-aid/incoming-students/>) Galveston (<https://engineering.tamu.edu/admissions-and-aid/engineering-at-galveston/>) or McAllen (<https://engineering.tamu.edu/admissions-and-aid/engineering-at-mcallen/>) or who are in Texas A&M Engineering at Blinn (<https://engineering.tamu.edu/admissions-and-aid/engineering-at-blinn-bryan/>), or the Texas A&M Engineering Academy Programs (<https://engineering.tamu.edu/academics/>) are encouraged to

be in a major as early as possible; and must be in a major by the end of the fourth semester.

It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care and in consultation with an academic advisor to ensure that prerequisites for all courses are met.

Bring Your Own Device (BYOD) (<https://engineering.tamu.edu/easa/areas/academics/byod/>)

Just as students are required to have specific textbooks and supplies in order to gain the highest quality engineering educational experience, the College of Engineering requires students to purchase a computer to complement the course instruction. Because of the importance of computing in the disciplines housed within the college, all entering students are required to possess a portable, network-ready personal computer capable of running software appropriate to their academic program, as well as other required technology (<https://engineering.tamu.edu/academics/byod/devices/>). The vast majority of the students entering the College already bring some form of desktop or laptop computer with them when they begin school. Unfortunately, the variation in the types of computers makes it next to impossible for instructors to routinely ask students to use their own computers in the classroom. A computer designated by the College and purchased by entering students will provide students the convenience to explore course content anytime, anywhere.

While there are many computers available, the College can only guarantee performance and provide support for the specific computers identified by the College of Engineering. These computers will accommodate most of the needs of an engineering student throughout a four-year degree plan, balancing performance, cost and expected life of the computer. The computers have been negotiated with the various vendors, which are external to Texas A&M University, at a price point that is lower than what an individual would likely be able to negotiate. The price for each computer includes up to a four-year warranty.

For financial aid recipients, purchase of the computer device can be considered in the cost of attendance. To request this, please complete the Request to Change Cost of Attendance (<https://aggie.tamu.edu/resources/forms-and-media/>) form for Scholarships & Financial Aid. Submission of documentation does not guarantee additional aid will be awarded. In certain situations, students may not be eligible for additional funding.

Your engineering education requires a computer to complement the course instruction. Undergraduate students entering the college of engineering are strongly encouraged to purchase from our list of recommended and supported devices (<https://engineering.tamu.edu/academics/byod/devices/>). Doing so guarantees performance, and hardware and software support throughout your years here as an engineering student. Should you choose a device not on this list, know that we cannot guarantee that the required software will run effectively, or that our IT team will be able to support your device. No student will be denied admission to Texas A&M University based on an inability to purchase a computer.

Texas A&M Engineering students co-enrolled in the Texas A&M Engineering Academies (<https://engineering.tamu.edu/academics/>) must apply for financial aid from the partner community college. Any questions about

including the purchase of a computer in the cost of attendance should be directed to the community college financial aid office.

For more information, including specific requirements, visit the Bring Your Own Device (BYOD) website (<http://engineering.tamu.edu/easa/areas/academics/byod/>).

ENGR^[X]

ENGR^[X] is a zero-credit-hour required program that is composed of approved engineering-centric activities that meet the criteria of high-impact learning experiences. Undergraduate students can use their participation in one of these activities to satisfy in part their ENGR^[X] requirement. Full satisfaction of the ENGR^[X] requirement includes participating in an engineering-centric activity and submitting a meaningful, self-reflection that discusses the impact and overall experience on the student's education.

Each department in the College of Engineering identifies the activities it will accept in satisfying a student's ENGR^[X] requirement. Some activities may include the following:

- Education Abroad (<https://abroad.tamu.edu/>)
- Internship or Co-op Experience (<http://careercenter.tamu.edu/current-students/>)
- Grand Challenge Scholars Program (<https://engineering.tamu.edu/student-life/gcsp/>)
- The University, College, or Departmental Honors Program (<http://honorsprograms.tamu.edu/>)
- Aggies Invent (<https://engineering.tamu.edu/student-life/aggies-invent/>)
- Aggie Challenge (<https://engineering.tamu.edu/academics/undergraduate/aggie-challenge/>)
- Undergraduate research (<https://engineering.tamu.edu/academics/undergraduate/undergraduate-bridges.html>)
- TAMU Minor or Certificate Programs, like the Zachry Leadership Program (<https://engineering.tamu.edu/student-life/zachry-leadership-program/>)
- Department design competitions
- Leadership in student organizations (<https://engineering.tamu.edu/student-life/student-orgs.html>)

College Prerequisite Policy

The following prerequisite policy applies to any student in a College of Engineering undergraduate degree program and to any student who seeks admission to an undergraduate degree program in the College of Engineering. This policy is in addition to prerequisite policies imposed by the University (Texas A&M University Student Rules). For complete details concerning this policy, students should contact their Undergraduate Advising Office.

Students must earn a grade of C or better in all courses identified in each College of Engineering undergraduate degree program and any prerequisites for these courses. If a student earns a grade of D or F in any of these courses, the student is required to repeat the course before enrolling in a more advanced course that has the D/F course as a prerequisite. A student may attempt a course no more than three times, including courses graded Q or W but excluding those graded NG, unless approval has been received from their department. A student must complete all

prerequisites for a course with a grade of C or better by the start of the semester in which the student plans to enroll in the course.

A student is responsible for checking the prerequisites for each course to ensure the prerequisite requirements have been satisfied. A student who registers for a course for which he/she lacks the necessary prerequisite course(s) and/or the prerequisite grade requirement will be required to drop the course. A student who is told to drop a course and is still enrolled by the deadline set each semester may be administratively dropped by their department. If a student is administratively dropped from a course, the student is responsible for all financial obligations associated with the drop. An administrative drop may adversely impact (including, but not limited to): health insurance benefits, financial aid, athletic eligibility, INS status, veterans' benefits, and eligibility to participate in extracurricular activities.

Other Requirements

All required coursework must be taken for a grade to satisfy requirements for a degree in the College of Engineering. Courses cannot be taken on a satisfactory/unsatisfactory basis to satisfy this requirement.

Fast Track Program

This program allows students to begin making progress toward a master's degree while completing the undergraduate program. Each participating department in the College of Engineering has streamlined its program for Fast Track participants by substituting specific graduate courses for selected undergraduate offerings. Academically qualified students take these 600-level courses during their senior year, earning graduate credit while fulfilling undergraduate requirements through "credit by exam." The individual department sets its own grade and exam requirements for earning dual credit. The department also establishes the maximum number of credit hours allowed for acceleration, usually five to seven.

Industry-University Cooperative Education

Cooperative education is a study-work plan of education in which a student alternates periods of attendance in college or university with periods of employment in industry related to his or her major. The practice of engineering is an art which is learned through practice as well as in the classroom. The cooperative education program provides the education that can be achieved from practice by having the student work with professional engineers on the job. Consequently, the students who graduate with cooperative education experience have both the academic background and the practical experience to enhance qualifications and preparation for successful employment in the profession of engineering. The cooperative education work periods also provide an income for students that allows them to pay for their school expenses.

Those who wish additional information concerning this program should contact the Career Center (<https://careercenter.tamu.edu/current-students/find-an-internship-job/co-op/>).

Advanced Study

Students who rank in the upper half of their undergraduate class should give serious consideration to developing their full intellectual potential in engineering by continuing with advanced studies at the graduate level. Two routes are available for students. The traditional master of science and doctor of philosophy degrees should be considered by students who wish to go into research fields. For those students interested in

the practice of professional engineering, the master of engineering and doctor of engineering degrees should be given serious consideration. The professional doctor of engineering degree was established in the fall of 1974 to fill a need for better-educated engineers in the practice of engineering. Students may enter this program at any time after they receive the bachelor's degree in engineering by applying and being accepted to a departmental graduate program within the College of Engineering. Master's level degrees require a minimum of one year of course work after the bachelor's, and the doctoral degrees require a minimum of an additional two years of coursework. The doctor of philosophy also requires a dissertation based on research by the student, and the doctor of engineering requires at least one year of internship experience in industry or government.

For more information concerning these programs, please refer to the *Texas A&M University Graduate and Professional Catalog* or contact the College of Engineering Graduate Programs website (<https://engineering.tamu.edu/academics/graduate/>).

The engineering programs also provide a foundation for further education in the fields of medicine, law or business. An engineering background will prepare the individual to understand, contribute to and embrace technical advances in these fields. Students can become physicians with the EnMed (<https://enmed.tamu.edu/>) program which is available for outstanding Texas A&M University College of Engineering students who are interested in obtaining a medical degree with the Texas A&M Naresh K. Vashisht College of Medicine. EnMed students earn both a Medical Doctorate (MD) and Master of Engineering (MEng) degree concurrently, which uniquely positions them to pursue a career as a physician, or physician scientist, or medical innovator.

The Texas A&M Engineering Academies

The Texas A&M Engineering Academies are co-enrollment programs between the College of Engineering and select two-year institutions. Students in the Texas A&M Engineering Academy program are Texas A&M engineering students who take math, science, and core courses from the two-year institution and engineering courses from the College of Engineering. Except for the co-enrollment program Texas A&M Engineering at Blinn, the admission process for the Texas A&M Engineering Academies is unique to each partner institution, with the offer of admission to the Texas A&M Engineering Academy made by Texas A&M University. Students enrolled in a Texas A&M Engineering Academy who satisfy the program GPA requirements, may be considered for entry to a major as early as the end of the first year.

Eligible students receive financial aid based upon their combined credit hours from both institutions.

For more information, including specific requirements for each of the partner institutions, visit Texas A&M Engineering Academies (<https://engineering.tamu.edu/academies/>).

Majors

College of Engineering

- Bachelor of Science in Biological and Agricultural Engineering (p. 167) — offered in conjunction with the College of Agriculture and Life Sciences

Department of Aerospace Engineering

- Bachelor of Science in Aerospace Engineering (p. 595)

Department of Biomedical Engineering

- Bachelor of Science in Biomedical Engineering (p. 599)

Artie McFerrin Department of Chemical Engineering

- Bachelor of Science in Chemical Engineering (p. 605)

Zachry Department of Civil and Environmental Engineering

- Bachelor of Science in Civil Engineering, Coastal Engineering Track (p. 611)
- Bachelor of Science in Civil Engineering, Construction Engineering and Management Track (p. 614)
- Bachelor of Science in Civil Engineering, Environmental Engineering Track (p. 616)
- Bachelor of Science in Civil Engineering, General Civil Engineering Track (p. 618)
- Bachelor of Science in Civil Engineering, Geotechnical Engineering Track (p. 620)
- Bachelor of Science in Civil Engineering, Structural Engineering Track (p. 623)
- Bachelor of Science in Civil Engineering, Transportation and Infrastructure Materials Engineering Track (p. 625)
- Bachelor of Science in Civil Engineering, Water Resources Engineering Track (p. 627)
- Bachelor of Science in Environmental Engineering (p. 630)

Department of Computer Science and Engineering

- Bachelor of Arts in Computer Science (p. 637)
- Bachelor of Science in Computer Engineering (p. 635)
- Bachelor of Science in Computer Science (p. 638)

Department of Electrical and Computer Engineering

- Bachelor of Science in Computer Engineering (p. 644)
- Bachelor of Science in Electrical Engineering (p. 646)

Department of Engineering Technology and Industrial Distribution

- Bachelor of Science in Electronic Systems Engineering Technology (p. 654)
- Bachelor of Science in Industrial Distribution (p. 655)
- Bachelor of Science in Manufacturing and Mechanical Engineering Technology (p. 657)
- Bachelor of Science in Multidisciplinary Engineering Technology, Electro Marine Engineering Technology Track (p. 659)
- Bachelor of Science in Multidisciplinary Engineering Technology, Mechatronics Track (p. 661)
- Bachelor of Science in Multidisciplinary Engineering Technology, STEM Education Track (p. 663)

Wm Michael Barnes '64 Department of Industrial and Systems Engineering

- Bachelor of Science in Data Engineering (p. 668)
- Bachelor of Science in Industrial Engineering (p. 670)
- Bachelor of Science in Industrial Engineering and Master of Public Health in Occupational Safety and Health, 5-Year Degree Program (p. 671)
- Bachelor of Science in Industrial Engineering and Master of Science in Finance, 5-Year Degree Program (p. 673)

Department of Materials Science and Engineering

- Bachelor of Science in Materials Science and Engineering (p. 679)

J. Mike Walker '66 Department of Mechanical Engineering

- Bachelor of Science in Mechanical Engineering (p. 686)

Department of Multidisciplinary Engineering

- Bachelor of Science in Architectural Engineering, Mechanical Systems for Buildings Track (p. 690)
- Bachelor of Science in Architectural Engineering, Structural Systems for Buildings Track (p. 692)
- Bachelor of Science in Interdisciplinary Engineering (p. 693)
- Bachelor of Science in Interdisciplinary Engineering and Master of Public Health in Occupational Safety and Health, 5-Year Degree Program (p. 695)
- Bachelor of Science in Interdisciplinary Engineering and Juris Doctor, 6-Year Degree Program (p. 697)

Department of Nuclear Engineering

- Bachelor of Science in Nuclear Engineering (p. 702)

Department of Ocean Engineering

- Bachelor of Science in Ocean Engineering (p. 705)

Harold Vance Department of Petroleum Engineering

- Bachelor of Science in Petroleum Engineering (p. 709)

Minors

Department of Biomedical Engineering

- Biomedical Engineering Minor (p. 601)

Department of Computer Science and Engineering

- Computer Science Minor (p. 640)
- Cybersecurity Minor (p. 640)
- Game Design and Development Minor (p. 641)

Department of Electrical and Computer Engineering

- Electrical Engineering Minor (p. 648)

Department of Engineering Technology and Industrial Distribution

- Embedded Systems Integration Minor (p. 665)
- Information Technology Service Management Minor (p. 665)
- Technical Sales Minor (p. 666)

Wm Michael Barnes '64 Department of Industrial and Systems Engineering

- Industrial Engineering Minor (p. 675)

Department of Materials Science and Engineering

- Materials Science and Engineering Minor (p. 680)

Department of Multidisciplinary Engineering

- Engineering Entrepreneurship Minor (p. 699)
- Engineering Project Management Minor (p. 700)

Department of Nuclear Engineering

- Nuclear Engineering Minor (p. 703)
- Radiological Health Engineering Minor (p. 704)

Certificates

The College of Engineering has designed the following certificate programs to offer ambitious students the opportunity to go beyond the traditional curriculum and gain specific knowledge in a concentration area. Students are required to consult with their academic advisor prior to submitting an application for a certificate. Enrolling and being accepted into a certificate program does not guarantee registration into required courses. Each certificate will be recognized on the candidate's transcript. A coordinator reviews each student's coursework via a certificate worksheet and requirements met prior to certification. Certificate coordinators are given the discretion to determine the eligibility of students in other colleges and/or majors to pursue College of Engineering certificates. For specific information on each certificate available, visit the College of Engineering website.

College of Engineering

- Engineering Concept, Creation, and Commercialization Certificate (p. 591)
- Holistic Leadership in Engineering Certificate (p. 592)
- International Engineering Certificate (p. 592)

Artie McFerrin Department of Chemical Engineering

- Engineering Therapeutics Manufacturing Certificate (p. 606)
- Safety Engineering Certificate (<https://catalog.tamu.edu/undergraduate/engineering/chemical/safety-engineering-certificate/>)

Department of Computer Science and Engineering

- Cyber Operations Certificate (p. 641)

Wm Michael Barnes '64 Department of Industrial and Systems Engineering

- Data Center Operations Engineering Certificate (p. 675)
- Data Engineering Certificate (p. 676)
- Engineering Systems Management Certificate (p. 676)

Department of Materials Science and Engineering

- Corrosion Science and Engineering Certificate (p. 681)
- Polymer Specialty Certificate (p. 682)

Harold Vance Department of Petroleum Engineering

- Data Analytics for Petroleum Industry Certificate (p. 711)
- Petroleum Ventures Certificate (p. 711)

Masters

Department of Aerospace Engineering

- Master of Engineering in Aerospace Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/aerospace/meng/>)
- Master of Engineering in Space Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/aerospace/space-engineering-meng/>)
- Master of Science in Aerospace Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/aerospace/ms/>)

Department of Biomedical Engineering

- Master of Engineering in Biomedical Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/biomedical/meng/>)
- Master of Science in Biomedical Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/biomedical/ms/>)

Artie McFerrin Department of Chemical Engineering

- Master of Engineering in Chemical Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/chemical/meng/>)

- Master of Science in Chemical Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/chemical/ms/>)
- Master of Science in Safety Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/chemical/ms-seng/>)

Zachry Department of Civil and Environmental Engineering

- Master of Engineering in Civil Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/civil-environmental/meng/>)
- Master of Science in Civil Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/civil-environmental/ms/>)

Department of Computer Science and Engineering

- Master of Computer Science in Computer Science (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/computer-science/mcs/>)
- Master of Engineering in Computer Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/computer-science/engineering-meng/>)
- Master of Science in Artificial Intelligence (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/computer-science/artificial-intelligence-ms/>)
- Master of Science in Computer Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/computer-science/engineering-ms/>)
- Master of Science in Computer Science (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/computer-science/ms/>)

Department of Electrical and Computer Engineering

- Master of Engineering in Computer Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/electrical-computer/computer-meng/>)
- Master of Engineering in Electrical Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/electrical-computer/electrical-meng/>)
- Master of Science in Computer Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/electrical-computer/computer-ms/>)
- Master of Science in Electrical Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/electrical-computer/electrical-ms/>)
- Master of Science in Microelectronics and Semiconductors (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/electrical-computer/microelectronics-semiconductors-ms/>)

Department of Engineering Technology and Industrial Distribution

- Master of Engineering Technical Management in Technical Management (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/technology-industrial-distribution/metm/>)
- Master of Industrial Distribution in Industrial Distribution (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/technology-industrial-distribution/mid/>)
- Master of Science in Engineering Technology (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/technology-industrial-distribution/ms-entc/>)

Wm Michael Barnes '64 Department of Industrial and Systems Engineering

- Master of Engineering in Industrial Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/industrial-systems/meng/>)
- Master of Engineering in Systems Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/industrial-systems/systems-engineering-meng/>)
- Master of Science in Engineering Management (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/industrial-systems/engineering-systems-management-ms/>)
- Master of Science in Industrial Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/industrial-systems/ms/>)

Department of Materials Science and Engineering

- Master of Engineering in Materials Science and Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/materials-science/meng/>)
- Master of Science in Materials Science and Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/materials-science/ms/>)

J. Mike Walker '66 Department of Mechanical Engineering

- Master of Engineering in Mechanical Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/mechanical/meng/>)
- Master of Science in Mechanical Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/mechanical/ms/>)

Department of Multidisciplinary Engineering

- Master of Engineering in Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/multidisciplinary/engineering-meng/>)
- Master of Engineering in Engineering and Doctor of Medicine Combined Degree Program (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/interdepartmental-degree-programs/men-md/>)

[colleges-schools-interdisciplinary/engineering/interdepartmental-degree-programs/men-md/](https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/interdepartmental-degree-programs/men-md/))

- Master of Science in Interdisciplinary Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/multidisciplinary/interdisciplinary-ms/>)

Department of Nuclear Engineering

- Master of Engineering in Nuclear Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/nuclear/meng/>)
- Master of Science in Nuclear Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/nuclear/ms/>)

Department of Ocean Engineering

- Master of Engineering in Ocean Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/ocean/ocean-meng/>)
- Master of Science in Ocean Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/ocean/ocean-ms/>)

Harold Vance Department of Petroleum Engineering

- Master of Engineering in Petroleum Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/petroleum/meng/>)
- Master of Science in Petroleum Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/petroleum/ms/>)

Doctoral

Department of Aerospace Engineering

- Doctor of Philosophy in Aerospace Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/aerospace/phd/>)

Department of Biomedical Engineering

- Doctor of Philosophy in Biomedical Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/biomedical/phd/>)

Artie McFerrin Department of Chemical Engineering

- Doctor of Philosophy in Chemical Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/chemical/phd/>)

Zachry Department of Civil and Environmental Engineering

- Doctor of Philosophy in Civil Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/civil-environmental/phd/>)

Department of Computer Science and Engineering

- Doctor of Philosophy in Computer Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/computer-science/engineering-phd/>)
- Doctor of Philosophy in Computer Science (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/computer-science/phd/>)

Department of Electrical and Computer Engineering

- Doctor of Philosophy in Computer Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/electrical-computer/computer-phd/>)
- Doctor of Philosophy in Electrical Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/electrical-computer/electrical-phd/>)

Wm Michael Barnes '64 Department of Industrial and Systems Engineering

- Doctor of Philosophy in Industrial Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/industrial-systems/phd/>)

Department of Materials Science and Engineering

- Doctor of Philosophy in Materials Science and Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/materials-science/phd/>)

J. Mike Walker '66 Department of Mechanical Engineering

- Doctor of Philosophy in Mechanical Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/mechanical/phd/>)

Department of Multidisciplinary Engineering

- Doctor of Engineering in Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/multidisciplinary/engineering-deng/>)
- Doctor of Philosophy in Interdisciplinary Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/multidisciplinary/interdisciplinary-phd/>)

Department of Nuclear Engineering

- Doctor of Philosophy in Nuclear Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/nuclear/phd/>)

Department of Ocean Engineering

- Doctor of Philosophy in Ocean Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/ocean/ocean-phd/>)

Harold Vance Department of Petroleum Engineering

- Doctor of Philosophy in Petroleum Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/petroleum/phd/>)

Engineering Concept, Creation, and Commercialization - Certificate

This program focuses on developing an entrepreneurial mindset which will be valuable to students as employees of companies or as creators of their own startup.

The Engineering Concept, Creation, and Commercialization Certificate provides students with the training and experience to develop their ideas, create/design solutions to solve customer needs, and to understand the process of commercializing developed solutions. Students from any engineering major may find great value in the knowledge and skills this certificate develops. The certificate is offered by the Engineering Entrepreneurship Program (<https://engineering.tamu.edu/student-life/eep/>), which offers a range of engagement opportunities to complement in-class learning.

Program Requirements

Code	Title	Semester Credit Hours
MTDE 252 or ENGR 462 or Engineering Entrepreneurship Hour	Engineering Entrepreneurship Hour	1
MTDE 461	Product Lean Launch for Engineers	3
Select three of the following: ¹		9
BMEN 406	Medical Device Path to Market	
BMEN 469	Entrepreneurial Pathways in Medical Devices	
ENDS 101	Design Process	
MTDE 311	Enterprise Basics for Technical Entrepreneurs	
MTDE 312	Sales, Operations and Manufacturing for Technology Companies	
MTDE 313	Engineer to Chief Executive Officer	
MTDE 421	Technology Company Management, Leadership, and Corporate Culture	
PETE 453	Petroleum Entrepreneurship	
Total Semester Credit Hours		13

¹ Other courses may be approved as prescribed electives by the Certificate Program Director.

Holistic Leadership in Engineering - Certificate

The Holistic Leadership in Engineering Certificate will help students develop intra- and interpersonal skills to complement the technical knowledge they are acquiring in the engineering degree.

This certificate is designed to provide students with a deeper level of self-awareness, a broader perspective to see more possibilities, a better understanding of the dynamics and factors that drive engineering organizational success, and a personal commitment to service. In completing this certificate, students will have an opportunity to form meaningful, lasting relationships with a diverse group of peers who are all committed to personal growth and engineering leadership development.

The courses include unique multidisciplinary experiential learning opportunities, accomplished guest speakers, small group discussions with industry professionals, simulations, and case studies.

After five semesters, students will have strengthened leadership capabilities and will be confident in their ability to influence people. Students will understand how businesses operate within a free enterprise system and the duty of a leader to serve, empowering them to make an impact early in whatever career they choose to pursue—whether that be in a large corporation, a local business, a start-up, or a nonprofit or governmental organization.

Program Requirements

Code	Title	Semester Credit Hours
ENGR 251	Creating a Self-Aware Leader	3
ENGR 350	Leading for Impact in Engineering, Business and Society	3
ENGR 351	The Role of Engineering and Business in Society	3
ENGR 450	Finding Your Leadership Qualities	3
ENGR 451	Leading for a Lifetime: Continual Learning and Influence	3
Total Semester Credit Hours		15

International Engineering - Certificate

This certificate prepares engineering students for the global industry by developing essential cross-cultural skills and international awareness, enhancing their professional effectiveness.

Today's engineering industry is global and interconnected with supply, demand and service providers located around the world. An effective engineer in this global environment is one that complements their core technical knowledge with excellent cross-cultural competencies and international exposure. Students completing the International Engineering Certificate will be better prepared to join the global job market they will face following graduation. The International Engineering Certificate is only available to undergraduate, engineering degree-seeking students within the Texas A&M University College of Engineering. The certificate is annotated on the student's permanent transcript. Students completing the International Engineering Certificate will be better prepared to work effectively (professional, productive and culturally

sensitive) as an engineer in multicultural and multidisciplinary work environments. By completing the certificate, students will learn to:

- Integrate and apply skills required to solve an engineering design problem considering different perspectives;
- Understand intercultural differences and similarities, and their relevance to effectiveness in the workplace;
- Apply intercultural knowledge for self-knowledge/improvement (Intrapersonal competence);
- Apply intercultural knowledge for effective teamwork (Interpersonal competence).

The International Engineering Certificate may be completed by students pursuing College of Engineering degree programs and requires completion of three credit hours of coursework with an international experience.

For additional information, contact the Halliburton Engineering Global Programs Office via email at engineeringglobalprograms@tamu.edu, via phone at (979) 862-5880, or in-person at the Zachry Engineering Education Complex, Suite 410.

Program Requirements

Code	Title	Semester Credit Hours
Required Courses ¹		
Global engineering design		3
Select one of the following:		
ENGR 410	Global Engineering Design ²	
Pre-approved 200 level or above engineering course with a significant international component ³		
International engineering experience ⁴		
	Cultural discourse ⁵	3
	International and cultural diversity ⁶	3
	International experience ⁷	3
	Language ⁸	3
Total Semester Credit Hours		15

¹ No course may be used more than one (1) time to fulfill certificate requirements.

² Course only offered in the Fall term.

³ Pre-approval must be requested and granted prior to course completion. The Director of Halliburton Engineering Global Programs, the respective course faculty, and the student must meet to determine the specific course content or project that will suffice the "significant international component" requirement.

⁴ After the International experience component is satisfied, engineering course credit received on a study abroad program, international field trip, international internship, international research experience, or another approved course or field experience may be used to fulfill this requirement.

⁵ To be selected from approved Cultural Discourse (p. 48) courses.

⁶ To be selected from approved International and Cultural Diversity (p. 49) courses. Course listing can be found at icd.tamu.edu.

⁷ May be satisfied by course credit received on a study abroad program, international field trip, international internship, international research experience, or another approved course or field experience.

⁸ Three (3) credit hours of a 200-level or higher course in a single language. Students are not allowed to use English to fulfill this requirement unless the TOEFL was required for their admission to Texas A&M University. If the TOEFL was required for their admission, students may use ENGL 210 to fulfill this requirement. Students may obtain course credit for this requirement by accepting AP credits or credits obtained through the on-campus language proficiency exam onto their transcript.

Department of Aerospace Engineering

Aerospace Engineering is a complex, rapidly changing field that includes aerodynamics, structures and materials, propulsion, dynamics and control, and astrodynamics. The primary application of Aerospace Engineering is to design and develop flight vehicles, such as aircraft, missiles, spacecraft and satellites. Aerospace engineering is also important and applicable to other vehicles and systems, such as rotorcraft, submarines, automobiles, wind turbines, advanced robotics, re-entry vehicles, exotic materials and computational simulations.

The mission of the Aerospace Engineering program is

1. to provide a quality undergraduate and graduate aerospace engineering education.
2. to advance the engineering and science knowledge base through research.
3. to assist industry in technical applications and innovations.
4. to serve the aerospace engineering profession through leadership in these areas.

To achieve this mission, the Aerospace Engineering undergraduate program has established the following educational objectives. Within three to five years of graduation, graduates are expected to:

1. have successful and impactful careers in industry, private practice, or government, or will have pursued advanced graduate studies;
2. be well-prepared practitioners who apply their knowledge and skills to solve relevant engineering problems in the aerospace or a related profession;
3. be life-long learners, keep abreast of developments in aerospace or related technologies, and be leaders in their peer group and active participants in their professional organizations.

To carry out these educational objectives, the goals of the program are:

1. using a high quality faculty, to provide a comprehensive aerospace engineering education that provides students with the fundamental knowledge and skills necessary for the design, analysis and advancement of aircraft, spacecraft and other high technology complex systems; and
2. to prepare students for the aerospace engineering profession and related fields by developing the attributes needed, so that they can contribute successfully to society and to the engineering profession now and in the future.

The Department offers a Bachelor of Science in Aerospace Engineering with Honors degree option. This option was proposed by our students and implemented for our students. Very few programs across the country offer this type of experience within Aerospace Engineering. Students in this program are part of an honors community and are provided with

the opportunity to enhance their learning experience through one-on-one research with a faculty mentor, introduction to advanced aerospace theories, and much more. The Department also offers a Fast Track program, which is tailored for high-achieving undergraduate students who wish to extend their knowledge and gain an edge by earning a Master of Engineering (ME) degree. Fast Track allows qualified students to earn up to nine hours of credit toward their Aerospace Engineering undergraduate and graduate degrees. Consequently, through Fast Track a student can earn a ME degree in two semesters beyond their undergraduate degree.

Laboratories supplement theoretical studies in the major disciplines in the department. Numerous wind tunnels for low-speed and supersonic aerodynamic studies, a jet engine test facility, a flight simulator, a satellite laboratory with Integrated Concurrent Engineering Capability, a robotics laboratory, and state-of-the-art materials and structures testing equipment are available, equipped with modern instrumentation. The department and Texas A&M University also provide an extensive array of computing resources.

Students are encouraged to enrich their undergraduate experience through a variety of ways in the department, including co-op and internship positions, student competition design projects, and undergraduate research. In addition, students have the opportunity to study abroad or participate in an international exchange program.

Before commencing course work in Aerospace Engineering, students must be admitted to the major or have the approval of the department.

The department also offers programs of study leading to the MEN, MS, and PhD degrees (see the Texas A&M University Graduate and Professional Catalog).

The Aerospace Engineering undergraduate program is accredited by the Engineering Accreditation Commission of ABET (www.abet.org) under the commission's General Criteria and Program Criteria for Aerospace Engineering.

Faculty

Alfriend, Terry, Professor
Aerospace Engineering
PHD, Virginia Polytechnic Institute and State University, 1967

Benedict, Moble, Professor
Aerospace Engineering
PHD, University of Maryland, 2010

Benzerga, Amine A, Professor
Aerospace Engineering
PHD, Ecole Nationale Supérieure Des Mines De Paris, 2000

Bhargava, Divya, Instructional Assistant Professor
Aerospace Engineering
PHD, Purdue University, 2021

Bhattacharya, Raktim, Professor
Aerospace Engineering
PHD, University of Minnesota, 2003

Bishop, Robert H, Professor
Aerospace Engineering
PHD, Rice University, 1990

Bowersox, Rodney D, Professor
Aerospace Engineering
PHD, Virginia Tech, 1992

Boyd, James G, Associate Professor
Aerospace Engineering
PHD, Texas A&M University, 1994

Chakravorty, Suman, Professor
Aerospace Engineering
PHD, University of Michigan, 2004

Chamitoff, Gregory E, Professor of the Practice
Aerospace Engineering
PHD, Massachusetts Institute of Technology, 1992

Cizmas, Paul G, Professor
Aerospace Engineering
PHD, Duke University, 1995

Connolly, John F, Professor of the Practice
Aerospace Engineering
MEN, University of Colorado, 1996

Creel, James, Visiting Research Associate Professor
Aerospace Engineering
PHD, Trinity College Dublin, 2017

Cruzado Garcia, Aitor, Research Assistant Professor
Aerospace Engineering
PHD, Mondragon University, 2013

Currie-Gregg, Nancy J, Professor of the Practice
Aerospace Engineering
PHD, University of Houston, 1997

DeMars, Kyle J., Professor
Aerospace Engineering
PHD, University of Texas, 2010

Diaz Artilles, Ana, Associate Professor
Aerospace Engineering
PHD, Massachusetts Institute of Technology, 2015

Dogariu, Arthur, Associate Professor
Aerospace Engineering
PHD, University of Central Florida, 1997

Donzis, Diego, Professor
Aerospace Engineering
PHD, Georgia Institute of Technology, 2007

Dunbar, Bonnie Jeanne, Professor
Aerospace Engineering
PHD, University of Houston, 1983

Geelen, Rudy Jose Maurice, Assistant Professor
Aerospace Engineering
PHD, Duke University, 2020

Girimaji, Sharath S, Professor
Aerospace Engineering
PHD, Cornell University, 1990

Guhathakurta, Swagnik, Assistant Professor
Aerospace Engineering
PHD, University of Florida, 2021

Hartl, Darren J, Associate Professor
Aerospace Engineering
PHD, Texas A&M University, 2009

Ifti, Hassan Saad, Assistant Professor
Aerospace Engineering
PHD, University of Oxford, 2022

Jackson, Scott, Associate Professor
Aerospace Engineering
PHD, California Institute of Technology, 2005

Jameson, Antony, Professor
Aerospace Engineering
PHD, University of Cambridge, 1963

Junkins, John L, Distinguished Professor
Aerospace Engineering
PHD, University of California at Los Angeles, 1969

Karpetis, Adonios N, Associate Professor
Aerospace Engineering
PHD, Yale University, 1998

Lagoudas, Dimitris C, Professor
Aerospace Engineering
PHD, Lehigh University, 1986

Le Graverend, Jean-Briac B, Associate Professor
Aerospace Engineering
PHD, Ecole Nationale de Mécanique et d'Aérotechnique, France, 2013

Leonov, Boris S, Research Assistant Professor
Aerospace Engineering
PHD, Texas A&M University, 2023

Leyva, Ivett A, Professor
Aerospace Engineering
PHD, California Institute of Technology, 1999

Majji, Manoranjan, Professor
Aerospace Engineering
PHD, Texas A&M University, 2009

Miles, Richard B, Professor
Aerospace Engineering
PHD, Stanford University, 1972

Mortari, Daniele, Professor
Aerospace Engineering
PHD, University La Sapienza of Rome, 1980

Naraghi, Mohammad, Professor
Aerospace Engineering
PHD, University of Illinois at Urbana Champaign, 2009

Oran, Elaine, University Distinguished Professor
Aerospace Engineering
PHD, Yale University, 1972

Prabhu, Kaushik Keshav, Instructional Assistant Professor
Aerospace Engineering
PHD, Texas A&M University, 2023

Reed, Helen L, Senior Professor
Aerospace Engineering
PHD, Virginia Polytechnic Institute & State University, 1981

Selva Valero, Daniel, Associate Professor
Aerospace Engineering
PHD, Massachusetts Institute of Technology, 2012

Siddiqui, Farhan, Research Professor
Aerospace Engineering
PHD, Texas A&M University, 2021

Singh, Narendra, Assistant Professor
Aerospace Engineering
PHD, University of Minnesota, Twin Cities, 2020

Strganac, Thomas W, Senior Professor
Aerospace Engineering
PHD, Virginia Polytechnic Institute & State University, 1987

Strouboulis, Theofanis, Professor
Aerospace Engineering
PHD, University of Texas, 1986

Takachi Tomita, Jesuino, Professor of the Practice
Aerospace Engineering
PHD, Instituto Tecnológico de Aeronáutica,, 2009

Talreja, Ramesh R, Professor
Aerospace Engineering
PHD, The Technical University of Denmark, 1974

Tichenor, Nathan R, Visiting Research Associate Professor
Aerospace Engineering
PHD, Texas A&M University, 2010

Tropina, Albina, Research Professor
Aerospace Engineering
PHD, Kyiv Aviation University, 2011
PHD, V.N. Karazin Kharkiv National University, 1999

Vadali, Srinivas R, Professor
Aerospace Engineering
PHD, Virginia Tech, 1983

Valasek, John L, Professor
Aerospace Engineering
PHD, University of Kansas, 1995

Whitcomb, John D, Professor
Aerospace Engineering
PHD, Virginia Tech, 1988

Zhu, Hejian, Assistant Professor
Aerospace Engineering
PHD, Massachusetts Institute of Technology, 2023

Majors

- Bachelor of Science in Aerospace Engineering (p. 595)

Aerospace Engineering - BS

This program blends rigorous theoretical study with practical application of modern engineering tools, culminating in advanced design projects that prepare students for aerospace careers.

Coursework in aerodynamics, materials and structures, propulsion, and dynamics and control of aircraft and spacecraft provide a strong fundamental basis for advanced study and specialization, while senior technical electives offer a concentration of study in fields of special interest. Design is emphasized particularly in senior design electives and a senior-level two-semester design sequence involving specific goals, objectives, and constraints, which integrates analysis and design tools and requires students working in teams to design, and in some cases build, test, and deploy an aerospace system, such as an aircraft, rotorcraft, flight simulator, morphing air or space structure, space suit, space habitat, or a mission to Mars. Application of modern engineering and computational tools is required and emphasized in most courses.

Program Requirements

The freshman year is identical for degrees in aerospace engineering, architectural engineering, civil engineering, computer engineering, computer science, data engineering, electrical engineering, electronic systems engineering technology, environmental engineering, industrial distribution, industrial engineering, interdisciplinary engineering, manufacturing and mechanical engineering technology, mechanical engineering, multidisciplinary engineering technology, nuclear engineering, ocean engineering, and petroleum engineering. The freshman year is slightly different for chemical engineering, biomedical engineering and materials science and engineering degrees in that students take CHEM 119 or CHEM 107/CHEM 117 and CHEM 120. Students pursuing degrees in biological and agricultural engineering should refer to the specific curriculum for this major. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year

Fall		Semester Credit Hours
CHEM 107	General Chemistry for Engineering Students ^{1,4}	3
CHEM 117	General Chemistry for Engineering Students Laboratory ^{1,4}	1
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	3
ENGR 102	Engineering Lab I - Computation ¹	2
MATH 151	Engineering Mathematics I ^{1,2}	4
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16

Spring

ENGR 216/ PHYS 216	Experimental Physics and Engineering Lab II - Mechanics ¹	2
MATH 152	Engineering Mathematics II ¹	4
PHYS 206	Newtonian Mechanics for Engineering and Science ¹	3
University Core Curriculum (p. 26) ³		3

Select one of the following:	3-4
CHEM 120 Fundamentals of Chemistry II ^{1,4}	
University Core Curriculum (p. 26) ^{3,5}	
Semester Credit Hours	15-16
Total Semester Credit Hours	31-32

¹ A grade of C or better is required.

² Entering students will be given a math placement exam. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.

³ Of the 21 hours shown as University Core Curriculum electives, 3 must be from creative arts (see AREN curriculum for more information), 3 from social and behavioral sciences (see DAEN and IDIS curriculum for more information), 3 from language, philosophy and culture (see CVEN, EVEN and PETE curriculum for more information), 6 from American history and 6 from government/political science. The required 3 hours of international and cultural diversity and 3 hours of cultural discourse may be met by courses satisfying the creative arts, social and behavioral sciences, language, philosophy and culture, and American history requirements if they are also on the approved list of international and cultural diversity (p. 49) courses and cultural discourse (p. 48) courses.

⁴ BMEN, CHEN and MSEN require 8 hours of fundamentals of chemistry which are satisfied with CHEM 119 or CHEM 107/CHEM 117 and CHEM 120; Students with an interest in BMEN, CHEN and MSEN can take CHEM 120 second semester freshman year. CHEM 120 will substitute for CHEM 107/CHEM 117.

⁵ For BS-PETE, allocate 3 hours to core communications course (ENGL 210, COMM 203, COMM 205, or COMM 243) and/or 3 hours to UCC elective. For BS-MEEN, allocate 3 hours to core communications course (ENGL 203, ENGL 210, COMM 203 or COMM 205) and/or 3 hours to UCC elective.

Second Year

Fall		Semester Credit Hours
AERO 201	Introduction to Flight ¹	3
AERO 211	Aerospace Engineering Mechanics ¹	3
AERO 212	Introduction to Aerothermodynamics ¹	3
AERO 221	Analytical Methods for Aerospace Engineering ¹	3
MATH 251 or MATH 253	Engineering Mathematics III ¹ or Engineering Mathematics III	3
Semester Credit Hours		15
Spring		
AERO 214	Introduction to Aerospace Mechanics of Materials ¹	3
AERO 222	Introduction to Aerospace Computation ¹	3
AERO 301	Theoretical Aerodynamics ¹	3
MATH 308	Differential Equations ¹	3
PHYS 207	Electricity and Magnetism for Engineering and Science ¹	3
PHYS 217/ ENGR 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism ¹	2
High Impact Experience ⁶		0

AERO 299	Mid-Curriculum Professional Development	
Semester Credit Hours		17
Third Year		
Fall		
AERO 303	High Speed Aerodynamics ¹	3
AERO 304	Aerospace Structural Analysis I ¹	3
AERO 310	Aerospace Dynamics ¹	3
ECEN 215	Principles of Electrical Engineering ¹	3
Select one of the following: ¹		3
ENGL 210	Technical and Professional Writing	
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		18
Spring		
AERO 306	Aerospace Structural Analysis II ¹	3
AERO 307	Aerospace Engineering Laboratory ¹	3
AERO 321	Dynamics of Aerospace Vehicles ¹	3
AERO 351	Aerothermodynamics and Propulsion ¹	3
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		15
Fourth Year		
Fall		
AERO 401	Aerospace Design Principles ^{1,7}	3
AERO 413	Aerospace Materials Science ¹	3
AERO 423	Orbital Mechanics ¹	3
Select one of the following: ¹		3
AERO 404	Mechanics of Advanced Aerospace Structures	
AERO 405	Aerospace Structural Design	
AERO 417	Aerospace Propulsion	
AERO 419	Chemical Rocket Propulsion	
AERO 426	Space System Design	
AERO 428	Electromagnetic Sensing for Space-Borne Imaging	
AERO 472	Airfoil and Wing Design	
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		15
Spring		
AERO 402	Aerospace Systems Design ^{1,7}	2
AERO 422	Active Controls for Aerospace Vehicles ¹	3
AERO 452	Heat Transfer and Viscous Flows ¹	3
Select two of the following: ¹		6
AERO 404	Mechanics of Advanced Aerospace Structures	
AERO 405	Aerospace Structural Design	
AERO 411	Applications of Fracture Mechanics to Aerospace Structures	
AERO 414	Human Performance in Aerospace Environments	
AERO 415	Computational Fluid Dynamics for Aerospace Applications	

AERO 417	Aerospace Propulsion	
AERO 419	Chemical Rocket Propulsion	
AERO 420	Aeroelasticity	
AERO 424	Spacecraft Attitude Dynamics and Control	
AERO 425	Flight Test Engineering	
AERO 426	Space System Design	
AERO 428	Electromagnetic Sensing for Space-Borne Imaging	
AERO 430	Numerical Simulation	
AERO 435	Aerothermochemistry	
AERO 436/ ISEN 432	Human Factors Engineering for Aerospace Designs	
AERO 440	Cockpit Systems and Displays	
AERO 445	Vehicle Management Systems	
AERO 451	Human Spaceflight Operations	
AERO 455	Helicopter Aerodynamics	
AERO 472	Airfoil and Wing Design	
AERO 478	Low Temperature Plasma - Theory, Modeling, Applications	
AERO 489	Special Topics in...	
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		17
Total Semester Credit Hours		97

⁶ All students are required to complete a high-impact experience in order to graduate. The list of possible high-impact experiences is available in the AERO advising office.

⁷ A two-semester sequence is required.

Total Program Hours 128

Department of Biomedical Engineering

The objectives of the Biomedical Engineering program are to produce high-quality graduates with a broad-based education in engineering, life sciences and natural sciences applied to the fields of biomechanics, cellular and molecular bioengineering, computational bioengineering, medical devices, regenerative medicine, or imaging, sensing, and digital health who:

1. Are well prepared for further graduate studies, careers in the biomedical or biotechnology industries or entry into medical or other professional schools;
2. Will make significant contributions in biomedical industries, medicine and other sectors;
3. Will apply acquired knowledge appropriately, work professionally with others, effectively communicate ideas and technical information and continue to learn and improve their knowledge base and skills.

These objectives are met through a modern and comprehensive curriculum taught by a well-prepared, professionally active and dedicated faculty. In addition, the program actively supports professional development among the students through individual study and research opportunities, cooperative education and internships, and student society activities. These goals are measured by the success of the graduates

in finding rewarding professional employment, and by admission to respected graduate and professional schools.

Design is an important part of biomedical engineering and design skills are cultivated through a series of design courses, beginning in the first year in the program, culminating in the two-semester senior design course sequence that requires the application of a wide range of engineering methods to a focused design project. Other courses in biomedical engineering and in supporting disciplines include examples of the application of the principles to design, as well as specific design exercises. The biomedical engineering curriculum is accredited by the Engineering Accreditation Commission of ABET, www.abet.org.

Before commencing coursework in the department, students must be admitted to the major or minor.

Faculty

Alge, Daniel L, Professor
Biomedical Engineering
PHD, Purdue University, 2010

Avazmohammadi, Reza, Assistant Professor
Biomedical Engineering
PHD, University of Pennsylvania, Philadelphia, PA, 2014

Bagnato, Vanderlei S, Professor
Biomedical Engineering
PHD, Massachusetts Institute of Technology, 1987

Biswas, Saurabh, Professor of the Practice
Biomedical Engineering
PHD, Texas A&M University, 2011

Bujnoch, Zachary W, Associate Professor of the Practice
Biomedical Engineering
MBA, University of Texas - San Antonio, 2022

Carrell, Travis James, Instructional Assistant Professor
Biomedical Engineering
PHD, Texas A&M University, 2022

Ceylan Koydemir, Hatice, Assistant Professor
Biomedical Engineering
PHD, MIDDLE EAST TECHNICAL UNIVERSITY, 2013

Chukkapalli, Sasanka S, Research Assistant Professor
Biomedical Engineering
PHD, Post Graduate Institute of Medical Education & Research (PGIMER)
Chandigarh, India, 2009

Cote, Gerard L, Professor
Biomedical Engineering
PHD, University of Connecticut, 1990

Criscione, John C, Professor
Biomedical Engineering
MD, Johns Hopkins University, 1999
PHD, Johns Hopkins University, 1999

Diaz Garelli, Franck, Instructional Associate Professor
Biomedical Engineering
PHD, University of Texas Health Science Center Houston, 2016

Gaharwar, Akhilesh K, Professor
Biomedical Engineering
PHD, Purdue University, 2011

George, Jason T, Assistant Professor
Biomedical Engineering
MD, Baylor College of Medicine, 2020
PHD, Rice University, 2019

Gibbs, Holly C, Research Assistant Professor
Biomedical Engineering
PHD, Texas A&M University, 2014

Grunlan, Melissa A, Professor
Biomedical Engineering
PHD, University of Southern California, 2004

Hanks, John Philip, Professor of the Practice
Biomedical Engineering
MS, University of Texas, Austin, 1989

Haridas, Balakrishna, Professor of the Practice
Biomedical Engineering
PHD, University of Cincinnati, 2001

Hedman, Annie, Instructional Assistant Professor
Biomedical Engineering
PHD, Texas A&M University-College Station, 2022

Horn, John D, Instructional Assistant Professor
Biomedical Engineering
PHD, Texas A&M University, 2018

Horn, Staci Jessen, Research Assistant Professor
Biomedical Engineering
PHD, Texas A&M University, 2016

Hoyt, Kenneth L, Professor
Biomedical Engineering
PHD, Drexel University, 2005

Hwang, Wonmuk, Professor
Biomedical Engineering
PHD, Boston University, 2001

Jain, Abhishek, Associate Professor
Biomedical Engineering
PHD, Boston University, 2012

Kaunas, Roland R, Associate Professor
Biomedical Engineering
PHD, University of California at San Diego, 2003

Lele, Tanmay P, Professor
Biomedical Engineering
PHD, Purdue University, 2002

Ligler, Frances S, Professor
Biomedical Engineering
DSC, Oxford University, Oxford, UK, 2000
PHD, Oxford University, Oxford, UK, 1977

Mabbott, Samuel Bernard, Associate Professor
Biomedical Engineering
PHD, University of Manchester, Manchester Interdisciplinary Biocentre, 2012

Maitland, Duncan J, Senior Professor
Biomedical Engineering
PHD, Northwestern University, 1995

McDougall, Mary P, Professor
Biomedical Engineering
PHD, Texas A&M University, 2004

McShane, Mike, Professor
Biomedical Engineering
PHD, Texas A&M University, 1999

Menon, Jyothi U., Associate Professor
Biomedical Engineering
PHD, University of Texas, Southwestern Medical Center, 2014

Monroe, Mary B, Associate Professor
Biomedical Engineering
PHD, Texas A&M University, 2013

Montgomery, William D, Visiting Associate Professor of the Practice
Biomedical Engineering
MS, US Army War College, 2016

Patrick, Charles W, Professor of the Practice
Biomedical Engineering
PHD, Rice University, 1994

Pires, Layla, Assistant Professor
Biomedical Engineering
PHD, University of Sao Paulo, 2017

Raghavan, Shreya Artha, Associate Professor
Biomedical Engineering
PHD, Virginia Tech-Wake Forest University School of Biomedical Engineering and Sciences, 2014

Rahbar, Elaheh, Associate Professor
Biomedical Engineering
PHD, Texas A&M University, 2011

Reynolds, Jeff, Professor of the Practice
Biomedical Engineering
PHD, Purdue University, 1996

Southard, Derek, Visiting Associate Professor of the Practice
Biomedical Engineering
MBA, Penn State, 2020

Tian, Limei, Associate Professor
Biomedical Engineering
PHD, Washington University in St. Louis, 2014

Timmins, Lucas, Associate Professor
Biomedical Engineering
PHD, Texas A&M University, 2010

Walsh, Alexandra, Associate Professor
Biomedical Engineering
PHD, Vanderbilt University, 2015

Ware, Taylor H, Professor
Biomedical Engineering
PHD, University of Texas at Dallas, 2013

Yakovlev, Vladislav V, Professor
Biomedical Engineering
PHD, Moscow State University, 1990

Zhao, Feng, Professor
Biomedical Engineering
PHD, Tianjin University, 2001

Majors

- Bachelor of Science in Biomedical Engineering (p. 599)

Minors

- Biomedical Engineering Minor (p. 601)

Biomedical Engineering - BS

This program allows students to gain a comprehensive foundation in biomedical engineering, opening doors to multiple career paths in industry, research and advanced professional studies.

Department Head: M. McShane

Director of Undergraduate Programs: C. Patrick

Committed to solving the world's greatest health problems through the exploration of new ideas, integrated research and innovation, the Department of Biomedical Engineering at Texas A&M University is producing the next generation of biomedical engineers in industry and at tier-one research institutions, developing new technologies and new jobs, and achieving revolutionary advancements for the future of health care.

The undergraduate curriculum in biomedical engineering involves the development and application of engineering science and technology for living and medical systems. Based around a basic core of courses, the bachelor's degree is designed to prepare students for team involvement with other engineers and with physicians and life scientists to solve a wide array of biological and medical problems. Elective courses are included to accommodate individual student specialty interests within the fields of biomechanics, cellular and molecular bioengineering, computational bioengineering, medical devices, regenerative medicine, or imaging, sensing, and digital health. Students interested in specialized professional school programs such as medical school can meet admission prerequisites through slight modifications and additions to the curriculum.

The department offers a Bachelor of Science degree and a minor. For more information, including degree requirements and application deadlines, visit <http://engineering.tamu.edu/biomedical> (<http://engineering.tamu.edu/biomedical/>).

Program Requirements

The freshman year is identical for degrees in aerospace engineering, architectural engineering, civil engineering, computer engineering, computer science, data engineering, electrical engineering, electronic systems engineering technology, environmental engineering, industrial distribution, industrial engineering, interdisciplinary engineering, manufacturing and mechanical engineering technology, mechanical engineering, multidisciplinary engineering technology, nuclear

engineering, ocean engineering, and petroleum engineering. The freshman year is slightly different for chemical engineering, biomedical engineering and materials science and engineering degrees in that students take CHEM 119 or CHEM 107/CHEM 117 and CHEM 120. Students pursuing degrees in biological and agricultural engineering should refer to the specific curriculum for this major. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year

Fall		Semester Credit Hours
CHEM 107	General Chemistry for Engineering Students ^{1,4}	3
CHEM 117	General Chemistry for Engineering Students Laboratory ^{1,4}	1
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	3
ENGR 102	Engineering Lab I - Computation ¹	2
MATH 151	Engineering Mathematics I ^{1,2}	4
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16
Spring		
ENGR 216/PHYS 216	Experimental Physics and Engineering Lab II - Mechanics ¹	2
MATH 152	Engineering Mathematics II ¹	4
PHYS 206	Newtonian Mechanics for Engineering and Science ¹	3
University Core Curriculum (p. 26) ³		3
Select one of the following:		3-4
CHEM 120	Fundamentals of Chemistry II ^{1,4}	
University Core Curriculum (p. 26) ^{3,5}		
Semester Credit Hours		15-16
Total Semester Credit Hours		31-32

¹ A grade of C or better is required.

² Entering students will be given a math placement exam. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.

³ Of the 21 hours shown as University Core Curriculum electives, 3 must be from creative arts (see AREN curriculum for more information), 3 from social and behavioral sciences (see DAEN and IDIS curriculum for more information), 3 from language, philosophy and culture (see CVEN, EVEN and PETE curriculum for more information), 6 from American history and 6 from government/political science. The required 3 hours of international and cultural diversity and 3 hours of cultural discourse may be met by courses satisfying the creative arts, social and behavioral sciences, language, philosophy and culture, and American history requirements if they are also on the approved list of international and cultural diversity (p. 49) courses and cultural discourse (p. 48) courses.

⁴ BMEN, CHEN and MSEN require 8 hours of fundamentals of chemistry which are satisfied with CHEM 119 or CHEM 107/CHEM 117 and CHEM 120; Students with an interest in BMEN, CHEN and MSEN

can take CHEM 120 second semester freshman year. CHEM 120 will substitute for CHEM 107/CHEM 117.

⁵ For BS-PETE, allocate 3 hours to core communications course (ENGL 210, COMM 203, COMM 205, or COMM 243) and/or 3 hours to UCC elective. For BS-MEEN, allocate 3 hours to core communications course (ENGL 203, ENGL 210, COMM 203 or COMM 205) and/or 3 hours to UCC elective.

Second Year

Fall		Semester Credit Hours
BMEN 201	Professional Development Essentials ^{1,6}	3
BMEN 253	Discovering Biomedical Engineering Design Thinking ¹	1
ENGR 217/ PHYS 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism ¹	2
MATH 251 or MATH 253	Engineering Mathematics III ¹ or Engineering Mathematics III	3
PHYS 207	Electricity and Magnetism for Engineering and Science ¹	3
VTTP 434	Physiology for Bioengineers I ¹	4
Semester Credit Hours		16

Spring

BMEN 207	Computing for Biomedical Engineering ¹	3
BMEN 250 or STAT 312	Biostatistics and Data Visualization ¹ or Statistics for Biology	3
BMEN 254	Biomedical Engineering Design I ¹	1
MATH 308	Differential Equations ¹	3
VTTP 435	Physiology for Bioengineers II ¹	4
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
Semester Credit Hours		17

Third Year

Fall		Semester Credit Hours
BMEN 321	Circuits, Signals, and Systems ¹	3
BMEN 351	Biomedical and Health Data Science ¹	3
BMEN 353	Biomedical Engineering Device Design II ¹	1
BMEN 361	Biomedical Engineering Mechanics ^{1,6}	3
CHEM 227 or CHEM 257	Organic Chemistry I ¹ or Organic Chemistry I - Structure and Function	3
University Core Curriculum (p. 26) ^{1,3}		3
High Impact Experience ⁷		0
BMEN 399	Engineering Professional Development	
Semester Credit Hours		16

Spring

BMEN 311	Imaging Living Systems ¹	3
BMEN 341	Biotransport ¹	3
BMEN 343	Biomedical Engineering Materials ¹	3
BMEN 344	Biological Interactions and Testing ¹	3

BMEN 354	Biomedical Engineering Design III ¹	2
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		17

Fourth Year

Fall

BMEN 453	Analysis and Design Project I ¹	3
University Core Curriculum (p. 26) ³		3
Technical electives ^{1,8}		9

Semester Credit Hours		15

Spring

BMEN 454	Analysis and Design Project II ¹	3
University Core Curriculum (p. 26) ³		6
Technical electives ^{1,8}		6

Semester Credit Hours		15

Total Semester Credit Hours		96

⁶ Writing intensive (W) course.

⁷ All students are required to complete a high-impact experience in order to graduate. A list of possible high-impact experiences is available in the BMEN advising office.

⁸ Technical electives are to be selected from the course list below.

Students must select one of the following tracks and take 15 hours from within that track: Bioinstrumentation, Biomaterials, Biomechanics, or Biomolecular and Cellular Engineering. Course selection should be done in consultation with student's advisor and track coordinator, and may use up to 3 hours of BMEN 491. Please note ACCT 640 is for students pursuing the MSF program and ENGR 410 is for students pursuing the International Engineering Certificate.

Total Program Hours 128

Code	Title	Semester Credit Hours

Biomechanics

Required courses	6

BMEN 463 Soft Tissue Mechanics and Finite Element Methods ¹

Select one of the following: ¹

BMEN 457 Orthopedic Biomechanics (Select one of the following:) ¹

BMEN 458 Motion Biomechanics ¹

BMEN 461 Cardiac Mechanics ¹

Select from the following:	6-9

BMEN 432 Molecular and Cellular Biomechanics ¹

BMEN 457 Orthopedic Biomechanics ¹

BMEN 458 Motion Biomechanics ¹

BMEN 461 Cardiac Mechanics ¹

BMEN 491 Research ¹

MEEN 363 Dynamics and Vibrations ¹

MEEN 368 Solid Mechanics in Mechanical Design ¹

Cellular and Molecular Bioengineering

Required Courses:	6

BMEN 431 Biomolecular Engineering ¹

BMEN 432 Molecular and Cellular Biomechanics ¹	
Select from the following:	6-9
BMEN 480 Biomedical Engineering of Tissues ¹	
BMEN 486 Biomedical Nanotechnology ¹	
BMEN 487 Drug Delivery ¹	
BMEN 491 Research ¹	
ECEN 414 Biosensors ¹	
Computational Bioengineering	
Required courses:	6
BMEN 401 Principles and Analysis of Biological Control Systems ¹	
BMEN 471 Numerical Methods in Biomedical Engineering ¹	
Select from the following:	6-9
BIOL 350 Computational Genomics ¹	
BMEN 463 Soft Tissue Mechanics and Finite Element Methods ¹	
BMEN 491 Research ¹	
MEEN 442 Computer Aided Engineering ¹	
MEEN 444 Finite Element Analysis in Mechanical Engineering ¹	
Imaging, Sensing, & Digital Health	
Required Course:	6
BMEN 322 Biosignal Analysis ¹	
BMEN 420 Medical Imaging ¹	
Select from the following:	6-9
BMEN 401 Principles and Analysis of Biological Control Systems ¹	
BMEN 422 Bioelectromagnetism ¹	
BMEN 425 Biophotonics ¹	
BMEN 427 Magnetic Resonance Engineering ¹	
BMEN 428/ Embedded Systems for Medical CSCE 461 Applications ¹	
BMEN 491 Research ¹	
ECEN 411 Introduction to Magnetic Resonance Imaging and Magnetic Resonance Spectroscopy ¹	
Medical Devices	
Required courses:	6
BMEN 404 FDA Good Laboratory and Clinical Practices ¹	
BMEN 469 Entrepreneurial Pathways in Medical Devices ¹	
Select from the following:	6-9
BMEN 491 Research ¹	
MEEN 440 Bio-inspired Engineering Design ¹	
MEEN 441 Design of Mechanical Components and Systems ¹	
MEEN 442 Computer Aided Engineering ¹	
Regenerative Medicine	
Required courses:	6
BMEN 480 Biomedical Engineering of Tissues ¹	
BMEN 482 Polymeric Biomaterials ¹	

or BMEN or Polymeric Biomaterial Synthesis	
Select from the following:	6-9
BMEN 482 Polymeric Biomaterials ¹	
BMEN 483 Polymeric Biomaterial Synthesis ¹	
BMEN 486 Biomedical Nanotechnology ¹	
BMEN 491 Research ¹	
CHEM 466 Polymer Chemistry ¹	
CHEN 451 Introduction to Polymer Engineering ¹	
MEEN 458 Processing and Characterization of Polymers ¹	
MSEN 410 Materials Processing ¹	
MSEN 420 Polymer Science ¹	
Select from the following to apply to any of the tracks above:	0-3
ACCT 640 Accounting Concepts and Procedures I (MSF Students only) ¹	
BMEN 400/ History of Human and Veterinary VTPP 401 Medicine in Europe ¹	
BMEN 404 FDA Good Laboratory and Clinical Practices ¹	
BMEN 448 Healthcare Technology in the Developing World ¹	
BMEN 469 Entrepreneurial Pathways in Medical Devices ¹	
CHEM 228 Organic Chemistry II ¹	
CHEM 258 Organic Chemistry II - Reactivity and Applications ¹	
ENGR 385 Problems for Co-Op Students ¹	
ENGR 410 Global Engineering Design ^{1,8}	
VTPB 410 Cell Mechanisms of Disease ¹	
400-Level BMEN with department approval (p. 955) ¹	

Biomedical Engineering - Minor

The Department of Biomedical Engineering offers a minor to students within the College of Engineering who are interested in biomedical applications of engineering related to the sub-specialty fields of biomechanics, cellular and molecular bioengineering, computational bioengineering, medical devices, regenerative medicine, or imaging, sensing, and digital health. Students interested in the Biomedical Engineering minor can visit the Biomedical Engineering Minor website (<https://engineering.tamu.edu/biomedical/academics/degrees/undergraduate/minor.html>).

Program Requirements

Code	Title	Semester Credit Hours
BMEN 253	Discovering Biomedical Engineering Design Thinking	1
VIBS 243	Introductory Mammalian Histology	2
Select 12 hours from one area: ¹		12
Biomechanics Area		
Required courses:		

BMEN 343 Biomedical Engineering Materials
 BMEN 361 Biomedical Engineering Mechanics

Select two of the following:

BMEN 432 Molecular and Cellular Biomechanics
 BMEN 457 Orthopedic Biomechanics
 BMEN 458 Motion Biomechanics
 BMEN 461 Cardiac Mechanics
 BMEN 463 Soft Tissue Mechanics and Finite Element Methods
 MEEN 363 Dynamics and Vibrations
 MEEN 368 Solid Mechanics in Mechanical Design

Cellular and Molecular Bioengineering

Required courses:

BMEN 344 Biological Interactions and Testing
 BMEN 431 Biomolecular Engineering

Select two of the following:

BMEN 432 Molecular and Cellular Biomechanics
 BMEN 480 Biomedical Engineering of Tissues
 BMEN 486 Biomedical Nanotechnology
 BMEN 487 Drug Delivery
 ECEN 414 Biosensors

Computational Bioengineering

Required courses:

BMEN 321 Circuits, Signals, and Systems
 BMEN 401 Principles and Analysis of Biological Control Systems

Select two of the following:

BMEN 463 Soft Tissue Mechanics and Finite Element Methods
 BMEN 471 Numerical Methods in Biomedical Engineering
 MEEN 442 Computer Aided Engineering
 MEEN 444 Finite Element Analysis in Mechanical Engineering

Imaging, Sensing, and Digital Health

Required courses:

BMEN 311 Imaging Living Systems
 BMEN 321 Circuits, Signals, and Systems

Select two of the following:

BMEN 322 Biosignal Analysis
 BMEN 401 Principles and Analysis of Biological Control Systems
 BMEN 402 Biomedical Optics Laboratory
 BMEN 420 Medical Imaging
 BMEN 422 Bioelectromagnetism
 BMEN 425 Biophotonics
 BMEN 427 Magnetic Resonance Engineering
 BMEN 428/ Embedded Systems for Medical
 CSCE 461 Applications

ECEN 411 Introduction to Magnetic Resonance Imaging and Magnetic Resonance Spectroscopy

ECEN 412 Ultrasound Imaging

ECEN 414 Biosensors

ECEN 447 Digital Image Processing

ECEN 463 Magnetic Resonance Engineering

Medical Devices

Required courses:

BMEN 404 FDA Good Laboratory and Clinical Practices
 BMEN 469 Entrepreneurial Pathways in Medical Devices

Select two of the following:

MEEN 440 Bio-inspired Engineering Design
 MEEN 441 Design of Mechanical Components and Systems
 MEEN 442 Computer Aided Engineering

Regenerative Medicine

Required courses:

BMEN 343 Biomedical Engineering Materials
 BMEN 344 Biological Interactions and Testing

Select two of the following:

BMEN 480 Biomedical Engineering of Tissues
 BMEN 482 Polymeric Biomaterials
 BMEN 483 Polymeric Biomaterial Synthesis
 BMEN 486 Biomedical Nanotechnology
 CHEN 451 Introduction to Polymer Engineering
 MEEN 458 Processing and Characterization of Polymers
 MSEN 410 Materials Processing
 MSEN 420 Polymer Science

Total Semester Credit Hours

15

¹ Students must select courses exclusively from one of the six areas represented and not mixed.

Students must be admitted to a degree sequence in the College of Engineering or the degree sequence in Biological and Agricultural Engineering. Students should know that all tracks require completion of math through Differential Equations (MATH 308). Students may use no more than 6 hours from their home department to satisfy minor requirements. All substitutions must be approved by the BMEN academic advisor and director. The application is available on the Biomedical Engineering website. Applications are reviewed on a competitive basis at the end of every fall and spring semester after final grades are posted.

Artie McFerrin Department of Chemical Engineering

Chemical engineering is a broad field of engineering and thus requires a diverse preparation in science and engineering. Distinguishing chemical engineering from other engineering disciplines is its use of chemical and biochemical reactions to produce products and materials for society. Traditionally, chemical engineers have provided

leadership in the petrochemical, refining, chemical, polymer, and food processing industries. Because of strengths in the foundation sciences of mathematics, chemistry, physics and biology, as well as in engineering, this leadership role has now extended to the biochemical, biomedical, high-tech materials, semi-conductor and microelectronics, nanotechnology, environmental quality, safety, and a host of other areas. Chemical engineers have consistently commanded starting salaries among the highest of all college graduates because of the combined breadth and depth of their education.

The mission of the Artie McFerrin Department of Chemical Engineering at Texas A&M is to educate and prepare students for national and international leadership roles in industry, government, and academia; to attract top students to chemical engineering; to define and develop new directions in chemical engineering fundamentals and practices, and in chemical engineering education and curricula; to be a valuable resource and service base to the State and to industry; and to provide leadership in solving problems of social and economic importance.

Objectives of the chemical engineering program are that

1. graduates will have successful chemical engineering careers in industry, academia or government,
2. graduates will obtain, apply and transfer knowledge across disciplines and into emerging areas of chemical engineering and related fields,
3. graduates will communicate effectively, be leaders in their fields and work competently in interdisciplinary teams, and
4. graduates will be professionally responsible and ethical and engage in professional activities to impact the society on a global scale.

To supplement coursework, well-equipped laboratories provide our students with experiences in operating and analyzing a variety of unit operations and process control equipment and in the use of the modern computational tools and software used in chemical engineering. The department offers vibrant undergraduate research, co-op and study abroad programs that provide students with additional enrichment and experiential opportunities.

The undergraduate program in Chemical Engineering at Texas A&M University is accredited by the Engineering Accreditation Commission of ABET, www.abet.org, and compares favorably with the best in the nation.

Before commencing course work in the major, students must be admitted to the major or have the approval of the department.

Faculty

Abbassi, Rouzbeh, Professor
Chemical Engineering
PHD, Memorial University, 2010

Abdel-Wahab, Ahmed I, Professor
Chemical Engineering-Qatar Campus
PHD, Texas A&M University, 2003

Akbulut, Mustafa, Professor
Chemical Engineering
PHD, University of California at Santa Barbara, 2007

Al-Sowidi, Khalifa, Professor of the Practice
Chemical Engineering-Qatar Campus
BEN, Arizona State University, 1984

Alam, Mohammad S, Senior Lecturer
Chemical Engineering
PHD, University of Hong Kong, 1999

Amin, Md Tanjin, Visiting Lecturer
Chemical Engineering
PHD, Memorial University of Newfoundland, 2022

Aristidou, Aristos A, Professor
Chemical Engineering
PHD, William Marsh Rice University, 1995

Aydogmus, Turkan, Associate Professor of the Practice
Chemical Engineering
PHD, Texas A&M University, 2004

Balbuena, Perla B, Professor
Chemical Engineering
PHD, The University of Texas at Austin, 1996

Barteau, Mark A, Professor
Chemical Engineering
PHD, Stanford University, 1981

Blizzard, Gary Edward, Senior Lecturer
Chemical Engineering
MBA, The University of Texas at Austin, 2000

Djire, Abdoulaye, Assistant Professor
Chemical Engineering
PHD, University of Michigan, 2016

Economou, Ioannis, Professor
Chemical Engineering-Qatar Campus
PHD, Johns Hopkins University, 1993

El-Halwagi, Mahmoud M, Professor
Chemical Engineering
PHD, University of California at Los Angeles, 1990

Elabd, Yossef A, Professor
Chemical Engineering
PHD, Johns Hopkins University, 2001

Elbashir, Nimir O, Professor
Chemical Engineering-Qatar Campus
PHD, Auburn University, 2004

Green, Micah, Professor
Chemical Engineering
PHD, Massachusetts Institute of Technology, 2007

Hasan, M M Faruque, Professor
Chemical Engineering
PHD, National University of Singapore, 2010

Hilaly, Ahmad K, Professor of the Practice
Chemical Engineering
PHD, Colorado State University, 1992

Holtzapfel, Mark T, Professor
Chemical Engineering
PHD, University of Pennsylvania, 1981

Hu, Chelsea, Assistant Professor
Chemical Engineering
PHD, Cornell University, 2018

Jayaraman, Arul, Professor
Chemical Engineering
PHD, University of California at Irvine, 1998

Jeong, Hae-Kwon, Professor
Chemical Engineering
PHD, University of Minnesota, 2004

Khan, Faisal Irshad, Professor
Chemical Engineering
PHD, Pondicherry University, 1998

Kravaris, Costas, Professor
Chemical Engineering
PHD, California Institute of Technology, 1984

Kwon, Joseph, Associate Professor
Chemical Engineering
PHD, University of California at Los Angeles, 2015

Lele, Pushkar P, Professor
Chemical Engineering
PHD, University of Delaware, Newark, 2010

Linke, Patrick, Professor
Chemical Engineering
PHD, University of Manchester Institute of Science and Technology, 2001

Linke, Patrick, Professor
Chemical Engineering-Qatar Campus
PHD, University of Manchester Institute of Science and Technology, 2001

Lutkenhaus, Jodie L, Professor
Chemical Engineering
PHD, Massachusetts Institute of Technology, 2007

Mashuga, Chad V, Associate Professor of the Practice
Chemical Engineering
PHD, Michigan Technological University, 1999

Mittal, Jeetain, Professor
Chemical Engineering
PHD, The University of Texas at Austin, 2007

Pehlivan, Hatice, Senior Lecturer
Chemical Engineering
MS, Izmir Institute of Technology, 2013

Pistikopoulos, Efstratios, Professor
Chemical Engineering
PHD, Carnegie Mellon University, 1988

Rahmani, Nazmul, Professor of the Practice
Chemical Engineering
PHD, University of Alberta, 2004

Reeves, Baley A, Visiting Professor of the Practice
Chemical Engineering
PHD, Princeton University, 2010

Reeves, Greg, Associate Professor
Chemical Engineering
PHD, Princeton University, 2008

Rodden, John B, Professor of the Practice
Chemical Engineering
PHD, Texas A&M University, 1988

Salama, Ghada H, Instructional Professor
Chemical Engineering-Qatar Campus
PHD, Cairo University, 2001

Seminario, Jorge M, Professor
Chemical Engineering
PHD, Southern Illinois University Carbondale, 1987

Sentmanat, Martin L, Professor of the Practice
Chemical Engineering
PHD, McGill University, 1995

Shetty, Manish M, Assistant Professor
Chemical Engineering
PHD, Massachusetts Institute of Technology, 2017

Shin, Jiho, Assistant Professor
Chemical Engineering
PHD, University of Illinois at Urbana Champaign, 2018

Sun, Qing, Associate Professor
Chemical Engineering
PHD, University of Delaware, 2010

Sun, Rui, Research Assistant Professor
Chemical Engineering
PHD, Texas A&M University, 2020

Tamamis, Phanourios, Associate Professor
Chemical Engineering
PHD, University of Cyprus, 2010

Tseregounis, Spyros I, Professor of the Practice
Chemical Engineering
PHD, University of California at Los Angeles, 1984

Ugaz, Victor M, Professor
Chemical Engineering
PHD, Northwestern University, 1999

Vaddiraju, Sreeram, Associate Professor
Chemical Engineering
PHD, University of Louisville, 2006

Vechot, Luc N, Professor
Chemical Engineering-Qatar Campus
PHD, Ecole Nationale Supérieure des Mines de Saint Etienne, France, 2007

Wang, Qingsheng, Professor
Chemical Engineering
PHD, Texas A&M University, 2010

Wilhite, Benjamin A, Associate Professor
Chemical Engineering
PHD, University of Notre Dame, 2003

Woodard, Susan L, Senior Lecturer
Chemical Engineering
PHD, Colorado State University, 1992

Wu, Hung-Jen, Associate Professor
Chemical Engineering
PHD, Texas A&M University, 2006

Wygle, Robert P, Senior Lecturer
Chemical Engineering
BS, University of Notre Dame, 1980

Xie, Shuyi, Assistant Professor
Chemical Engineering
PHD, University Of Minnesota-Twin Cities, 2020

Zhou, Aifen, Research Associate Professor
Chemical Engineering
PHD, Shandong University, 1999

Zhu, Xuejun, Assistant Professor
Chemical Engineering
PHD, University of California, Berkeley, 2017

Majors

- Bachelor of Science in Chemical Engineering (p. 605)

Certificates

- Engineering Therapeutics Manufacturing Certificate (p. 606)
- Safety Engineering Certificate (<https://catalog.tamu.edu/undergraduate/engineering/chemical/safety-engineering-certificate/>)

Chemical Engineering - BS

This program provides a strong foundation in chemical engineering principles and practice, integrating fundamentals with real-world applications and design experience, preparing graduates for multiple industry roles.

The chemical engineering curriculum provides a balanced education in virtually all aspects of chemical engineering principles and practice and includes education in economics, language, philosophy and culture and communication. Chemical engineering courses emphasize fundamentals and methods that are applicable to the analysis, development, design and operation of a wide variety of chemical engineering systems and processes, thereby providing the necessary background for entry into the wide array of activities described above. At the same time, specific example applications provide the student with insight into the ability of chemical engineers to work in such a variety of areas. The curriculum is structured to offer students an opportunity to extend and apply the fundamentals developed in the basic courses toward more focused areas of specialization. The sequence of courses converges in the senior year into a comprehensive capstone design course that includes elements of economics, safety and environmental issues. The course provides an experience much like that of an industry design project. It is this philosophy of fundamentals, applications and design that has enabled our chemical engineering graduates to adapt readily to a dynamic and rapidly changing world and to solve problems they have not previously experienced.

Program Requirements

The freshman year is identical for degrees in aerospace engineering, architectural engineering, civil engineering, computer engineering, computer science, data engineering, electrical engineering, electronic systems engineering technology, environmental engineering, industrial distribution, industrial engineering, interdisciplinary engineering, manufacturing and mechanical engineering technology, mechanical engineering, multidisciplinary engineering technology, nuclear engineering, ocean engineering, and petroleum engineering. The freshman year is slightly different for chemical engineering, biomedical engineering and materials science and engineering degrees in that students take CHEM 119 or CHEM 107/CHEM 117 and CHEM 120. Students pursuing degrees in biological and agricultural engineering should refer to the specific curriculum for this major. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year		Semester
Fall		Credit Hours
CHEM 107	General Chemistry for Engineering Students ^{1,4}	3
CHEM 117	General Chemistry for Engineering Students Laboratory ^{1,4}	1
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	3
ENGR 102	Engineering Lab I - Computation ¹	2
MATH 151	Engineering Mathematics I ^{1,2}	4
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16
Spring		
ENGR 216/PHYS 216	Experimental Physics and Engineering Lab II - Mechanics ¹	2
MATH 152	Engineering Mathematics II ¹	4
PHYS 206	Newtonian Mechanics for Engineering and Science ¹	3
University Core Curriculum (p. 26) ³		3
Select one of the following:		3-4
CHEM 120	Fundamentals of Chemistry II ^{1,4}	
University Core Curriculum (p. 26) ^{3,5}		
Semester Credit Hours		15-16
Total Semester Credit Hours		31-32

¹ A grade of C or better is required.

² Entering students will be given a math placement exam. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.

³ Of the 21 hours shown as University Core Curriculum electives, 3 must be from creative arts (see AREN curriculum for more information), 3 from social and behavioral sciences (see DAEN and IDIS curriculum for more information), 3 from language, philosophy and culture (see CVEN, EVEN and PETE curriculum for more information), 6 from American history and 6 from government/political science. The required 3 hours of international and cultural diversity and 3 hours of cultural discourse may be met by courses satisfying the creative

arts, social and behavioral sciences, language, philosophy and culture, and American history requirements if they are also on the approved list of international and cultural diversity (p. 49) courses and cultural discourse (p. 48) courses.

⁴ BMEN, CHEN and MSEN require 8 hours of fundamentals of chemistry which are satisfied with CHEM 119 or CHEM 107/CHEM 117 and CHEM 120; Students with an interest in BMEN, CHEN and MSEN can take CHEM 120 second semester freshman year. CHEM 120 will substitute for CHEM 107/CHEM 117.

⁵ For BS-PETE, allocate 3 hours to core communications course (ENGL 210, COMM 203, COMM 205, or COMM 243) and/or 3 hours to UCC elective. For BS-MEEN, allocate 3 hours to core communications course (ENGL 203, ENGL 210, COMM 203 or COMM 205) and/or 3 hours to UCC elective.

Second Year

Fall

		Semester Credit Hours
CHEM 201	Elementary Chemical Engineering Lab	1
CHEM 204	Elementary Chemical Engineering	3
ENGR 217/ PHYS 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism	2
MATH 251	Engineering Mathematics III ¹	3
PHYS 207	Electricity and Magnetism for Engineering and Science ¹	3
Select one of the following: ¹		4
CHEM 227 & CHEM 237	Organic Chemistry I and Organic Chemistry Laboratory	
CHEM 257	Organic Chemistry I - Structure and Function	
Semester Credit Hours		16

Spring

CHEM 205	Chemical Engineering Thermodynamics I	3
ENGL 210	Technical and Professional Writing	3
MATH 308	Differential Equations ¹	3
Select one of the following: ¹		4
CHEM 228 & CHEM 238	Organic Chemistry II and Organic Chemistry Laboratory	
CHEM 258	Organic Chemistry II - Reactivity and Applications	
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16

Third Year

Fall

CHEM 304	Chemical Engineering Fluid Operations	3
CHEM 320	Numerical Analysis for Chemical Engineers	3
CHEM 322	Chemical Engineering Materials	3
CHEM 354	Chemical Engineering Thermodynamics II	3
CHEM 481	Seminar	1
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16

Spring

CHEM 322	Physical Chemistry for Engineers ¹	3

CHEM 323	Chemical Engineering Heat Transfer Operations	3
CHEM 324	Chemical Engineering Mass Transfer Operations	3
CHEM 364	Kinetics and Reactor Design	3
CHEM 374	Chemical Engineering Process Industries	2
University Core Curriculum (p. 26) ³		3
High Impact Experience ⁷		0
CHEM 399	Mid-Curriculum Professional Development	
Semester Credit Hours		17

Fourth Year

Fall

CHEM 425	Process Integration, Simulation and Economics	3
CHEM 432	Chemical Engineering Laboratory I	2
CHEM 461	Process Dynamics and Control	3
CHEM 482	Bioprocess Engineering	3
University Core Curriculum ³		3
CHEN specialty options ⁶		3
Semester Credit Hours		17

Spring

CHEM 426	Chemical Engineering Plant Design	3
CHEM 433	Chemical Engineering Laboratory II	2
CHEM 455/ SENG 455	Process Safety Engineering	3
University Core Curriculum (p. 26) ³		3
CHEN specialty options ⁶		3
Semester Credit Hours		14
Total Semester Credit Hours		96

⁶ For a list of approved specialty options, please see a chemical engineering advisor.

⁷ All students are required to complete a high-impact experience in order to graduate. The list of possible high-impact experiences is available in the CHEN advising office.

A grade of C or better is required in all CHEN courses.

Total Program Hours 128 Engineering Therapeutics Manufacturing - Certificate

The Engineering Therapeutics Manufacturing Certificate is intended to meet the requirements of industry by educating engineering Bachelor of Science graduates how to economically, ecologically and safely design and operate equipment used for the production and separation of biological materials.

By the end of the certificate program, students will be able to:

1. understand the processing of biological materials
2. analyze functions and properties of biological materials
3. understand the impact of the use/misuse of biological materials

4. understand the life cycle and evolution of biological materials
5. design, operate and optimize biological process units

For additional information, contact the Engineering Therapeutics Manufacturing Certificate coordinator or the Chemical Engineering Advising Offices, 1st Floor Jack E Brown Chemical Engineering Building, (979) 845-3361.

Program Requirements

Code	Title	Semester Credit Hours
Required Course		
Select one of the following:		3
BAEN 302	Biological and Agricultural Engineering Fundamentals II	
CHEN 482	Bioprocess Engineering	
ISEN 360	Lean Thinking and Lean Engineering	
VTPP 435	Physiology for Bioengineers II	
Prescribed Electives		
Select three of the following:		9
BAEN 431	Fundamentals in Bioseparations	
BAEN 471/ CHEN 471	Bioreactor Engineering	
BAEN 479	Biological and Agricultural Engineering Design I	
BMEN 404	FDA Good Laboratory and Clinical Practices	
BMEN 486	Biomedical Nanotechnology	
BMEN 487	Drug Delivery	
CHEN 364	Kinetics and Reactor Design	
CHEN 455/ SENG 455	Process Safety Engineering	
CHEN 461	Process Dynamics and Control	
CHEN 463	Systems Biology	
Total Semester Credit Hours		12

Safety Engineering - Certificate

Designed for professionals aspiring to make a tangible impact, graduates emerge equipped to enhance safety protocols across diverse sectors, from offshore and onshore oil and gas facilities to renewable energy and carbon sequestration processes.

The graduate certificate in Safety Engineering requirements are achievable and relevant to all engineering disciplines. Graduate students in any engineering discipline can choose this option as part of their curriculum. Through this option, students are exposed to principles and case histories from a wide variety of engineering disciplines. The curriculum emphasizes the interdisciplinary nature of safety, health, and environmental engineering. It also emphasizes the knowledge and skills most likely to be needed by any engineer, as well as those who specialize in Safety Engineering.

The graduate certificate in Safety Engineering seeks to serve all engineering disciplines equally well.

This program is also approved for delivery via asynchronous distance education technology.

Program Requirements

The certificate requires 12 hours of coursework. It is the intent that these hours are applicable to the hours necessary for graduation and not an additional load, but this will depend on the disciplines' specific course requirements. Receiving the certificate is not dependent on conferral of a degree. Of the total hours required for the certificate, six hours are dedicated to Basic Topics and are required for everyone in the program. An additional six hours address more specific or advanced topics. The advanced topics are cross-listed with numerous departments.

Code	Title	Semester Credit Hours
SENG 655/ CHEN 655	Process Safety Engineering	3
SENG 670	Safety Management Systems	3
SENG 677	Consequence and Impact Analysis	3
Select one of the following:		3
ISEN 627	Engineering Analysis for Decision Making	
ISEN 630	Human Operator in Complex Systems	
ISEN 660	Risk Engineering	
NUEN 612	Radiological Safety and Hazards Evaluation	
NUEN 689	Special Topics in...	
PHEO 655	Human Factors	
SENG 660/ CHEN 660	Risk Engineering	
SENG 674	System Safety Engineering	
SENG 680	Fundamentals of Safety	
SENG 689	Special Topics in...	
Total Semester Credit Hours		12

Zachry Department of Civil and Environmental Engineering

Introduction

The Zachry Department of Civil and Environmental Engineering (<http://engineering.tamu.edu/civil/>) at Texas A&M University offers two undergraduate degree programs: Bachelor of Science in Civil Engineering and Bachelor of Science in Environmental Engineering.

What is Civil Engineering?

Civil engineers plan, design, supervise the construction, operate, maintain, inspect, retrofit, and manage many of the facilities and systems in both public and private sectors that are essential to modern life. The civil engineering profession is one of the most stable and most diverse of the engineering disciplines. Civil engineers are employed by consulting firms, public agencies, and start and operate their own businesses. Workplaces range from construction sites to design offices. Most civil engineers work with some engineering or construction aspect of private and/or public facilities, such as airports, bridges, buildings, coastal structures, dams, environmental remediation of contaminated sites, harbors, highways, offshore structures, pipelines, railroads, transportation systems, tunnels, water collection systems, water distribution systems, water and wastewater treatment facilities, and waterways. Civil engineers are on the

forefront of applying the newest technology innovations in engineering and construction.

Civil engineering projects are unique because they require individual planning, analysis, design, construction supervision, performance monitoring, management, and retrofitting. Civil engineering projects often require technical, governmental, legal, financial, and social evaluations. The primary objective is to provide the best service for the users while minimizing costs and other undesirable impacts.

What is Environmental Engineering?

Environmental engineers use a multidisciplinary approach to solve environmental challenges facing public and environmental health, such as water treatment, waste management, and climate change. Environmental engineers work to protect human health and welfare while minimizing the adverse effects of human activity on the environment. Environmental engineers are also employed by consulting firms, public agencies, and start and operate their own businesses.

Department Mission and Objectives

Mission Statement

The mission of the Zachry Department of Civil and Environmental Engineering (<http://engineering.tamu.edu/civil/>) at Texas A&M University is to prepare our graduates to become professional engineers and leaders in the engineering profession by providing our students with a solid education that will enable them to integrate fundamental scientific engineering principles and that will couple with the latest technological advances to facilitate the development of their problem-solving skills. Additionally, the department provides opportunities for educational enhancement through meaningful interactions with the profession. In summary, we expect our graduates to be fully prepared for life-long learning experiences that will strengthen their abilities to successfully and effectively solve the complex engineering problems facing society.

Objectives

The faculty of the Zachry Department of Civil and Environmental Engineering strives to ensure that our ever-evolving educational programs accomplish several objectives.

1. Our faculty must prepare the students to address the current and future civil and environmental engineering needs of the State of Texas, the nation and the world by being able to recognize the important geopolitical and public policy needs; and solve technical problems.
2. The department provides a curriculum that integrates scientific and technical knowledge with an appreciation for social, economic, and political concerns.
3. The curriculum and programs provide opportunities for our students to:
 - a. build leadership skills,
 - b. learn professionalism and ethical responsibility, and
 - c. develop an understanding of the need to engage in lifelong learning.
4. Our faculty promote the highest academic standards of excellence, quality, and ethics in both our undergraduate and graduate programs, and in doing so create both a culture of excellence and a community of scholars.
5. Through our programs, our faculty and graduates provide local, state, national, and international leadership to a profession that must

solve the civil and environmental engineering problems facing an increasingly complex society.

BS in Civil Engineering Program Educational Objectives

The program educational objectives for the undergraduate civil engineering program within the Zachry Department of Civil and Environmental Engineering at Texas A&M University are as follows.

Within a few years after graduation, Texas A&M University Civil Engineering graduates will:

- Actively engage in civil engineering practice or pursue graduate programs in civil engineering or related fields.
- Achieve a level of technical competency allowing them to become licensed professional engineers.
- Complement their education through advanced studies, professional development, and continuing education courses.

Accreditation

The undergraduate program in civil engineering within the Zachry Department of Civil and Environmental Engineering at Texas A&M is accredited by the Engineering Accreditation Commission of ABET, www.abet.org (<http://www.abet.org/>).

Areas of Specialization

Students pursuing a BS in Civil Engineering can follow a general track or specialize in one of seven areas. Eight tracks are available for undergraduate study within Civil Engineering as follows:

1. General Civil Engineering
2. Coastal and Ocean Engineering
3. Construction Engineering and Management
4. Environmental Engineering
5. Geotechnical Engineering
6. Structural Engineering
7. Transportation and Infrastructure Materials Engineering
8. Water Resources Engineering

Before commencing course work in the major, students must be admitted to the major or have the approval of the department.

Graduate Degrees

Graduate programs in civil engineering are also available. These programs allow further specialization and offer more in-depth study to address more complex technical and management issues. Graduate degrees also offer additional employment opportunities.

BS in Environmental Engineering Program Educational Objectives

The program educational objectives for the undergraduate environmental engineering program within the Zachry Department of Civil and Environmental Engineering at Texas A&M University are as follows.

Within a few years after graduation, Texas A&M University Environmental Engineering graduates will:

- Actively engage in environmental engineering practice or pursue graduate programs in environmental engineering or related fields.

- Achieve a level of technical competency allowing them to become licensed professional engineers.
- Complement their education through advanced studies, professional development, and continuing education courses.

Program Highlights

Our environmental engineering curriculum is unique in that it:

1. Has a specific focus on the protection of public and environmental health by solving environmental challenges;
2. Showcases a broad range of coursework to pursue specific environmental interests in natural or engineered systems;
3. Is multidisciplinary in every approach, melding earth science, life science, chemistry, social science, and engineering;
4. Provides the tools to develop solutions to solve emerging and existing issues such as water treatment, climate change, and other environmental challenges.

Before commencing course work in the major, students must be admitted to the major or have the approval of the department.

Graduate Degrees

Graduate programs in civil engineering with a focus on environmental engineering are also available. These programs allow further specialization and offer more in-depth study to address more complex technical and management issues. Graduate degrees also offer additional employment opportunities.

Faculty

Aubeny, Charles P, Professor
Civil & Environmental Engineering
PHD, Massachusetts Inst of Technology, 1992

Balke, Kevin N, Visiting Instructional Professor
Civil & Environmental Engineering
PHD, Texas A&M University, 1998

Barroso, Luciana R, Associate Professor
Civil & Environmental Engineering
PHD, Stanford University, 1999

Bhatti, Zafar Iqbal, Associate Professor of the Practice
Civil & Environmental Engineering
PHD, Osaka University, 1995

Birely, Anna C, Associate Professor
Civil & Environmental Engineering
PHD, University of Washington, 2012

Briaud, Jean-Louis, Professor
Civil & Environmental Engineering
PHD, University of Ottawa, Canada, 1979

Bullard, Jeff, Professor
Civil & Environmental Engineering
PHD, University of California at Berkeley, 1993

Burris, Mark W, Professor
Civil & Environmental Engineering
PHD, University of South Florida, 2001

Cahill, Anthony T, Associate Professor
Civil & Environmental Engineering
PHD, Johns Hopkins University, 1998

Chang, Kuang-An, Professor
Civil & Environmental Engineering
PHD, Cornell University, 1999

Chellam, Shankar, Professor
Civil & Environmental Engineering
PHD, Rice University, 1995

Chen, Hamn-Ching, Senior Professor
Civil & Environmental Engineering
PHD, The University of Iowa, 1982

Chen, Wensi, Assistant Professor
Civil & Environmental Engineering
PHD, Georgia Institute of Technology, 2022

Chu, Kung-Hui, Professor
Civil & Environmental Engineering
PHD, University of California at Berkeley, 1998

Clark, Lance, Associate Professor of the Practice
Civil & Environmental Engineering
MS, The Airforce Institute of Technology, Dayton, OH, 2001

Damjanovic, Ivan, Professor
Civil & Environmental Engineering
PHD, The University of Texas at Austin, 2006

Douglass, April G, Instructional Assistant Professor
Civil & Environmental Engineering
PHD, Texas A&M University, 2011

England, Peter S, Instructional Associate Professor
Civil & Environmental Engineering
PHD, Texas Tech University, 2011

Gao, Huilin, Professor
Civil & Environmental Engineering
PHD, Princeton University, 2005

Gharaibeh, Nasir G, Professor
Civil & Environmental Engineering
PHD, University of Illinois, 1997

Grasley, Zachary C, Professor
Civil & Environmental Engineering
PHD, University of Illinois Urbana Champaign, 2006

Hueste, Mary Beth Deisz, Professor
Civil & Environmental Engineering
PHD, University of Michigan, 1997

Hurlebaus, Stefan, Professor
Civil & Environmental Engineering
PHD, University of Stuttgart, Germany, 2002

Hutchinson, Richard N, Instructional Associate Professor
Civil & Environmental Engineering
PHD, Texas A&M University, 2015

Jafari, Navid Hussein, Associate Professor
Civil & Environmental Engineering
PHD, University of Illinois at Urbana-Champaign, 2015

Kaihatu, James M, Professor
Civil & Environmental Engineering
PHD, University of Delaware, 1994

Keating, Peter B, Associate Professor
Civil & Environmental Engineering
PHD, Lehigh University, 1987

Kelling, Ronald Daniel, Visiting Associate Professor of the Practice
Civil & Environmental Engineering
MEN, Texas A&M University, 2007

Kim, Yong-Rak, Professor
Civil & Environmental Engineering
PHD, Texas A&M University, 2003

Koliou, Maria, Associate Professor
Civil & Environmental Engineering
PHD, University of Buffalo - The State University of New York, 2014

Leveridge, Autumn T, Associate Professor of the Practice
Civil & Environmental Engineering
MS, Texas A&M University, 2013

Liang, Xiao, Assistant Professor
Civil & Environmental Engineering
PHD, University of California, Berkeley, 2016

Little, Dallas N, Professor
Civil & Environmental Engineering
PHD, Texas A&M University, 1979

Liu, Philip L-F, Professor
Civil & Environmental Engineering
PHD, Massachusetts Institute of Technology, 1974

London, Mara R, Instructional Professor
Civil & Environmental Engineering
PHD, The University of Texas at Austin, 2009

Lord, Dominique, Professor
Civil & Environmental Engineering
PHD, University of Toronto, 2000

Lyle, Stacey D, Professor of the Practice
Civil & Environmental Engineering
PHD, University of Georgia, 2003

Ma, Xingmao, Professor
Civil & Environmental Engineering
PHD, Missouri University of Science and Technology, 2004

Mander, John B, Professor
Civil & Environmental Engineering
PHD, University of Canterbury, 1984

Martin, Amy E, Professor
Civil & Environmental Engineering
PHD, University of California at Berkeley, 1997

McKay, Garrett, Associate Professor
Civil & Environmental Engineering
PHD, University of Colorado Boulder, 2017

Medina Cetina, Zenon, Associate Professor
Civil & Environmental Engineering
PHD, John Hopkins University, 2007

Mendoza, Itza, Assistant Professor
Civil & Environmental Engineering
PHD, Texas A&M University, 2007

Mercier, Richard S, Professor
Civil & Environmental Engineering
PHD, Massachusetts Inst of Technology, 1985

Mishra, Ashok K, Professor
Civil & Environmental Engineering
PHD, Indian Institute of Technology-Kharagpur, 2007

Mostafavidarani, Ali, Professor
Civil & Environmental Engineering
PHD, Purdue University, 2013

Mudd, Dennis R, Visiting Associate Professor of the Practice
Civil & Environmental Engineering
MEN, Texas A&M University, 1987

Najafi, Amirali, Assistant Professor
Civil & Environmental Engineering
PHD, University of Illinois Urbana-Champaign, 2021

Noshadravan, Arash, Associate Professor
Civil & Environmental Engineering
PHD, University of Southern California, 2011

Olivera, Francisco, Associate Professor
Civil & Environmental Engineering
PHD, The University of Texas at Austin, 1996

Paal, Stephanie G, Associate Professor
Civil & Environmental Engineering
PHD, Georgia Institute of Technology, 2013

Paez de Quintero, Diana L, Instructional Professor
Civil & Environmental Engineering
PHD, University of Michigan, 1997

Pollalis, William George, Instructional Assistant Professor
Civil & Environmental Engineering
PHD, Purdue University, 2021

Puppala, Anand Jagadeesh, Professor
Civil & Environmental Engineering
PHD, Louisiana State University, 1993

Quadrifoglio, Luca, Associate Professor
Civil & Environmental Engineering
PHD, University of Southern California, 2005

Quintero Febres, Carlos G, Instructional Professor
Civil & Environmental Engineering
PHD, University of Michigan, 1997

Rockey, Arash, Lecturer
Civil & Environmental Engineering
PHD, Texas A&M University, 2022

Rogers, Alton G, Associate Professor of the Practice
Civil & Environmental Engineering
MS, Texas A&M University, 2020

Sanchez Castilla, Marcelo Javier, Professor
Civil & Environmental Engineering
PHD, Universidad Politecnica de Catalunya (UPC), Barcelona, Spain, 2004

Scarfuto, Jessica C, Lecturer
Civil & Environmental Engineering
MS, Texas A&M University, 2014

Sideris, Petros, Associate Professor
Civil & Environmental Engineering
PHD, University of Buffalo - The State University of New York, 2012

Skillen, Kinsey, Assistant Professor
Civil & Environmental Engineering
PHD, Purdue University, 2020

Socolofsky, Scott A, Professor
Civil & Environmental Engineering
PHD, Massachusetts Inst of Technology, 2001

Taha, Ramzi A, Instructional Professor
Civil & Environmental Engineering
PHD, Texas A&M University, 1989

Torres, Jacob M, Senior Lecturer
Civil & Environmental Engineering
PHD, Rice University, 2016

Walewski, John A, Associate Professor of the Practice
Civil & Environmental Engineering
PHD, The University of Texas at Austin, 2005

Wang, Xiubin B, Professor
Civil & Environmental Engineering
PHD, University of California at Irvine, 2001

Wolf, Charles M, Professor of the Practice
Civil & Environmental Engineering
PHD, Texas A&M University, 2001

Wu, Chenglin, Associate Professor
Civil & Environmental Engineering
PHD, University of Texas at Austin, 2016
PHD, Missouri University of Science and Technology, 2012

Wurbs, Ralph A, Senior Professor
Civil & Environmental Engineering
PHD, Colorado State University, 1978

Yao, Noah YINUO, Assistant Professor
Civil & Environmental Engineering
PHD, Stanford University, 2021

Zhang, Yunlong, Professor
Civil & Environmental Engineering
PHD, Virginia Tech, 1996

Zhou, Yang, Assistant Professor
Civil & Environmental Engineering
PHD, University of Wisconsin-Madison, 2019

Zollinger, Dan, Professor
Civil & Environmental Engineering
PHD, University of Illinois at Urbana-Champaign, 1989

Majors

- Bachelor of Science in Civil Engineering, Coastal Engineering Track (p. 611)
- Bachelor of Science in Civil Engineering, Construction Engineering and Management Track (p. 614)
- Bachelor of Science in Civil Engineering, Environmental Engineering Track (p. 616)
- Bachelor of Science in Civil Engineering, General Civil Engineering Track (p. 618)
- Bachelor of Science in Civil Engineering, Geotechnical Engineering Track (p. 620)
- Bachelor of Science in Civil Engineering, Structural Engineering Track (p. 623)
- Bachelor of Science in Civil Engineering, Transportation and Infrastructure Materials Engineering Track (p. 625)
- Bachelor of Science in Civil Engineering, Water Resources Engineering Track (p. 627)
- Bachelor of Science in Environmental Engineering (p. 630)

Civil Engineering - BS, Coastal Engineering Track

The Coastal Engineering Track to fulfill the BS in Civil Engineering degree emphasizes breadth across civil engineering with a focus on working in coastal environments.

The focus electives prepare students to analyze and design civil engineering systems suited to aspects of the coastal region. The track is appropriate for a career related to coastal engineering and resilience, and for those planning on further specialization in graduate studies.

Program Requirements

The freshman year is identical for degrees in aerospace engineering, architectural engineering, civil engineering, computer engineering, computer science, data engineering, electrical engineering, electronic systems engineering technology, environmental engineering, industrial distribution, industrial engineering, interdisciplinary engineering, manufacturing and mechanical engineering technology, mechanical engineering, multidisciplinary engineering technology, nuclear engineering, ocean engineering, and petroleum engineering. The freshman year is slightly different for chemical engineering, biomedical engineering and materials science and engineering degrees in that students take CHEM 119 or CHEM 107/CHEM 117 and CHEM 120. Students pursuing degrees in biological and agricultural engineering should refer to the specific curriculum for this major. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year

Fall		Semester Credit Hours
CHEM 107	General Chemistry for Engineering Students ^{1,4}	3
CHEM 117	General Chemistry for Engineering Students Laboratory ^{1,4}	1
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	3
ENGR 102	Engineering Lab I - Computation ¹	2
MATH 151	Engineering Mathematics I ^{1,2}	4
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16
Spring		
ENGR 216/ PHYS 216	Experimental Physics and Engineering Lab II - Mechanics ¹	2
MATH 152	Engineering Mathematics II ¹	4
PHYS 206	Newtonian Mechanics for Engineering and Science ¹	3
University Core Curriculum (p. 26) ³		3
Select one of the following:		3-4
CHEM 120	Fundamentals of Chemistry II ^{1,4}	
University Core Curriculum (p. 26) ^{3,5}		
Semester Credit Hours		15-16
Total Semester Credit Hours		31-32

¹ A grade of C or better is required.

² Entering students will be given a math placement exam. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.

³ Of the 21 hours shown as University Core Curriculum electives, 3 must be from creative arts (see AREN curriculum for more information), 3 from social and behavioral sciences (see DAEN and IDIS curriculum for more information), 3 from language, philosophy and culture (see CVEN, EVEN and PETE curriculum for more information), 6 from American history and 6 from government/political science. The required 3 hours of international and cultural diversity and 3 hours of cultural discourse may be met by courses satisfying the creative arts, social and behavioral sciences, language, philosophy and culture, and American history requirements if they are also on the approved list of international and cultural diversity (p. 49) courses and cultural discourse (p. 48) courses.

⁴ BMEN, CHEN and MSEN require 8 hours of fundamentals of chemistry which are satisfied with CHEM 119 or CHEM 107/CHEM 117 and CHEM 120; Students with an interest in BMEN, CHEN and MSEN can take CHEM 120 second semester freshman year. CHEM 120 will substitute for CHEM 107/CHEM 117.

⁵ For BS-PETE, allocate 3 hours to core communications course (ENGL 210, COMM 203, COMM 205, or COMM 243) and/or 3 hours to UCC elective. For BS-MEEN, allocate 3 hours to core communications course (ENGL 203, ENGL 210, COMM 203 or COMM 205) and/or 3 hours to UCC elective.

Second Year

Fall		Semester Credit Hours
CVEN 207	Introduction to the Civil Engineering Profession ¹	2
CVEN 221	Engineering Mechanics: Statics ¹	3
CVEN 250	Introduction to Graphics and Visualization Applications in Civil Engineering Design ¹	2
ENGR 217/ PHYS 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism ¹	2
MATH 251	Engineering Mathematics III ¹	3
PHYS 207	Electricity and Magnetism for Engineering and Science ¹	3
STAT 211	Principles of Statistics I ¹	3
Semester Credit Hours		18
Spring		
CVEN 302	Computer Applications in Engineering and Construction ¹	3
CVEN 303	Civil Engineering Measurement ¹	3
CVEN 305	Mechanics of Materials ¹	3
CVEN 311/ EVEN 311	Fluid Dynamics ¹	3
ENGL 210 or COMM 205	Technical and Professional Writing or Communication for Technical Professions	3
MATH 308	Differential Equations ¹	3
Semester Credit Hours		18

Third Year

Fall		
CVEN 306	Materials Engineering for Civil Engineers ¹	3
CVEN 322	Civil Engineering Systems ¹	3
CVEN 345	Theory of Structures ¹	3
CVEN 363	Engineering Mechanics: Dynamics ¹	3
Technical coursework ^{1,6}		3
Semester Credit Hours		15
Spring		
CVEN 399	Mid-Curriculum Professional Development ¹	0
Technical coursework ^{1,6}		12
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		15

Fourth Year

Fall		
CVEN 424	Civil Engineering Professional Practice ^{1,7}	2
Technical coursework ^{1,6}		11
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16
Spring		
PHIL 482	Ethics and Engineering ¹	3
Technical coursework ^{1,6}		9

University Core Curriculum (p. 26) ³	3
Semester Credit Hours	15
Total Semester Credit Hours	97

⁶ A total of 35 hours of technical coursework is required. Technical coursework is divided into five categories: breadth courses, design courses, focus courses, a science course, and a capstone design course. The total number of hours between breadth, design, and focus courses must add up to 29 hours. The choice of courses to be taken in each of the five categories depends on the track chosen and must be made in consultation with the student's advisor and/or the Civil and Environmental Engineering Undergraduate Student Services Office to ensure pre- and co-requisites are satisfied. Capstone design courses must include more than one civil engineering context.

⁷ All students must take at least two courses in their major that are designated as writing intensive (W). CVEN 207 and CVEN 424 taken at Texas A&M satisfy this requirement. Other CVEN courses may be approved as W courses at a later date. A grade of C or better is required in these courses.

A grade of C or better is required in all science, mathematics and engineering courses taken to satisfy degree requirements.

Total Program Hours 128

Coastal Engineering Track - Technical Coursework

Technical coursework for the BS in Civil Engineering, Coastal Engineering Track are composed of breadth courses (10-12 semester credit hours), design courses (6-15 semester credit hours), focus courses (2-13 semester credit hours), a science course (3 semester credit hours), and a capstone design course (3 semester credit hours), as delineated below, for a total of 35 semester credit hours. A substitution for any course in the track must be approved in writing by the Civil and Environmental Engineering Undergraduate Student Services Office.

Code	Title	Semester Credit Hours
BREADTH		
CVEN 301/ EVEN 301	Environmental Engineering ¹	3
CVEN 339/ EVEN 339	Water Resources Engineering ¹	3
Select from the following: ^{1,8}		4-6
CVEN 304/ EVEN 304	Environmental Engineering Lab	
CVEN 336	Fluid Dynamics Laboratory	
CVEN 342	Materials of Construction	
or CVEN 343	Portland Cement Concrete Materials for Civil Engineers	
CVEN 365	Introduction to Geotechnical Engineering	
EVEN 404	Environmental Unit Operations Laboratory	
DESIGN		
CVEN 465	Coastal Resilience ¹	3
Select from the following: ¹		3-12

CVEN 402/ Engineered Environmental Systems
EVEN 402

CVEN 455 Urban Stormwater Management

CVEN 458/ Hydraulic Engineering of Water
EVEN 458 Distribution Systems

CVEN 462/ Engineering Hydrogeology
EVEN 462

FOCUS

Select from the following:¹ 2-13

BAEN 320 Engineering Thermodynamics
or MEEN 335 Principles of Thermodynamics

CVEN 314 Sensor Technology in Civil Engineering
or CVEN or Sensor Technology for the Built Environment

CVEN 406/ Environmental Protection and
EVEN 406 Public Health

CVEN 413/ Natural Environmental Systems
EVEN 413

CVEN 423 Geomatics for Civil Engineering

CVEN 450 AutoCAD in Civil Engineering

CVEN 463/ Engineering Hydrology
EVEN 463

CVEN 464 Environmental Fluid Mechanics

CVEN 485 Directed Studies⁹

CVEN 491 Research⁹

EVEN 466 Sustainability and Life Cycle Analysis

SCIENCE

Select from the following:¹ 3

ATMO 201 Weather and Climate

ATMO 363 Introduction to Atmospheric Chemistry and Air Pollution

BESC 201 Introduction to Bioenvironmental Sciences

BIOL 113 Essentials in Biology

ECCB 205 Fundamentals of Ecology

ENSS 105 Introduction to Environmental Systems Science

GEOL 104 Physical Geology

GEOL 320 Geology for Civil Engineers

GEOG 203 Planet Earth

OCNG 310 Physical Oceanography

RWFM 375 Conservation of Natural Resources

CAPSTONE DESIGN

CVEN 400 Design Problems in Civil Engineering¹ 3

Total Semester Credit Hours 35

⁸ The following courses satisfy the laboratory course requirement, CVEN 304/EVEN 304, CVEN 336, CVEN 342 or CVEN 343, CVEN 365, EVEN 404.

⁹ Up to 2 hours of CVEN 485 or CVEN 491 may be used.

Civil Engineering - BS, Construction Engineering and Management Track

This program develops knowledge, tools and methods that can add value to construction projects and organizations with a focus on risk management.

The Construction Engineering and Management Track to fulfill the BS in Civil Engineering degree emphasizes specialized coursework in the fundamentals of construction engineering and project management. This track blends the principles of basic science, engineering, and technology with a strong component of business coursework. This track is appropriate for students interested in a career in the construction industry.

Program Requirements

The freshman year is identical for degrees in aerospace engineering, architectural engineering, civil engineering, computer engineering, computer science, data engineering, electrical engineering, electronic systems engineering technology, environmental engineering, industrial distribution, industrial engineering, interdisciplinary engineering, manufacturing and mechanical engineering technology, mechanical engineering, multidisciplinary engineering technology, nuclear engineering, ocean engineering, and petroleum engineering. The freshman year is slightly different for chemical engineering, biomedical engineering and materials science and engineering degrees in that students take CHEM 119 or CHEM 107/CHEM 117 and CHEM 120. Students pursuing degrees in biological and agricultural engineering should refer to the specific curriculum for this major. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year

Fall		Semester Credit Hours
CHEM 107	General Chemistry for Engineering Students ^{1,4}	3
CHEM 117	General Chemistry for Engineering Students Laboratory ^{1,4}	1
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	3
ENGR 102	Engineering Lab I - Computation ¹	2
MATH 151	Engineering Mathematics I ^{1,2}	4
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16
Spring		
ENGR 216/ PHYS 216	Experimental Physics and Engineering Lab II - Mechanics ¹	2
MATH 152	Engineering Mathematics II ¹	4
PHYS 206	Newtonian Mechanics for Engineering and Science ¹	3
University Core Curriculum (p. 26) ³		3
Select one of the following:		3-4
CHEM 120	Fundamentals of Chemistry II ^{1,4}	

University Core Curriculum (p. 26) ^{3,5}

Semester Credit Hours	15-16
Total Semester Credit Hours	31-32

¹ A grade of C or better is required.

² Entering students will be given a math placement exam. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.

³ Of the 21 hours shown as University Core Curriculum electives, 3 must be from creative arts (see AREN curriculum for more information), 3 from social and behavioral sciences (see DAEN and IDIS curriculum for more information), 3 from language, philosophy and culture (see CVEN, EVEN and PETE curriculum for more information), 6 from American history and 6 from government/political science. The required 3 hours of international and cultural diversity and 3 hours of cultural discourse may be met by courses satisfying the creative arts, social and behavioral sciences, language, philosophy and culture, and American history requirements if they are also on the approved list of international and cultural diversity (p. 49) courses and cultural discourse (p. 48) courses.

⁴ BMEN, CHEN and MSEN require 8 hours of fundamentals of chemistry which are satisfied with CHEM 119 or CHEM 107/CHEM 117 and CHEM 120; Students with an interest in BMEN, CHEN and MSEN can take CHEM 120 second semester freshman year. CHEM 120 will substitute for CHEM 107/CHEM 117.

⁵ For BS-PETE, allocate 3 hours to core communications course (ENGL 210, COMM 203, COMM 205, or COMM 243) and/or 3 hours to UCC elective. For BS-MEEN, allocate 3 hours to core communications course (ENGL 203, ENGL 210, COMM 203 or COMM 205) and/or 3 hours to UCC elective.

Second Year

Fall		Semester Credit Hours
CVEN 207	Introduction to the Civil Engineering Profession ¹	2
CVEN 221	Engineering Mechanics: Statics ¹	3
CVEN 250	Introduction to Graphics and Visualization Applications in Civil Engineering Design ¹	2
ENGR 217/ PHYS 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism ¹	2
MATH 251	Engineering Mathematics III ¹	3
PHYS 207	Electricity and Magnetism for Engineering and Science ¹	3
STAT 211	Principles of Statistics I ¹	3
Semester Credit Hours		18
Spring		
CVEN 302	Computer Applications in Engineering and Construction ¹	3
CVEN 303	Civil Engineering Measurement ¹	3
CVEN 305	Mechanics of Materials ¹	3
CVEN 311/ EVEN 311	Fluid Dynamics ¹	3
ENGL 210 or COMM 205	Technical and Professional Writing or Communication for Technical Professions	3

MATH 308	Differential Equations ¹	3
Semester Credit Hours		18
Third Year		
Fall		
CVEN 306	Materials Engineering for Civil Engineers ¹	3
CVEN 322	Civil Engineering Systems ¹	3
CVEN 345	Theory of Structures ¹	3
CVEN 363	Engineering Mechanics: Dynamics ¹	3
Technical coursework ^{1,6}		3
Semester Credit Hours		15
Spring		
CVEN 399	Mid-Curriculum Professional Development ¹	0
Technical coursework ^{1,6}		12
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		15
Fourth Year		
Fall		
CVEN 424	Civil Engineering Professional Practice ^{1,7}	2
Technical coursework ^{1,6}		11
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16
Spring		
PHIL 482	Ethics and Engineering ¹	3
Technical coursework ^{1,6}		9
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		15
Total Semester Credit Hours		97

⁶ A total of 35 hours of technical coursework is required. Technical coursework is divided into five categories: breadth courses, design courses, focus courses, a science course, and a capstone design course. The total number of hours between breadth, design, and focus courses must add up to 29 hours. The choice of courses to be taken in each of the five categories depends on the track chosen and must be made in consultation with the student's advisor and/or the Civil and Environmental Engineering Undergraduate Student Services Office to ensure pre- and co-requisites are satisfied. Capstone design courses must include more than one civil engineering context.

⁷ All students must take at least two courses in their major that are designated as writing intensive (W). CVEN 207 and CVEN 424 taken at Texas A&M satisfy this requirement. Other CVEN courses may be approved as W courses at a later date. A grade of C or better is required in these courses.

A grade of C or better is required in all science, mathematics and engineering courses taken to satisfy degree requirements, and all courses in those areas must be taken for a letter grade.

Total Program Hours 128

Construction Engineering and Management Track - Technical Coursework

Technical coursework for the BS in Civil Engineering, Construction Engineering and Management Track is composed of breadth courses (12 semester credit hours), design courses (9 semester credit hours), focus courses (8 semester credit hours), a science course (3 semester credit hours), and a capstone design course (3 semester credit hours), as delineated below, for a total of 35 semester credit hours. A substitution for any course in the track must be approved in writing by the Civil and Environmental Engineering Undergraduate Student Services Office.

Code	Title	Semester Credit Hours
BREADTH		
CVEN 307	Transportation Engineering ¹	3
CVEN 342	Materials of Construction ^{1,8}	3
	or CVEN 343 or Portland Cement Concrete Materials for Civil Engineers	
CVEN 349	Civil Engineering Project Management ¹	3
CVEN 365	Introduction to Geotechnical Engineering ^{1,8}	3
DESIGN		
CVEN 444	Structural Concrete Design ¹	3
CVEN 446	Structural Steel Design ¹	3
CVEN 473	Engineering Project Estimating and Planning ¹	3
FOCUS		
CVEN 405	Construction Management of Field Operations ¹	3
Select 5 hours from the following: ¹		5
BAEN 320	Engineering Thermodynamics	
CVEN 314	Sensor Technology in Civil Engineering	
	or CVEN or Sensor Technology for the Built Environment	
CVEN 336	Fluid Dynamics Laboratory	
CVEN 403	Applied Civil Engineering Surveying	
CVEN 436	Case Histories in Geotechnical Engineering	
CVEN 450	AutoCAD in Civil Engineering	
CVEN 485	Directed Studies ⁹	
CVEN 491	Research ⁹	
ECEN 215	Principles of Electrical Engineering	
MEEN 315	Principles of Thermodynamics	
MGMT 309	Survey of Management	
STAT 212	Principles of Statistics II	
SCIENCE		
Select 3 hours from the following: ¹		3
ATMO 201	Weather and Climate	

ATMO 363	Introduction to Atmospheric Chemistry and Air Pollution	
BESC 201	Introduction to Bioenvironmental Sciences	
BIOL 113	Essentials in Biology	
ECCB 205	Fundamentals of Ecology	
ENSS 105	Introduction to Environmental Systems Science	
GEOG 203	Planet Earth	
GEOL 104	Physical Geology	
GEOL 320	Geology for Civil Engineers	
OCNG 310	Physical Oceanography	
RWFM 375	Conservation of Natural Resources	
CAPSTONE DESIGN		
CVEN 400	Design Problems in Civil Engineering ¹	3
Total Semester Credit Hours		35

⁸ The following courses satisfy the laboratory course requirement: CVEN 342 or CVEN 343, CVEN 365.

⁹ Up to 2 hours of CVEN 485 or CVEN 491 may be used.

Civil Engineering - BS, Environmental Engineering Track

The Environmental Engineering Track to fulfill the BS in Civil Engineering degree emphasizes specialized coursework in water and waste water treatment, air and water quality management, solid and hazardous wastes, ground water protection and remediation, and environmental policy.

This track is appropriate for those wishing to pursue careers in protecting the natural environment from human activities, protecting human populations from the effects of adverse environmental factors, and improving the environmental quality for human health and well-being.

Program Requirements

The freshman year is identical for degrees in aerospace engineering, architectural engineering, civil engineering, computer engineering, computer science, data engineering, electrical engineering, electronic systems engineering technology, environmental engineering, industrial distribution, industrial engineering, interdisciplinary engineering, manufacturing and mechanical engineering technology, mechanical engineering, multidisciplinary engineering technology, nuclear engineering, ocean engineering, and petroleum engineering. The freshman year is slightly different for chemical engineering, biomedical engineering and materials science and engineering degrees in that students take CHEM 119 or CHEM 107/CHEM 117 and CHEM 120. Students pursuing degrees in biological and agricultural engineering should refer to the specific curriculum for this major. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year			
Fall			Semester Credit Hours
CHEM 107	General Chemistry for Engineering Students ^{1,4}		3
CHEM 117	General Chemistry for Engineering Students Laboratory ^{1,4}		1
ENGL 103	Introduction to Rhetoric and Composition ¹		3
or ENGL 104	or Composition and Rhetoric		
ENGR 102	Engineering Lab I - Computation ¹		2
MATH 151	Engineering Mathematics I ^{1,2}		4
University Core Curriculum (p. 26) ³			3
Semester Credit Hours			16
Spring			
ENGR 216/ PHYS 216	Experimental Physics and Engineering Lab II - Mechanics ¹		2
MATH 152	Engineering Mathematics II ¹		4
PHYS 206	Newtonian Mechanics for Engineering and Science ¹		3
University Core Curriculum (p. 26) ³			3
Select one of the following:			3-4
CHEM 120	Fundamentals of Chemistry II ^{1,4}		
University Core Curriculum (p. 26) ^{3,5}			
Semester Credit Hours			15-16
Total Semester Credit Hours			31-32

¹ A grade of C or better is required.

² Entering students will be given a math placement exam. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.

³ Of the 21 hours shown as University Core Curriculum electives, 3 must be from creative arts (see AREN curriculum for more information), 3 from social and behavioral sciences (see DAEN and IDIS curriculum for more information), 3 from language, philosophy and culture (see CVEN, EVEN and PETE curriculum for more information), 6 from American history and 6 from government/political science. The required 3 hours of international and cultural diversity and 3 hours of cultural discourse may be met by courses satisfying the creative arts, social and behavioral sciences, language, philosophy and culture, and American history requirements if they are also on the approved list of international and cultural diversity (p. 49) courses and cultural discourse (p. 48) courses.

⁴ BMEN, CHEN and MSEN require 8 hours of fundamentals of chemistry which are satisfied with CHEM 119 or CHEM 107/CHEM 117 and CHEM 120; Students with an interest in BMEN, CHEN and MSEN can take CHEM 120 second semester freshman year. CHEM 120 will substitute for CHEM 107/CHEM 117.

⁵ For BS-PETE, allocate 3 hours to core communications course (ENGL 210, COMM 203, COMM 205, or COMM 243) and/or 3 hours to UCC elective. For BS-MEEN, allocate 3 hours to core communications course (ENGL 203, ENGL 210, COMM 203 or COMM 205) and/or 3 hours to UCC elective.

Second Year

Fall		Semester Credit Hours
CVEN 207	Introduction to the Civil Engineering Profession ¹	2
CVEN 221	Engineering Mechanics: Statics ¹	3
CVEN 250	Introduction to Graphics and Visualization Applications in Civil Engineering Design ¹	2
ENGR 217/ PHYS 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism ¹	2
MATH 251	Engineering Mathematics III ¹	3
PHYS 207	Electricity and Magnetism for Engineering and Science ¹	3
STAT 211	Principles of Statistics I ¹	3
Semester Credit Hours		18

Spring

CVEN 302	Computer Applications in Engineering and Construction ¹	3
CVEN 303	Civil Engineering Measurement ¹	3
CVEN 305	Mechanics of Materials ¹	3
CVEN 311/ EVEN 311	Fluid Dynamics ¹	3
ENGL 210 or COMM 205	Technical and Professional Writing or Communication for Technical Professions	3
MATH 308	Differential Equations ¹	3
Semester Credit Hours		18

Third Year

Fall		
CVEN 306	Materials Engineering for Civil Engineers ¹	3
CVEN 322	Civil Engineering Systems ¹	3
CVEN 345	Theory of Structures ¹	3
CVEN 363	Engineering Mechanics: Dynamics ¹	3
Technical coursework ^{1,6}		3
Semester Credit Hours		15

Spring

CVEN 399	Mid-Curriculum Professional Development ¹	0
Technical coursework ^{1,6}		12
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		15

Fourth Year

Fall		
CVEN 424	Civil Engineering Professional Practice ^{1,7}	2
Technical coursework ^{1,6}		11
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16

Spring

PHIL 482	Ethics and Engineering ¹	3
Technical coursework ^{1,6}		9

University Core Curriculum (p. 26) ³	3
Semester Credit Hours	15
Total Semester Credit Hours	97

⁶ A total of 35 hours of technical coursework is required. Technical coursework is divided into five categories: breadth courses, design courses, focus courses, a science course, and a capstone design course. The total number of hours between breadth, design, and focus courses must add up to 29 hours. The choice of courses to be taken in each of the five categories depends on the track chosen and must be made in consultation with the student's advisor and/or the Civil and Environmental Engineering Undergraduate Student Services Office to ensure pre- and co-requisites are satisfied. Capstone design courses must include more than one civil engineering context.

⁷ All students must take at least two courses in their major that are designated as writing intensive (W). CVEN 207 and CVEN 424 taken at Texas A&M satisfy this requirement. Other CVEN courses may be approved as W courses at a later date. A grade of C or better is required in these courses.

A grade of C or better is required in all science, mathematics and engineering courses taken to satisfy degree requirements.

Total Program Hours 128

Environmental Engineering Track - Technical Coursework

Technical coursework for the BS in Civil Engineering, Environmental Engineering Track are composed of breadth courses (10-12 semester credit hours), design courses (6-15 semester credit hours), focus courses (2-13 semester credit hours), a science course (3 semester credit hours), and a capstone design course (3 semester credit hours), as delineated below, for a total of 35 semester credit hours. A substitution for any course in the track must be approved in writing by the Civil and Environmental Engineering Undergraduate Student Services Office.

Code	Title	Semester Credit Hours
BREADTH		
CVEN 301/ EVEN 301	Environmental Engineering ¹	3
CVEN 339/ EVEN 339	Water Resources Engineering ¹	3
Select from the following: ^{1,8}		4-6
CVEN 304/ EVEN 304	Environmental Engineering Lab	
CVEN 336	Fluid Dynamics Laboratory	
CVEN 342	Materials of Construction	
or CVEN 343	Portland Cement Concrete Materials for Civil Engineers	
CVEN 365	Introduction to Geotechnical Engineering	
EVEN 404	Environmental Unit Operations Laboratory	
DESIGN		

CVEN 402/ EVEN 402	Engineered Environmental Systems ¹	3
Select from the following: ¹		3-12
CVEN 455	Urban Stormwater Management	
CVEN 458/ EVEN 458	Hydraulic Engineering of Water Distribution Systems	
CVEN 462/ EVEN 462	Engineering Hydrogeology	
CVEN 465	Coastal Resilience	
FOCUS		
Select from the following: ¹		2-13
CVEN 314	Sensor Technology in Civil Engineering	
or CVEN 314	Sensor Technology for the Built Environment	
CVEN 406/ EVEN 406	Environmental Protection and Public Health	
CVEN 413/ EVEN 413	Natural Environmental Systems	
CVEN 423	Geomatics for Civil Engineering	
CVEN 450	AutoCAD in Civil Engineering	
CVEN 463/ EVEN 463	Engineering Hydrology	
CVEN 464	Environmental Fluid Mechanics	
CVEN 485	Directed Studies ⁹	
CVEN 491	Research ⁹	
EVEN 466	Sustainability and Life Cycle Analysis	
BAEN 320	Engineering Thermodynamics	
or MEEN 315	Principles of Thermodynamics	
SCIENCE		
Select from the following: ¹		3
ATMO 201	Weather and Climate	
ATMO 363	Introduction to Atmospheric Chemistry and Air Pollution	
BESC 201	Introduction to Bioenvironmental Sciences	
BIOL 113	Essentials in Biology	
ECCB 205	Fundamentals of Ecology	
ENSS 105	Introduction to Environmental Systems Science	
GEOG 203	Planet Earth	
GEOL 104	Physical Geology	
GEOL 320	Geology for Civil Engineers	
OCNG 310	Physical Oceanography	
RWFM 375	Conservation of Natural Resources	
CAPSTONE DESIGN		
CVEN 400	Design Problems in Civil Engineering ¹	3
Total Semester Credit Hours		35

⁸ The following courses satisfy the laboratory course requirement, CVEN 304/EVEN 304, CVEN 336, CVEN 342 or CVEN 343, CVEN 365, EVEN 404.

⁹ Up to 2 hours of CVEN 485 or CVEN 491 may be used.

Civil Engineering - BS, General Civil Engineering Track

The General Civil Engineering Track to fulfill the BS in Civil Engineering degree emphasizes breadth across the civil engineering field.

Students take courses in all major sub-disciplines of civil engineering with advanced design and focus electives allowing deeper learning in selected areas. This track is appropriate for a career in any area of civil engineering, with particular relevance for those interested in public works, land development, and general civil, and for those planning on further specialization in graduate studies.

Program Requirements

The freshman year is identical for degrees in aerospace engineering, architectural engineering, civil engineering, computer engineering, computer science, data engineering, electrical engineering, electronic systems engineering technology, environmental engineering, industrial distribution, industrial engineering, interdisciplinary engineering, manufacturing and mechanical engineering technology, mechanical engineering, multidisciplinary engineering technology, nuclear engineering, ocean engineering, and petroleum engineering. The freshman year is slightly different for chemical engineering, biomedical engineering and materials science and engineering degrees in that students take CHEM 119 or CHEM 107/CHEM 117 and CHEM 120. Students pursuing degrees in biological and agricultural engineering should refer to the specific curriculum for this major. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year

Fall		Semester Credit Hours
CHEM 107	General Chemistry for Engineering Students ^{1,4}	3
CHEM 117	General Chemistry for Engineering Students Laboratory ^{1,4}	1
ENGL 103	Introduction to Rhetoric and Composition ¹	3
or ENGL 104	or Composition and Rhetoric	
ENGR 102	Engineering Lab I - Computation ¹	2
MATH 151	Engineering Mathematics I ^{1,2}	4
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16
Spring		
ENGR 216/ PHYS 216	Experimental Physics and Engineering Lab II - Mechanics ¹	2
MATH 152	Engineering Mathematics II ¹	4
PHYS 206	Newtonian Mechanics for Engineering and Science ¹	3
University Core Curriculum (p. 26) ³		3
Select one of the following:		3-4
CHEM 120	Fundamentals of Chemistry II ^{1,4}	

University Core Curriculum (p. 26) ^{3,5}	
Semester Credit Hours	15-16
Total Semester Credit Hours	31-32

¹ A grade of C or better is required.

² Entering students will be given a math placement exam. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.

³ Of the 21 hours shown as University Core Curriculum electives, 3 must be from creative arts (see AREN curriculum for more information), 3 from social and behavioral sciences (see DAEN and IDIS curriculum for more information), 3 from language, philosophy and culture (see CVEN, EVEN and PETE curriculum for more information), 6 from American history and 6 from government/political science. The required 3 hours of international and cultural diversity and 3 hours of cultural discourse may be met by courses satisfying the creative arts, social and behavioral sciences, language, philosophy and culture, and American history requirements if they are also on the approved list of international and cultural diversity (p. 49) courses and cultural discourse (p. 48) courses.

⁴ BMEN, CHEN and MSEN require 8 hours of fundamentals of chemistry which are satisfied with CHEM 119 or CHEM 107/CHEM 117 and CHEM 120; Students with an interest in BMEN, CHEN and MSEN can take CHEM 120 second semester freshman year. CHEM 120 will substitute for CHEM 107/CHEM 117.

⁵ For BS-PETE, allocate 3 hours to core communications course (ENGL 210, COMM 203, COMM 205, or COMM 243) and/or 3 hours to UCC elective. For BS-MEEN, allocate 3 hours to core communications course (ENGL 203, ENGL 210, COMM 203 or COMM 205) and/or 3 hours to UCC elective.

Second Year

Fall		Semester Credit Hours
CVEN 207	Introduction to the Civil Engineering Profession ¹	2
CVEN 221	Engineering Mechanics: Statics ¹	3
CVEN 250	Introduction to Graphics and Visualization Applications in Civil Engineering Design ¹	2
ENGR 217/ PHYS 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism ¹	2
MATH 251	Engineering Mathematics III ¹	3
PHYS 207	Electricity and Magnetism for Engineering and Science ¹	3
STAT 211	Principles of Statistics I ¹	3
Semester Credit Hours		18

Spring

CVEN 302	Computer Applications in Engineering and Construction ¹	3
CVEN 303	Civil Engineering Measurement ¹	3
CVEN 305	Mechanics of Materials ¹	3
CVEN 311/ EVEN 311	Fluid Dynamics ¹	3
ENGL 210 or COMM 205	Technical and Professional Writing or Communication for Technical Professions	3

MATH 308	Differential Equations ¹	3
Semester Credit Hours		18

Third Year

Fall

CVEN 306	Materials Engineering for Civil Engineers ¹	3
CVEN 322	Civil Engineering Systems ¹	3
CVEN 345	Theory of Structures ¹	3
CVEN 363	Engineering Mechanics: Dynamics ¹	3
Technical coursework ^{1,6}		3
Semester Credit Hours		15

Spring

CVEN 399	Mid-Curriculum Professional Development ¹	0
Technical coursework ^{1,6}		12
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		15

Fourth Year

Fall

CVEN 424	Civil Engineering Professional Practice ^{1,7}	2
Technical coursework ^{1,6}		11
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16

Spring

PHIL 482	Ethics and Engineering ¹	3
Technical coursework ^{1,6}		9
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		15
Total Semester Credit Hours		97

⁶ A total of 35 hours of technical coursework is required. Technical coursework is divided into five categories: breadth courses, design courses, focus courses, a science course, and a capstone design course. The total number of hours between breadth, design, and focus courses must add up to 29 hours. The choice of courses to be taken in each of the five categories depends on the track chosen and must be made in consultation with the student's advisor and/or the Civil and Environmental Engineering Undergraduate Student Services Office to ensure pre- and co-requisites are satisfied. Capstone design courses must include more than one civil engineering context.

⁷ All students must take at least two courses in their major that are designated as writing intensive (W). CVEN 207 and CVEN 424 taken at Texas A&M satisfy this requirement. Other CVEN courses may be approved as W courses at a later date. A grade of C or better is required in these courses.

A grade of C or better is required in all science, mathematics and engineering courses taken to satisfy degree requirements.

Total Program Hours 128

General Civil Engineering Track - Technical Coursework

Technical coursework for the BS in Civil Engineering, General Civil Engineering Track are composed of breadth courses (18 semester credit hours), design courses (6-9 semester credit hours), focus courses

(2-5 semester credit hours), a science course (3 semester credit hours), and a capstone design course (3 semester credit hours), as delineated below, for a total of 35 semester credit hours. A substitution for any course in the track must be approved in writing by the Civil and Environmental Engineering Undergraduate Student Services Office.

Code	Title	Semester Credit Hours
BREADTH		
CVEN 301/ EVEN 301	Environmental Engineering ¹	3
CVEN 307	Transportation Engineering ¹	3
CVEN 339/ EVEN 339	Water Resources Engineering ¹	3
CVEN 342	Materials of Construction ⁸	3
	or CVEN 343 or Portland Cement Concrete Materials for Civil Engineers	
CVEN 349	Civil Engineering Project Management ¹	3
CVEN 365	Introduction to Geotechnical Engineering ⁸	3
DESIGN		
CVEN 444	Structural Concrete Design ¹	3
Select 3-6 hours from the following: ¹		3-6
CVEN 402/ EVEN 402	Engineered Environmental Systems	
CVEN 418	Highway Materials and Pavement Design	
CVEN 435	Geotechnical Engineering Design	
CVEN 455	Urban Stormwater Management	
CVEN 457	Urban Traffic Facilities	
CVEN 458/ EVEN 458	Hydraulic Engineering of Water Distribution Systems	
CVEN 462/ EVEN 462	Engineering Hydrogeology	
CVEN 465	Coastal Resilience	
CVEN 473	Engineering Project Estimating and Planning	
Select 0-3 hours from the following: ¹		0-3
CVEN 446	Structural Steel Design	
FOCUS		
Select 2 hours from the following: ¹		2
CVEN 314	Sensor Technology in Civil Engineering ⁹	
CVEN 336	Fluid Dynamics Laboratory	
CVEN 403	Applied Civil Engineering Surveying	
CVEN 449	Visualization and Building Information Modeling in Structural Engineering Design	
CVEN 450	AutoCAD in Civil Engineering	
CVEN 485	Directed Studies ¹⁰	
CVEN 491	Research ¹⁰	
Select 0-3 hours from the following: ¹		0-3
CVEN 315	Sensor Technology for the Built Environment ⁹	

CVEN 405	Construction Management of Field Operations	
CVEN 406/ EVEN 406	Environmental Protection and Public Health	
CVEN 413/ EVEN 413	Natural Environmental Systems	
CVEN 417	Bituminous Materials	
CVEN 423	Geomatics for Civil Engineering	
CVEN 436	Case Histories in Geotechnical Engineering	
CVEN 445	Matrix Methods of Structural Analysis	
CVEN 451	Public Works Engineering	
CVEN 454	Urban Planning for Engineers	
CVEN 463/ EVEN 463	Engineering Hydrology	
SCIENCE		
Select 3 hours from the following: ¹		3
ATMO 201	Weather and Climate	
ATMO 363	Introduction to Atmospheric Chemistry and Air Pollution	
BESC 201	Introduction to Bioenvironmental Sciences	
BIOL 113	Essentials in Biology	
ECCB 205	Fundamentals of Ecology	
ENSS 105	Introduction to Environmental Systems Science	
GEOG 203	Planet Earth	
GEOL 104	Physical Geology	
GEOL 320	Geology for Civil Engineers	
OCNG 310	Physical Oceanography	
RWFM 375	Conservation of Natural Resources	
CAPSTONE DESIGN		
CVEN 400	Design Problems in Civil Engineering ¹	3
	or CVEN 483 or Analysis and Design of Structures	
Total Semester Credit Hours		35

⁸ The following courses satisfy the laboratory course requirement: CVEN 342 or CVEN 343, CVEN 365.

⁹ Only one of the following courses can be used to meet the focus elective: CVEN 314 or CVEN 315.

¹⁰ Up to 2 hours of CVEN 485 or CVEN 491 may be used. A proposal must be submitted to the undergraduate office and approved before credit can be awarded towards the degree.

Civil Engineering - BS, Geotechnical Engineering Track

This program focuses on geotechnical engineering, equipping students for engineering design and management of infrastructure roles.

The Geotechnical Engineering Track to fulfill the BS in Civil Engineering degree emphasizes specialized coursework in applied soil mechanics and foundation engineering, as well as civil engineering sub-disciplines with

strong geotechnical engineering connections such as structures, water resources, construction, transportation, environmental, and coastal and ocean engineering. This track is appropriate for those wishing to pursue careers in engineering design and management of infrastructure in a wide array of sectors that can include energy, transportation, and water resources.

Program Requirements

The freshman year is identical for degrees in aerospace engineering, architectural engineering, civil engineering, computer engineering, computer science, data engineering, electrical engineering, electronic systems engineering technology, environmental engineering, industrial distribution, industrial engineering, interdisciplinary engineering, manufacturing and mechanical engineering technology, mechanical engineering, multidisciplinary engineering technology, nuclear engineering, ocean engineering, and petroleum engineering. The freshman year is slightly different for chemical engineering, biomedical engineering and materials science and engineering degrees in that students take CHEM 119 or CHEM 107/CHEM 117 and CHEM 120. Students pursuing degrees in biological and agricultural engineering should refer to the specific curriculum for this major. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year

Fall		Semester Credit Hours
CHEM 107	General Chemistry for Engineering Students ^{1,4}	3
CHEM 117	General Chemistry for Engineering Students Laboratory ^{1,4}	1
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	3
ENGR 102	Engineering Lab I - Computation ¹	2
MATH 151	Engineering Mathematics I ^{1,2}	4
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16
Spring		
ENGR 216/ PHYS 216	Experimental Physics and Engineering Lab II - Mechanics ¹	2
MATH 152	Engineering Mathematics II ¹	4
PHYS 206	Newtonian Mechanics for Engineering and Science ¹	3
University Core Curriculum (p. 26) ³		3
Select one of the following:		3-4
CHEM 120	Fundamentals of Chemistry II ^{1,4}	
University Core Curriculum (p. 26) ^{3,5}		
Semester Credit Hours		15-16
Total Semester Credit Hours		31-32

¹ A grade of C or better is required.

² Entering students will be given a math placement exam. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.

³ Of the 21 hours shown as University Core Curriculum electives, 3 must be from creative arts (see AREN curriculum for more information), 3 from social and behavioral sciences (see DAEN and IDIS curriculum for more information), 3 from language, philosophy and culture (see CVEN, EVEN and PETE curriculum for more information), 6 from American history and 6 from government/political science. The required 3 hours of international and cultural diversity and 3 hours of cultural discourse may be met by courses satisfying the creative arts, social and behavioral sciences, language, philosophy and culture, and American history requirements if they are also on the approved list of international and cultural diversity (p. 49) courses and cultural discourse (p. 48) courses.

⁴ BMEN, CHEN and MSEN require 8 hours of fundamentals of chemistry which are satisfied with CHEM 119 or CHEM 107/CHEM 117 and CHEM 120; Students with an interest in BMEN, CHEN and MSEN can take CHEM 120 second semester freshman year. CHEM 120 will substitute for CHEM 107/CHEM 117.

⁵ For BS-PETE, allocate 3 hours to core communications course (ENGL 210, COMM 203, COMM 205, or COMM 243) and/or 3 hours to UCC elective. For BS-MEEN, allocate 3 hours to core communications course (ENGL 203, ENGL 210, COMM 203 or COMM 205) and/or 3 hours to UCC elective.

Second Year

Fall		Semester Credit Hours
CVEN 207	Introduction to the Civil Engineering Profession ¹	2
CVEN 221	Engineering Mechanics: Statics ¹	3
CVEN 250	Introduction to Graphics and Visualization Applications in Civil Engineering Design ¹	2
ENGR 217/ PHYS 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism ¹	2
MATH 251	Engineering Mathematics III ¹	3
PHYS 207	Electricity and Magnetism for Engineering and Science ¹	3
STAT 211	Principles of Statistics I ¹	3
Semester Credit Hours		18
Spring		
CVEN 302	Computer Applications in Engineering and Construction ¹	3
CVEN 303	Civil Engineering Measurement ¹	3
CVEN 305	Mechanics of Materials ¹	3
CVEN 311/ EVEN 311	Fluid Dynamics ¹	3
ENGL 210 or COMM 205	Technical and Professional Writing or Communication for Technical Professions	3
MATH 308	Differential Equations ¹	3
Semester Credit Hours		18

Third Year

Fall		
CVEN 306	Materials Engineering for Civil Engineers ¹	3
CVEN 322	Civil Engineering Systems ¹	3
CVEN 345	Theory of Structures ¹	3
CVEN 363	Engineering Mechanics: Dynamics ¹	3

Technical coursework ^{1,6}		3
Semester Credit Hours		15
Spring		
CVEN 399	Mid-Curriculum Professional Development ¹	0
Technical coursework ^{1,6}		12
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		15
Fourth Year		
Fall		
CVEN 424	Civil Engineering Professional Practice ^{1,7}	2
Technical coursework ^{1,6}		11
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16
Spring		
PHIL 482	Ethics and Engineering ¹	3
Technical coursework ^{1,6}		9
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		15
Total Semester Credit Hours		97

⁶ A total of 35 hours of technical coursework is required. Technical coursework is divided into five categories: breadth courses, design courses, focus courses, a science course, and a capstone design course. The total number of hours between breadth, design, and focus courses must add up to 29 hours. The choice of courses to be taken in each of the five categories depends on the track chosen and must be made in consultation with the student's advisor and/or the Civil and Environmental Engineering Undergraduate Student Services Office to ensure pre- and co-requisites are satisfied. Capstone design courses must include more than one civil engineering context.

⁷ All students must take at least two courses in their major that are designated as writing intensive (W). CVEN 207 and CVEN 424 taken at Texas A&M satisfy this requirement. Other CVEN courses may be approved as W courses at a later date. A grade of C or better is required in these courses.

A grade of C or better is required in all science, mathematics and engineering courses taken to satisfy degree requirements.

Total Program Hours 128

Geotechnical Engineering Track - Technical Coursework

Technical **coursework** **electives** for the BS in Civil Engineering, Geotechnical Engineering Track are composed of breadth courses (15-18 semester credit hours), design courses (6-12 semester credit hours), focus courses (2-5 semester credit hours), a science course (3 semester credit hours), and a capstone design course (3 semester credit hours), as delineated below, for a total of 35 semester credit hours. A substitution for any course in the track must be approved in writing by the Civil **and Environmental** Engineering Undergraduate Student Services Office.

Code	Title	Semester Credit Hours
BREADTH		
CVEN 301/ EVEN 301	Environmental Engineering ¹	3
CVEN 339/ EVEN 339	Water Resources Engineering ¹	3
CVEN 349	Civil Engineering Project Management ¹	3
CVEN 342	Materials of Construction ^{1,8}	3
	or CVEN 343 or Portland Cement Concrete Materials for Civil Engineers	
CVEN 365	Introduction to Geotechnical Engineering ^{1,8}	3
Select 0-3 hours from the following: ¹		0-3
CVEN 307	Transportation Engineering	
DESIGN		
CVEN 435	Geotechnical Engineering Design ¹	3
CVEN 444	Structural Concrete Design ¹	3
Select 0-6 hours from the following: ¹		0-6
CVEN 418	Highway Materials and Pavement Design	
CVEN 446	Structural Steel Design	
CVEN 462/ EVEN 462	Engineering Hydrogeology	
CVEN 473	Engineering Project Estimating and Planning	
FOCUS		
Select 2 hours from the following: ¹		2
CVEN 314	Sensor Technology in Civil Engineering ⁹	
CVEN 336	Fluid Dynamics Laboratory	
CVEN 403	Applied Civil Engineering Surveying	
CVEN 450	AutoCAD in Civil Engineering	
CVEN 485	Directed Studies ¹⁰	
CVEN 491	Research ¹⁰	
Select 0-3 hours from the following: ¹		0-3
CVEN 315	Sensor Technology for the Built Environment ⁹	
CVEN 405	Construction Management of Field Operations	
CVEN 406/ EVEN 406	Environmental Protection and Public Health	
CVEN 417	Bituminous Materials	
CVEN 436	Case Histories in Geotechnical Engineering	
CVEN 463/ EVEN 463	Engineering Hydrology	
GEOL 410	Hydrogeology	
GEOL 440	Engineering Geology	
SCIENCE		
Select 3 hours from the following: ¹		3
ATMO 201	Weather and Climate	
ATMO 363	Introduction to Atmospheric Chemistry and Air Pollution	

BESC 201	Introduction to Bioenvironmental Sciences	
BIOL 113	Essentials in Biology	
ECCB 205	Fundamentals of Ecology	
ENSS 105	Introduction to Environmental Systems Science	
GEOG 203	Planet Earth	
GEOL 104	Physical Geology	
GEOL 320	Geology for Civil Engineers	
OCNG 310	Physical Oceanography	
RWFM 375	Conservation of Natural Resources	
CAPSTONE DESIGN		
CVEN 400	Design Problems in Civil Engineering ¹	3
	or CVEN 48: or Analysis and Design of Structures	
Total Semester Credit Hours		35

⁸ The following courses satisfy the laboratory course requirement, CVEN 342 or CVEN 343, CVEN 365.

⁹ Only one of the following courses, CVEN 314 or CVEN 315, can be used to meet the focus elective.

¹⁰ Up to 2 hours of CVEN 485 or CVEN 491 may be used.

Civil Engineering - BS, Structural Engineering Track

This program in structural engineering is designed to provide students with a fundamental understanding of the basic sciences and engineering applied to structural systems.

The Structural Engineering track to fulfill the BS in Civil Engineering degree provides coursework in the areas of structural analysis and structural design that equip the student to analyze and design the frameworks that support buildings, bridges, offshore installations, and civil infrastructure projects. This track is appropriate for careers related to the structural design of engineered facilities to safely resist the forces found in their environment, and for those planning on further specialization in graduate studies.

Program Requirements

The freshman year is identical for degrees in aerospace engineering, architectural engineering, civil engineering, computer engineering, computer science, data engineering, electrical engineering, electronic systems engineering technology, environmental engineering, industrial distribution, industrial engineering, interdisciplinary engineering, manufacturing and mechanical engineering technology, mechanical engineering, multidisciplinary engineering technology, nuclear engineering, ocean engineering, and petroleum engineering. The freshman year is slightly different for chemical engineering, biomedical engineering and materials science and engineering degrees in that students take CHEM 119 or CHEM 107/CHEM 117 and CHEM 120. Students pursuing degrees in biological and agricultural engineering should refer to the specific curriculum for this major. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however,

should be made with care to ensure that prerequisites for all courses are met.

First Year

Fall		Semester Credit Hours
CHEM 107	General Chemistry for Engineering Students ^{1,4}	3
CHEM 117	General Chemistry for Engineering Students Laboratory ^{1,4}	1
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	3
ENGR 102	Engineering Lab I - Computation ¹	2
MATH 151	Engineering Mathematics I ^{1,2}	4
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16
Spring		
ENGR 216/ PHYS 216	Experimental Physics and Engineering Lab II - Mechanics ¹	2
MATH 152	Engineering Mathematics II ¹	4
PHYS 206	Newtonian Mechanics for Engineering and Science ¹	3
University Core Curriculum (p. 26) ³		3
Select one of the following:		3-4
CHEM 120	Fundamentals of Chemistry II ^{1,4}	
University Core Curriculum (p. 26) ^{3,5}		
Semester Credit Hours		15-16
Total Semester Credit Hours		31-32

¹ A grade of C or better is required.

² Entering students will be given a math placement exam. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.

³ Of the 21 hours shown as University Core Curriculum electives, 3 must be from creative arts (see AREN curriculum for more information), 3 from social and behavioral sciences (see DAEN and IDIS curriculum for more information), 3 from language, philosophy and culture (see CVEN, EVEN and PETE curriculum for more information), 6 from American history and 6 from government/political science. The required 3 hours of international and cultural diversity and 3 hours of cultural discourse may be met by courses satisfying the creative arts, social and behavioral sciences, language, philosophy and culture, and American history requirements if they are also on the approved list of international and cultural diversity (p. 49) courses and cultural discourse (p. 48) courses.

⁴ BMEN, CHEN and MSEN require 8 hours of fundamentals of chemistry which are satisfied with CHEM 119 or CHEM 107/CHEM 117 and CHEM 120; Students with an interest in BMEN, CHEN and MSEN can take CHEM 120 second semester freshman year. CHEM 120 will substitute for CHEM 107/CHEM 117.

⁵ For BS-PETE, allocate 3 hours to core communications course (ENGL 210, COMM 203, COMM 205, or COMM 243) and/or 3 hours to UCC elective. For BS-MEEN, allocate 3 hours to core communications course (ENGL 203, ENGL 210, COMM 203 or COMM 205) and/or 3 hours to UCC elective.

Second Year

Fall		Semester Credit Hours
CVEN 207	Introduction to the Civil Engineering Profession ¹	2
CVEN 221	Engineering Mechanics: Statics ¹	3
CVEN 250	Introduction to Graphics and Visualization Applications in Civil Engineering Design ¹	2
ENGR 217/ PHYS 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism ¹	2
MATH 251	Engineering Mathematics III ¹	3
PHYS 207	Electricity and Magnetism for Engineering and Science ¹	3
STAT 211	Principles of Statistics I ¹	3
Semester Credit Hours		18

Spring

CVEN 302	Computer Applications in Engineering and Construction ¹	3
CVEN 303	Civil Engineering Measurement ¹	3
CVEN 305	Mechanics of Materials ¹	3
CVEN 311/ EVEN 311	Fluid Dynamics ¹	3
ENGL 210 or COMM 205	Technical and Professional Writing or Communication for Technical Professions	3
MATH 308	Differential Equations ¹	3
Semester Credit Hours		18

Third Year

Fall		
CVEN 306	Materials Engineering for Civil Engineers ¹	3
CVEN 322	Civil Engineering Systems ¹	3
CVEN 345	Theory of Structures ¹	3
CVEN 363	Engineering Mechanics: Dynamics ¹	3
Technical coursework ^{1,6}		3
Semester Credit Hours		15

Spring

CVEN 399	Mid-Curriculum Professional Development ¹	0
Technical coursework ^{1,6}		12
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		15

Fourth Year

Fall		
CVEN 424	Civil Engineering Professional Practice ^{1,7}	2
Technical coursework ^{1,6}		11
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16

Spring

PHIL 482	Ethics and Engineering ¹	3
Technical coursework ^{1,6}		9

University Core Curriculum (p. 26) ³	3
Semester Credit Hours	15
Total Semester Credit Hours	97

⁶ A total of 35 hours of technical coursework is required. Technical coursework is divided into five categories: breadth courses, design courses, focus courses, a science course, and a capstone design course. The total number of hours between breadth, design, and focus courses must add up to 29 hours. The choice of courses to be taken in each of the five categories depends on the track chosen and must be made in consultation with the student's advisor and/or the Civil and Environmental Engineering Undergraduate Student Services Office to ensure pre- and co-requisites are satisfied. Capstone design courses must include more than one civil engineering context.

⁷ All students must take at least two courses in their major that are designated as writing intensive (W). CVEN 207 and CVEN 424 taken at Texas A&M satisfy this requirement. Other CVEN courses may be approved as W courses at a later date. A grade of C or better is required in these courses.

A grade of C or better is required in all science, mathematics and engineering courses taken to satisfy degree requirements.

Total Program Hours 128

Structural Engineering Track - Technical Coursework

Technical coursework for the BS in Civil Engineering, Structural Engineering Track are composed of breadth courses (12-15 semester credit hours), design courses (9-12 semester credit hours), focus courses (5-8 semester credit hours), a science course (3 semester credit hours), and a capstone design course (3 semester credit hours), as delineated below, for a total of 35 semester credit hours. A substitution for any course in the track must be approved in writing by the Civil and Environmental Engineering Undergraduate Student Services Office.

Code	Title	Semester Credit Hours
BREADTH		
CVEN 349	Civil Engineering Project Management ¹	3
CVEN 342	Materials of Construction ^{1,8}	3
	or CVEN 343 or Portland Cement Concrete Materials for Civil Engineers	
CVEN 365	Introduction to Geotechnical Engineering ^{1,8}	3
Select 3-6 hours from the following: ¹		3-6
CVEN 301/ EVEN 301	Environmental Engineering	
CVEN 307	Transportation Engineering	
CVEN 339/ EVEN 339	Water Resources Engineering	
DESIGN		
CVEN 444	Structural Concrete Design ¹	3
CVEN 446	Structural Steel Design ¹	3
Select 3-6 hours from the following: ¹		3-6

CVEN 435	Geotechnical Engineering Design	
CVEN 473	Engineering Project Estimating and Planning	

FOCUS

CVEN 445	Matrix Methods of Structural Analysis ¹	3

Select 2 hours from the following:¹ 2

CVEN 314	Sensor Technology in Civil Engineering ⁹	
CVEN 336	Fluid Dynamics Laboratory	
CVEN 403	Applied Civil Engineering Surveying	
CVEN 449	Visualization and Building Information Modeling in Structural Engineering Design	
CVEN 450	AutoCAD in Civil Engineering	
CVEN 485	Directed Studies ¹⁰	
CVEN 491	Research ¹⁰	

Select 0-3 hours from the following:¹ 0-3

CVEN 315	Sensor Technology for the Built Environment ⁹	
CVEN 405	Construction Management of Field Operations	
CVEN 423	Geomatics for Civil Engineering	
CVEN 436	Case Histories in Geotechnical Engineering	
CVEN 451	Public Works Engineering	
MATH 304	Linear Algebra	
MATH 311	Topics in Applied Mathematics I	
STAT 212	Principles of Statistics II	

SCIENCE

Select 3 hours from the following:¹ 3

ATMO 201	Weather and Climate	
ATMO 363	Introduction to Atmospheric Chemistry and Air Pollution	
BESC 201	Introduction to Bioenvironmental Sciences	
BIOL 113	Essentials in Biology	
ECCB 205	Fundamentals of Ecology	
ENSS 105	Introduction to Environmental Systems Science	
GEOG 203	Planet Earth	
GEOL 104	Physical Geology	
GEOL 320	Geology for Civil Engineers	
OCNG 310	Physical Oceanography	
RWFM 375	Conservation of Natural Resources	

CAPSTONE DESIGN

CVEN 483	Analysis and Design of Structures ¹	3

Total Semester Credit Hours 35

⁸ The following courses satisfy the laboratory course requirement, CVEN 342 or CVEN 343, CVEN 365.

⁹ Only one of the following courses, CVEN 314 or CVEN 315, can be used to meet the focus elective.

¹⁰ Up to 2 hours of CVEN 485 or CVEN 491 may be used. A proposal must be submitted to the undergraduate office and approved before credit can be awarded towards the degree.

Civil Engineering - BS, Transportation and Infrastructure Materials Engineering Track

This track is appropriate for those wishing to pursue careers in engineering related to the planning, design, construction, operation, and maintenance of various elements of the transportation system, including roads, rail, transit, and aviation.

The Transportation and Infrastructure Materials Engineering Track to fulfill the BS in Civil Engineering degree emphasizes specialized coursework in transportation and infrastructure materials engineering. This includes the planning, design, and operations of transportation facilities along with the design, construction, and maintenance of transportation infrastructure.

Program Requirements

The freshman year is identical for degrees in aerospace engineering, architectural engineering, civil engineering, computer engineering, computer science, data engineering, electrical engineering, electronic systems engineering technology, environmental engineering, industrial distribution, industrial engineering, interdisciplinary engineering, manufacturing and mechanical engineering technology, mechanical engineering, multidisciplinary engineering technology, nuclear engineering, ocean engineering, and petroleum engineering. The freshman year is slightly different for chemical engineering, biomedical engineering and materials science and engineering degrees in that students take CHEM 119 or CHEM 107/CHEM 117 and CHEM 120. Students pursuing degrees in biological and agricultural engineering should refer to the specific curriculum for this major. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year

Fall		Semester Credit Hours
CHEM 107	General Chemistry for Engineering Students ^{1,4}	3
CHEM 117	General Chemistry for Engineering Students Laboratory ^{1,4}	1
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	3
ENGR 102	Engineering Lab I - Computation ¹	2
MATH 151	Engineering Mathematics I ^{1,2}	4
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16

Spring

ENGR 216/PHYS 216	Experimental Physics and Engineering Lab II - Mechanics ¹	2
MATH 152	Engineering Mathematics II ¹	4

PHYS 206	Newtonian Mechanics for Engineering and Science ¹	3
University Core Curriculum (p. 26) ³		3
Select one of the following:		3-4
CHEM 120	Fundamentals of Chemistry II ^{1,4}	
University Core Curriculum (p. 26) ^{3,5}		
Semester Credit Hours		15-16
Total Semester Credit Hours		31-32

¹ A grade of C or better is required.

² Entering students will be given a math placement exam. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.

³ Of the 21 hours shown as University Core Curriculum electives, 3 must be from creative arts (see AREN curriculum for more information), 3 from social and behavioral sciences (see DAEN and IDIS curriculum for more information), 3 from language, philosophy and culture (see CVEN, EVEN and PETE curriculum for more information), 6 from American history and 6 from government/political science. The required 3 hours of international and cultural diversity and 3 hours of cultural discourse may be met by courses satisfying the creative arts, social and behavioral sciences, language, philosophy and culture, and American history requirements if they are also on the approved list of international and cultural diversity (p. 49) courses and cultural discourse (p. 48) courses.

⁴ BMEN, CHEN and MSEN require 8 hours of fundamentals of chemistry which are satisfied with CHEM 119 or CHEM 107/CHEM 117 and CHEM 120; Students with an interest in BMEN, CHEN and MSEN can take CHEM 120 second semester freshman year. CHEM 120 will substitute for CHEM 107/CHEM 117.

⁵ For BS-PETE, allocate 3 hours to core communications course (ENGL 210, COMM 203, COMM 205, or COMM 243) and/or 3 hours to UCC elective. For BS-MEEN, allocate 3 hours to core communications course (ENGL 203, ENGL 210, COMM 203 or COMM 205) and/or 3 hours to UCC elective.

Second Year

Fall		Semester Credit Hours
CVEN 207	Introduction to the Civil Engineering Profession ¹	2
CVEN 221	Engineering Mechanics: Statics ¹	3
CVEN 250	Introduction to Graphics and Visualization Applications in Civil Engineering Design ¹	2
ENGR 217/ PHYS 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism ¹	2
MATH 251	Engineering Mathematics III ¹	3
PHYS 207	Electricity and Magnetism for Engineering and Science ¹	3
STAT 211	Principles of Statistics I ¹	3
Semester Credit Hours		18
Spring		
CVEN 302	Computer Applications in Engineering and Construction ¹	3
CVEN 303	Civil Engineering Measurement ¹	3
CVEN 305	Mechanics of Materials ¹	3

CVEN 311/ EVEN 311	Fluid Dynamics ¹	3
ENGL 210 or COMM 205	Technical and Professional Writing or Communication for Technical Professions	3
MATH 308	Differential Equations ¹	3
Semester Credit Hours		18

Third Year

Fall

CVEN 306	Materials Engineering for Civil Engineers ¹	3
CVEN 322	Civil Engineering Systems ¹	3
CVEN 345	Theory of Structures ¹	3
CVEN 363	Engineering Mechanics: Dynamics ¹	3
Technical coursework ^{1,6}		3
Semester Credit Hours		15

Spring

CVEN 399	Mid-Curriculum Professional Development ¹	0
Technical coursework ^{1,6}		12
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		15

Fourth Year

Fall

CVEN 424	Civil Engineering Professional Practice ^{1,7}	2
Technical coursework ^{1,6}		11
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16

Spring

PHIL 482	Ethics and Engineering ¹	3
Technical coursework ^{1,6}		9
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		15
Total Semester Credit Hours		97

⁶ A total of 35 hours of technical coursework is required. Technical coursework is divided into five categories: breadth courses, design courses, focus courses, a science course, and a capstone design course. The total number of hours between breadth, design, and focus courses must add up to 29 hours. The choice of courses to be taken in each of the five categories depends on the track chosen and must be made in consultation with the student's advisor and/or the Civil and Environmental Engineering Undergraduate Student Services Office to ensure pre- and co-requisites are satisfied. Capstone design courses must include more than one civil engineering context.

⁷ All students must take at least two courses in their major that are designated as writing intensive (W). CVEN 207 and CVEN 424 taken at Texas A&M satisfy this requirement. Other CVEN courses may be approved as W courses at a later date. A grade of C or better is required in these courses.

A grade of C or better is required in all science, mathematics and engineering courses taken to satisfy degree requirements.

Total Program Hours 128

Transportation and Infrastructure Materials Engineering Track - Technical Coursework

Technical coursework for the BS in Civil Engineering, Transportation and Infrastructure Materials Engineering Track are composed of breadth courses (12 semester credit hours), design courses (9 semester credit hours), focus courses (8 semester credit hours), a science course (3 semester credit hours), and a capstone design course (3 semester credit hours), as delineated below, for a total of 35 semester credit hours. A substitution for any course in the track must be approved in writing by the Civil and Environmental Engineering Undergraduate Student Services Office.

Code	Title	Semester Credit Hours
BREADTH		
CVEN 307	Transportation Engineering ¹	3
CVEN 342	Materials of Construction ^{1,8}	3
	or CVEN 343 or Portland Cement Concrete Materials for Civil Engineers	
CVEN 365	Introduction to Geotechnical Engineering ^{1,8}	3
	or CVEN 311 or Sensor Technology for the Built Environment	
Select 3 hours of the following: ¹		3
	CVEN 301/ Environmental Engineering EVEN 301	
	CVEN 339/ Water Resources Engineering EVEN 339	
	CVEN 349 Civil Engineering Project Management	
DESIGN		
CVEN 418	Highway Materials and Pavement Design ¹	3
CVEN 444	Structural Concrete Design ¹	3
CVEN 457	Urban Traffic Facilities ¹	3
FOCUS		
CVEN 417	Bituminous Materials ¹	3
CVEN 454	Urban Planning for Engineers ¹	3
Select 2 hours of the following: ¹		2
	CVEN 314 Sensor Technology in Civil Engineering ⁹	
	CVEN 336 Fluid Dynamics Laboratory	
	CVEN 403 Applied Civil Engineering Surveying	
	CVEN 449 Visualization and Building Information Modeling in Structural Engineering Design	
	CVEN 450 AutoCAD in Civil Engineering	
	CVEN 485 Directed Studies ¹⁰	
	CVEN 491 Research ¹⁰	
SCIENCE		
Select 3 hours of the following: ¹		3

ATMO 201	Weather and Climate
ATMO 363	Introduction to Atmospheric Chemistry and Air Pollution
BESC 201	Introduction to Bioenvironmental Sciences
BIOL 113	Essentials in Biology
ECCB 205	Fundamentals of Ecology
ENSS 105	Introduction to Environmental Systems Science
GEOG 203	Planet Earth
GEOL 104	Physical Geology
GEOL 320	Geology for Civil Engineers
OCNG 310	Physical Oceanography
RWFM 375	Conservation of Natural Resources
CAPSTONE DESIGN	
CVEN 456	Highway Design ¹
Total Semester Credit Hours	

⁸ The following courses satisfy the laboratory course requirement, CVEN 342 or CVEN 343, CVEN 315 or CVEN 365.

⁹ Only one of the following courses, CVEN 314 or CVEN 315, can be used to meet degree requirements.

¹⁰ Up to 2 hours of CVEN 485 or CVEN 491 may be used.

Civil Engineering - BS, Water Resources Engineering Track

This program specializes in hydraulics and hydrology, preparing students for careers in water resource design and management.

The Water Resources Engineering Track to fulfill the BS in Civil Engineering degree emphasizes specialized coursework in applied hydraulics and hydrology as well as civil engineering sub-disciplines with strong water resources connections such as environmental, transportation, geotechnical, and coastal engineering. This track is appropriate for those wishing to pursue careers in engineering design and management for water quantity and quality issues.

Program Requirements

The freshman year is identical for degrees in aerospace engineering, architectural engineering, civil engineering, computer engineering, computer science, data engineering, electrical engineering, electronic systems engineering technology, environmental engineering, industrial distribution, industrial engineering, interdisciplinary engineering, manufacturing and mechanical engineering technology, mechanical engineering, multidisciplinary engineering technology, nuclear engineering, ocean engineering, and petroleum engineering. The freshman year is slightly different for chemical engineering, biomedical engineering and materials science and engineering degrees in that students take CHEM 119 or CHEM 107/CHEM 117 and CHEM 120. Students pursuing degrees in biological and agricultural engineering should refer to the specific curriculum for this major. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year

Fall		Semester Credit Hours
CHEM 107	General Chemistry for Engineering Students ^{1,4}	3
CHEM 117	General Chemistry for Engineering Students Laboratory ^{1,4}	1
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	3
ENGR 102	Engineering Lab I - Computation ¹	2
MATH 151	Engineering Mathematics I ^{1,2}	4
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16
Spring		
ENGR 216/ PHYS 216	Experimental Physics and Engineering Lab II - Mechanics ¹	2
MATH 152	Engineering Mathematics II ¹	4
PHYS 206	Newtonian Mechanics for Engineering and Science ¹	3
University Core Curriculum (p. 26) ³		3
Select one of the following:		3-4
CHEM 120	Fundamentals of Chemistry II ^{1,4}	
University Core Curriculum (p. 26) ^{3,5}		
Semester Credit Hours		15-16
Total Semester Credit Hours		31-32

¹ A grade of C or better is required.

² Entering students will be given a math placement exam. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.

³ Of the 21 hours shown as University Core Curriculum electives, 3 must be from creative arts (see AREN curriculum for more information), 3 from social and behavioral sciences (see DAEN and IDIS curriculum for more information), 3 from language, philosophy and culture (see CVEN, EVEN and PETE curriculum for more information), 6 from American history and 6 from government/political science. The required 3 hours of international and cultural diversity and 3 hours of cultural discourse may be met by courses satisfying the creative arts, social and behavioral sciences, language, philosophy and culture, and American history requirements if they are also on the approved list of international and cultural diversity (p. 49) courses and cultural discourse (p. 48) courses.

⁴ BMEN, CHEN and MSEN require 8 hours of fundamentals of chemistry which are satisfied with CHEM 119 or CHEM 107/CHEM 117 and CHEM 120; Students with an interest in BMEN, CHEN and MSEN can take CHEM 120 second semester freshman year. CHEM 120 will substitute for CHEM 107/CHEM 117.

⁵ For BS-PETE, allocate 3 hours to core communications course (ENGL 210, COMM 203, COMM 205, or COMM 243) and/or 3 hours to UCC elective. For BS-MEEN, allocate 3 hours to core communications course (ENGL 203, ENGL 210, COMM 203 or COMM 205) and/or 3 hours to UCC elective.

Second Year

Fall		Semester Credit Hours
CVEN 207	Introduction to the Civil Engineering Profession ¹	2
CVEN 221	Engineering Mechanics: Statics ¹	3
CVEN 250	Introduction to Graphics and Visualization Applications in Civil Engineering Design ¹	2
ENGR 217/ PHYS 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism ¹	2
MATH 251	Engineering Mathematics III ¹	3
PHYS 207	Electricity and Magnetism for Engineering and Science ¹	3
STAT 211	Principles of Statistics I ¹	3
Semester Credit Hours		18
Spring		
CVEN 302	Computer Applications in Engineering and Construction ¹	3
CVEN 303	Civil Engineering Measurement ¹	3
CVEN 305	Mechanics of Materials ¹	3
CVEN 311/ EVEN 311	Fluid Dynamics ¹	3
ENGL 210 or COMM 205	Technical and Professional Writing or Communication for Technical Professions	3
MATH 308	Differential Equations ¹	3
Semester Credit Hours		18

Third Year

Fall		
CVEN 306	Materials Engineering for Civil Engineers ¹	3
CVEN 322	Civil Engineering Systems ¹	3
CVEN 345	Theory of Structures ¹	3
CVEN 363	Engineering Mechanics: Dynamics ¹	3
Technical coursework ^{1,6}		3
Semester Credit Hours		15

Spring

CVEN 399	Mid-Curriculum Professional Development ¹	0
Technical coursework ^{1,6}		12
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		15

Fourth Year

Fall		
CVEN 424	Civil Engineering Professional Practice ^{1,7}	2
Technical coursework ^{1,6}		11
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16

Spring

PHIL 482	Ethics and Engineering ¹	3
Technical coursework ^{1,6}		9

University Core Curriculum (p. 26) ³	3
Semester Credit Hours	15
Total Semester Credit Hours	97

⁶ A total of 35 hours of technical coursework is required. Technical coursework is divided into five categories: breadth courses, design courses, focus courses, a science course, and a capstone design course. The total number of hours between breadth, design, and focus courses must add up to 29 hours. The choice of courses to be taken in each of the five categories depends on the track chosen and must be made in consultation with the student's advisor and/or the Civil and Environmental Engineering Undergraduate Student Services Office to ensure pre- and co-requisites are satisfied. Capstone design courses must include more than one civil engineering context.

⁷ All students must take at least two courses in their major that are designated as writing intensive (W). CVEN 207 and CVEN 424 taken at Texas A&M satisfy this requirement. Other CVEN courses may be approved as W courses at a later date. A grade of C or better is required in these courses.

A grade of C or better is required in all science, mathematics and engineering courses taken to satisfy degree requirements.

Total Program Hours 128

Water Resources Engineering Track - Technical Coursework

Technical coursework for the BS in Civil Engineering, Water Resources Engineering Track are composed of breadth courses (10-12 semester credit hours), design courses (6-15 semester credit hours), focus courses (2-13 semester credit hours), a science course (3 semester credit hours), and a capstone design course (3 semester credit hours), as delineated below, for a total of 35 semester credit hours. A substitution for any course in the track must be approved in writing by the Civil and Environmental Engineering Undergraduate Student Services Office.

Code	Title	Semester Credit Hours
BREADTH		
CVEN 301/ EVEN 301	Environmental Engineering ¹	3
CVEN 339/ EVEN 339	Water Resources Engineering ¹	3
Select 4-6 hours from the following: ^{1,8}		4-6
CVEN 304/ EVEN 304	Environmental Engineering Lab	
CVEN 336	Fluid Dynamics Laboratory	
CVEN 342	Materials of Construction	
or CVEN 342	or Portland Cement Concrete Materials for Civil Engineers	
CVEN 365	Introduction to Geotechnical Engineering	
EVEN 404	Environmental Unit Operations Laboratory	
DESIGN		
Select 3-9 hours from the following: ¹		3-9

CVEN 455	Urban Stormwater Management	
CVEN 458/ EVEN 458	Hydraulic Engineering of Water Distribution Systems	
CVEN 462/ EVEN 462	Engineering Hydrogeology	
Select 3-6 hours from the following: ¹		3-6
CVEN 402/ EVEN 402	Engineered Environmental Systems	
CVEN 465	Coastal Resilience	
FOCUS		
Select 2-13 hours from the following: ¹		2-13
BAEN 320 or MEEN	Engineering Thermodynamics or Principles of Thermodynamics	
CVEN 314	Sensor Technology in Civil Engineering	
or CVEN 314	or Sensor Technology for the Built Environment	
CVEN 406/ EVEN 406	Environmental Protection and Public Health	
CVEN 413/ EVEN 413	Natural Environmental Systems	
CVEN 423	Geomatics for Civil Engineering	
CVEN 436	Case Histories in Geotechnical Engineering	
CVEN 450	AutoCAD in Civil Engineering	
CVEN 463/ EVEN 463	Engineering Hydrology	
CVEN 464	Environmental Fluid Mechanics	
CVEN 485	Directed Studies ⁹	
CVEN 491	Research ⁹	
EVEN 466	Sustainability and Life Cycle Analysis	
SCIENCE		
Select 3 hours from the following: ¹		3
ATMO 201	Weather and Climate	
ATMO 363	Introduction to Atmospheric Chemistry and Air Pollution	
BESC 201	Introduction to Bioenvironmental Sciences	
BIOL 113	Essentials in Biology	
ECCB 205	Fundamentals of Ecology	
ENSS 105	Introduction to Environmental Systems Science	
GEOG 203	Planet Earth	
GEOL 104	Physical Geology	
GEOL 320	Geology for Civil Engineers	
OCNG 310	Physical Oceanography	
RWFM 375	Conservation of Natural Resources	
CAPSTONE DESIGN		
CVEN 400	Design Problems in Civil Engineering ¹	3
Total Semester Credit Hours		35

⁸ The following courses satisfy the laboratory course requirement: CVEN 304/EVEN 304, CVEN 336, CVEN 342 or CVEN 343, CVEN 365, EVEN 404.

⁹ Up to 2 hours of CVEN 485 or CVEN 491 may be used.

Environmental Engineering - BS

The BS in Environmental Engineering degree coursework is specifically designed to educate students to solve environmental challenges facing public and environmental health, such as water treatment, waste management, and climate change.

This degree offers a broad range of coursework in the natural sciences and engineering, providing a multidisciplinary approach that merges with engineering principles to solve emerging and existing environmental issues. The program is appropriate for those who wish to protect human health and welfare while minimizing the adverse effects of human activity on the environment.

This program is approved to be offered at the Texas A&M University at Galveston campus.

Program Requirements

The freshman year is identical for degrees in aerospace engineering, architectural engineering, civil engineering, computer engineering, computer science, data engineering, electrical engineering, electronic systems engineering technology, environmental engineering, industrial distribution, industrial engineering, interdisciplinary engineering, manufacturing and mechanical engineering technology, mechanical engineering, multidisciplinary engineering technology, nuclear engineering, ocean engineering, and petroleum engineering. The freshman year is slightly different for chemical engineering, biomedical engineering and materials science and engineering degrees in that students take CHEM 119 or CHEM 107/CHEM 117 and CHEM 120. Students pursuing degrees in biological and agricultural engineering should refer to the specific curriculum for this major. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year

Fall		Semester Credit Hours
CHEM 107	General Chemistry for Engineering Students ^{1,4}	3
CHEM 117	General Chemistry for Engineering Students Laboratory ^{1,4}	1
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	3
ENGR 102	Engineering Lab I - Computation ¹	2
MATH 151	Engineering Mathematics I ^{1,2}	4
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16
Spring		
ENGR 216/ PHYS 216	Experimental Physics and Engineering Lab II - Mechanics ¹	2

MATH 152	Engineering Mathematics II ¹	4
PHYS 206	Newtonian Mechanics for Engineering and Science ¹	3
University Core Curriculum (p. 26) ³		3
Select one of the following:		3-4
CHEM 120	Fundamentals of Chemistry II ^{1,4}	
University Core Curriculum (p. 26) ^{3,5}		
Semester Credit Hours		15-16
Total Semester Credit Hours		31-32

¹ A grade of C or better is required.

² Entering students will be given a math placement exam. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.

³ Of the 21 hours shown as University Core Curriculum electives, 3 must be from creative arts (see AREN curriculum for more information), 3 from social and behavioral sciences (see DAEN and IDIS curriculum for more information), 3 from language, philosophy and culture (see CVEN, EVEN and PETE curriculum for more information), 6 from American history and 6 from government/political science. The required 3 hours of international and cultural diversity and 3 hours of cultural discourse may be met by courses satisfying the creative arts, social and behavioral sciences, language, philosophy and culture, and American history requirements if they are also on the approved list of international and cultural diversity (p. 49) courses and cultural discourse (p. 48) courses.

⁴ BMEN, CHEN and MSEN require 8 hours of fundamentals of chemistry which are satisfied with CHEM 119 or CHEM 107/CHEM 117 and CHEM 120; Students with an interest in BMEN, CHEN and MSEN can take CHEM 120 second semester freshman year. CHEM 120 will substitute for CHEM 107/CHEM 117.

⁵ For BS-PETE, allocate 3 hours to core communications course (ENGL 210, COMM 203, COMM 205, or COMM 243) and/or 3 hours to UCC elective. For BS-MEEN, allocate 3 hours to core communications course (ENGL 203, ENGL 210, COMM 203 or COMM 205) and/or 3 hours to UCC elective.

Second Year

Fall		Semester Credit Hours
BIOL 113 or ECCB 205	Essentials in Biology or Fundamentals of Ecology	3
CVEN 221	Engineering Mechanics: Statics	3
EVEN 201	Introduction to the Environmental Engineering Profession	1
ENGR 217/ PHYS 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism	2
MATH 251	Engineering Mathematics III	3
PHYS 207	Electricity and Magnetism for Engineering and Science	3
STAT 211	Principles of Statistics I	3
Semester Credit Hours		18
Spring		
CVEN 302	Computer Applications in Engineering and Construction	3

EVEN 301/ CVEN 301	Environmental Engineering	3
EVEN 304/ CVEN 304	Environmental Engineering Lab	1
EVEN 311/ CVEN 311	Fluid Dynamics	3
MATH 308	Differential Equations	3
Earth Science		
Select one of the following:		4
ATMO 201 & ATMO 202	Weather and Climate and Weather and Climate Laboratory	
ATMO 210 & ATMO 202	Climate Change and Weather and Climate Laboratory	
GEOG 203 & GEOG 213	Planet Earth and Planet Earth Lab	
GEOL 104	Physical Geology	
OCNG 251 & OCNG 252	The Blue Planet - Our Oceans and The Blue Planet - Our Oceans Laboratory	
SCSC 301	Soil Science	
Semester Credit Hours		17
Third Year		
Fall		
BAEN 320	Engineering Thermodynamics	3
CVEN 322	Civil Engineering Systems	3
EVEN 320	Principles of Environmental Engineering Chemistry	3
EVEN 339/ CVEN 339	Water Resources Engineering	3
High Impact Experience ⁶		
EVEN 399	Mid-Curriculum Professional Development	
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		15
Spring		
COMM 205 or ENGL 210	Communication for Technical Professions or Technical and Professional Writing	3
EVEN 402/ CVEN 402	Engineered Environmental Systems	3
EVEN 404	Environmental Unit Operations Laboratory	1
EVEN 406	Environmental Protection and Public Health	3
EVEN 413/ CVEN 413	Natural Environmental Systems	3
Engineering Science		
Select one of the following:		3
CHEN 204	Elementary Chemical Engineering	
CVEN 305	Mechanics of Materials	
ECEN 215	Principles of Electrical Engineering	
MEEN 222/ MSEN 222	Materials Science	
MSEN 201	Fundamentals of Materials Science and Engineering	
Semester Credit Hours		16

Fourth Year**Fall**

BAEN 477/ MEEN 477	Air Pollution Engineering	3
CVEN 423	Geomatics for Civil Engineering	3
EVEN 400	Design Problems in Environmental Engineering I ⁷	2
Environmental Engineering		
Select two of the following:		6
BAEN 465	Design of Biological Waste Treatment Systems	
BAEN 469	Water Quality Engineering	
CVEN 465	Coastal Resilience	
EVEN 458/ CVEN 458	Hydraulic Engineering of Water Distribution Systems	
EVEN 462/ CVEN 462	Engineering Hydrogeology	
EVEN 463/ CVEN 463	Engineering Hydrology	
EVEN 466	Sustainability and Life Cycle Analysis	
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		17

Spring

EVEN 401	Design Problems in Environmental Engineering II	2
PHIL 482	Ethics and Engineering	3
Environmental Engineering		
Select one of the following:		3
BAEN 465	Design of Biological Waste Treatment Systems	
BAEN 469	Water Quality Engineering	
CVEN 465	Coastal Resilience	
EVEN 458/ CVEN 458	Hydraulic Engineering of Water Distribution Systems	
EVEN 462/ CVEN 462	Engineering Hydrogeology	
EVEN 463/ CVEN 463	Engineering Hydrology	
EVEN 466	Sustainability and Life Cycle Analysis	
University Core Curriculum (p. 26) ³		3
Technical elective ^{8,9}		3
Semester Credit Hours		14
Total Semester Credit Hours		97

⁶ All students are required to complete a high-impact experience in order to graduate. The list of possible high-impact experiences is available in the EVEN advising office.

⁷ All students must take at least two courses in their major that are designated as writing intensive (W) or communications intensive (C). EVEN 201 and EVEN 400 taken at Texas A&M satisfy this requirement. Other EVEN courses may be approved as W/C courses at a later date. A grade of C or better is required in these courses.

⁸ Select from ATMO 363, BAEN 464, BAEN 468, BESC 357, BESC 367, BESC 403, CVEN 306, CVEN 307, CVEN 315, CVEN 454, CVEN 455, ECCB 420, EVEN 485, EVEN 491, GEOG 410/OCNG 412, GEOG 467, MTDE 433, OCEN 362, OCNG 350, SCSC 405, SENG 310.

⁹ Up to 3 hours of EVEN 485 or EVEN 491 may be used. A proposal must be submitted to the undergraduate office and approved before credit can be awarded towards the degree.

A grade of C or better is required in all science, mathematics and engineering courses taken to satisfy degree requirements.

Total Program Hours 128

Department of Computer Science and Engineering

Computing devices are all around us and computer algorithms support almost every aspect of our daily activities, decisions, and transactions. Our majors are at the center of these exciting activities; in envisioning new forms of services, in applications to address existing or emerging needs, in formulation and evaluation of algorithms to build the necessary computer and networking systems, and in development of the necessary software infrastructures to deploy the resulting solutions. In this, they rely on skills learned in our degree programs; skills that include algorithm design and analysis, programming languages, computer system design, artificial intelligence and machine learning, graphics, human-computer interaction, and many more. Our graduates are found in a wide range of industries, both public and private, reflecting the ubiquity of computing in society.

The Department of Computer Science and Engineering prepares our students to become computing experts who are equipped to address the many and varying challenges that they will encounter in their careers. We offer three degree programs, which are designed to address a variety of student goals and industry demands.

Mission

The mission of the Department of Computer Science is to develop the human and intellectual resources needed to meet the future technological challenges in the field of computing. This includes developing computer scientists and computer engineers for positions of leadership in industry, government, and academia.

BS in Computer Science

The curriculum in Computer Science is designed to prepare students to enter the rapidly expanding computer field. Curricula and courses are based upon recommendations by the Institute of Electrical and Electronic Engineering Computer Society and the Association for Computing Machinery. The Computer Science program is accredited by the Computing Accreditation Commission of ABET, www.abet.org.

BS in Computer Engineering

The Computer Engineering curricula provide a balanced view of hardware, software, hardware-software trade-offs, analysis, design, and implementation techniques. It is a dynamic and broadly interdisciplinary field that continues to experience rapid growth that impacts every area of human endeavor. The Computer Engineering program is accredited by the Engineering Accreditation Commission of ABET, www.abet.org.

BA in Computer Science

The Bachelor of Arts in Computer Science allows students to couple foundational skills in computing, both theoretical and practical, with a sound knowledge of an intersecting area of interest.

Faculty

Azad, Ariful, Associate Professor
Computer Science & Engineering
PHD, Purdue University, 2014

Beideman, Calvin J, Instructional Assistant Professor
Computer Science & Engineering
PHD, University of Illinois at Urbana-Champaign, 2023

Bettati, Riccardo, Professor
Computer Science & Engineering
PHD, University of Illinois at Urbana-Champaign, 1994

Botacin, Marcus Felipe, Assistant Professor
Computer Science & Engineering
PHD, Federal University of Paraná (UFPR), 2021

Budimlic, Zoran, Instructional Associate Professor
Computer Science & Engineering
PHD, Rice University, 2001

Carlisle, Martin C, Professor of the Practice
Computer Science & Engineering
PHD, Princeton University, 1993

Caverlee, James, Professor
Computer Science & Engineering
PHD, Georgia Institute of Technology, 2007

Chen, Jianer, Professor
Computer Science & Engineering
PHD, Columbia University, 1990
PHD, New York University, 1987

Choe, Yoonsuck, Professor
Computer Science & Engineering
PHD, The University of Texas at Austin, 2001

Chu, Wenhui, Instructional Assistant Professor
Computer Science & Engineering
PHD, University of Houston, 2021

Crawford, Victoria G, Assistant Professor
Computer Science & Engineering
PHD, University of Florida, 2022

Da Silva, Dilma M, Professor
Computer Science & Engineering
PHD, Georgia Institute of Technology, 1997

Davis, Timothy A, Professor
Computer Science & Engineering
PHD, University of Illinois at Urbana-Champaign, 1989

Duysak, Alpaslan, Instructional Associate Professor
Computer Science & Engineering
PHD, Bournemouth University, 2004

Galanti, Tomer, Assistant Professor
Computer Science & Engineering
PHD, Tel Aviv University, 2021

Garay, Juan A, Professor
Computer Science & Engineering
PHD, The Pennsylvania State University, 1989

Goktas, Unal, Instructional Associate Professor
Computer Science & Engineering
PHD, Colorado School of Mines, 1998

Gu, Guofei, Professor
Computer Science & Engineering
PHD, Georgia Institute of Technology, 2008

Gutierrez-Osuna, Ricardo, Professor
Computer Science & Engineering
PHD, North Carolina State University, 1998

Hamilton, John Andrew, Professor
Computer Science & Engineering
PHD, Texas A&M University, 1996

Hammond, Tracy A, Professor
Computer Science & Engineering
PHD, Massachusetts Inst of Technology, 2007

Hawley, Douglas D, Instructional Associate Professor
Computer Science & Engineering
EDD, University of Missouri - Columbia, 2005

Houngninou, David Kebo, Instructional Associate Professor
Computer Science & Engineering
PHD, Southern Methodist University, 2017

Huang, Kuan-Hao, Assistant Professor
Computer Science & Engineering
PHD, University of California, Los Angeles, 2023

Huang, Ruihong, Associate Professor
Computer Science & Engineering
PHD, University of Utah, 2014

Huang, Shaoming, Professor
Computer Science & Engineering
PHD, Hong Kong University of Science and Technology, 2012

Ioerger, Thomas R, Professor
Computer Science & Engineering
PHD, University of Illinois at Urbana-Champaign, 1996

Ji, Shuiwang, Professor
Computer Science & Engineering
PHD, Arizona State University, 2010

Jiang, Anxiao, Professor
Computer Science & Engineering
PHD, California Institute of Technology, 2004

Jimenez, Daniel A, Professor
Computer Science & Engineering
PHD, The University of Texas at Austin, 2002

Kalantari, Nima, Associate Professor
Computer Science & Engineering
PHD, University of California, Santa Barbara, 2015

Keyser, John C, Professor
Computer Science & Engineering
PHD, University of North Carolina at Chapel Hill, 2000

Kim, Eun J, Professor
Computer Science & Engineering
PHD, The Pennsylvania State University, 2003

Kim, Jeeun, Assistant Professor
Computer Science & Engineering
PHD, University of Colorado - Boulder, 2019

Klappenecker, Andreas, Professor
Computer Science & Engineering
PHD, Universitat Karlsruhe, 1998

Kuhle, Alan D, Assistant Professor
Computer Science & Engineering
PHD, University of Florida, 2018

Kumar, Sandeep, Associate Professor of the Practice
Computer Science & Engineering
PHD, Purdue University, 1995

Kumar, Shreyas, Professor of the Practice
Computer Science & Engineering
MS, Texas A&M University, 2005

Lee, Hyunyoung, Senior Lecturer
Computer Science & Engineering
PHD, Texas A&M University, 2001

Leyk, Teresa S, Instructional Professor
Computer Science & Engineering
PHD, Australian National University, 1998

Leyk, Zbigniew, Professor of the Practice
Computer Science & Engineering
PHD, University of Warsaw, 1988

Lightfoot, Robert H, Associate Professor of the Practice
Computer Science & Engineering
PHD, Texas A&M University, 2024

Loguinov, Dmitri, Professor
Computer Science & Engineering
PHD, City University of New York, 2002

Lupoli, Shawn V, Instructional Assistant Professor
Computer Science & Engineering
MS, Towson University, 2004

Mahapatra, Rabi N, Professor
Computer Science & Engineering
PHD, Indian Institute of Technology, Kharagpur, 1992

Mahmood, Suleman, Instructional Assistant Professor
Computer Science & Engineering
PHD, University of Illinois at Urbana-Champaign, 2023

Merchant, Amit Ashok, Professor of the Practice
Computer Science & Engineering
MS, Carnegie Mellon University, 1989

Moore, Michael, Instructional Associate Professor
Computer Science & Engineering
PHD, Texas A&M University, 2007

Mortazavi, Bobak Jack, Associate Professor
Computer Science & Engineering
PHD, University of California, Los Angeles, 2014

Muzahid, Abdullah Al, Associate Professor
Computer Science & Engineering
PHD, University of Illinois at Urbana-Champaign, 2012

Nguyen, Khanh, Assistant Professor
Computer Science & Engineering
PHD, University of California, Los Angeles, 2019

Nguyen, Tung, Instructional Associate Professor
Computer Science & Engineering
PHD, Iowa State University, 2013

O'Kane, Jason M, Professor
Computer Science & Engineering
PHD, University of Illinois at Urbana-Champaign, 2007

Quinn, Michael D, Associate Professor of the Practice
Computer Science & Engineering
MS, University of Southern California, 1978

Ritchey, Philip, Instructional Associate Professor
Computer Science & Engineering
PHD, Purdue University, 2015

Sarin, Vivek, Associate Professor
Computer Science & Engineering
PHD, University of Illinois at Urbana-Champaign, 1997

Saxena, Nitesh, Professor
Computer Science & Engineering
PHD, University of California, Irvine, 2006

Schaefer, Scott D, Professor
Computer Science & Engineering
PHD, Rice University, 2006

Sharon, Guni, Associate Professor
Computer Science & Engineering
PHD, Ben-Gurion University, 2015

Shell, Dylan A, Professor
Computer Science & Engineering
PHD, University of Southern California, 2008

Shipman, Frank M, Professor
Computer Science & Engineering
PHD, University of Colorado, 1993

Stoleru, Radu, Professor
Computer Science & Engineering
PHD, University of Virginia, 2007

Sueda, Shinjiro, Associate Professor
Computer Science & Engineering
PHD, University of British Columbia, 2010

Sze, Sing H, Associate Professor
Computer Science & Engineering
PHD, University of Southern California, 2000

Taele, Paul P, Instructional Associate Professor
Computer Science & Engineering
PHD, Texas A&M University, 2019

Thomas, Shawna, Instructional Associate Professor
Computer Science & Engineering
PHD, Texas A&M University, 2010

Tran, Han Duc, Instructional Assistant Professor
Computer Science & Engineering
PHD, The University of Texas at Austin, 2010

Tsai, Chia-Che, Assistant Professor
Computer Science & Engineering
PHD, Stony Brook University, 2017

Tu, Zhengzhong, Assistant Professor
Computer Science & Engineering
PHD, The University of Texas at Austin, 2022

Tyagi, Aakash, Professor of the Practice
Computer Science & Engineering
PHD, University of Louisiana, 1993

Veldt, Nate, Assistant Professor
Computer Science & Engineering
PHD, Purdue University, 2019

Wade, Pauline C, Professor of the Practice
Computer Science & Engineering
MS, Columbia University, 1991

Walker, Duncan M, Professor
Computer Science & Engineering
PHD, Carnegie Mellon University, 1986

Wang, Wenping, Professor
Computer Science & Engineering
PHD, University of Alberta, 1992

Xia, Meng, Assistant Professor
Computer Science & Engineering
PHD, Hong Kong University of Science and Technology, 2020

Yang, Tianbao, Professor
Computer Science & Engineering
PHD, Michigan State University, 2012

Yum, Ki H, Senior Lecturer
Computer Science & Engineering
PHD, The Pennsylvania State University, 2002

Zhang, Cheng, Assistant Professor
Computer Science & Engineering
PHD, The Ohio State University, 2022

Zhang, Yu, Assistant Professor
Computer Science & Engineering
PHD, University of Illinois at Urbana-Champaign, 2024

Zhou, Samson S, Assistant Professor
Computer Science & Engineering
PHD, Purdue University, 2018

Zhou, Yi, Associate Professor
Computer Science & Engineering
PHD, The Ohio State University, 2018

Majors

- Bachelor of Arts in Computer Science (p. 637)
- Bachelor of Science in Computer Engineering (p. 635)
- Bachelor of Science in Computer Science (p. 638)

Minors

- Computer Science Minor (p. 640)
- Cybersecurity Minor (p. 640)
- Game Design and Development Minor (p. 641)

Certificates

- Cyber Operations Certificate (p. 641)

Computer Engineering - BS

This program's curriculum is designed to cover the engineering aspects of both hardware and software—a total computer systems perspective.

All computer engineering students take courses in the following areas: electrical circuits, electronics, digital circuits, computer architecture ranging from embedded systems to data centers, interfacing, programming languages ranging from assembler to high level, data structures, analysis of algorithms, operating systems, software engineering and computer systems. A solid foundation in the basic sciences of physics, chemistry and mathematics is used to support these courses.

The curriculum encompasses much of the core material of traditional Computer Science and Electrical Engineering degrees. Students are able to further enhance their knowledge by taking electives in a broad range of topics: computer networks, computer system architecture, artificial intelligence, machine learning, computer graphics, robotics, cybersecurity, computer languages, large-scale hardware and software systems, Very Large Scale Integrated (VLSI) circuits and systems, microprocessor interfacing and system design, hardware-software interaction and embedded systems.

The bachelor's degree program in computer engineering has been accredited by the Engineering Accreditation Commission of ABET, <http://www.abet.org> (<http://www.abet.org/>). The program's emphasis on design and engineering fundamentals prepares the student for licensing as a professional engineer as well.

Program Mission

The mission of the computer engineering program is threefold:

- The computer engineering program provides students with an education that ensures an excellent understanding of hardware and software systems and the necessary system design and development skills, and that fosters professional curiosity and imagination that drives them throughout their career.

- The program stimulates and challenges the students with exceptional, highly motivated faculty members who share knowledge and excitement about computer engineering; well-designed undergraduate and graduate curricula; research opportunities at all levels; and a first-class educational infrastructure.
- The program strives to produce graduates who are well prepared to excel in industry, academia and government, and who will take on leadership roles in shaping the technological landscape of the future.

Program Educational Objectives

The educational objectives of the computer engineering program are to produce graduates whose expected accomplishments within a few years of graduation is:

1. Graduates who choose to pursue a career in industry or government will become productive and valuable computer engineers.
2. Graduates who choose to pursue advanced degrees will gain admission and succeed in top graduate programs.
3. Graduates will lead and work effectively on diverse teams to promote a breadth of perspectives in developing, communicating, and executing solutions across a broad range of computer systems application areas.
4. In keeping with the legacy of an Aggie engineer, graduates will be successful in attaining positions of leadership in their professional careers.

Before commencing course work in the major, students must be admitted to the major or have the approval of the department.

Program Requirements

The freshman year is identical for degrees in aerospace engineering, architectural engineering, civil engineering, computer engineering, computer science, data engineering, electrical engineering, electronic systems engineering technology, environmental engineering, industrial distribution, industrial engineering, interdisciplinary engineering, manufacturing and mechanical engineering technology, mechanical engineering, multidisciplinary engineering technology, nuclear engineering, ocean engineering, and petroleum engineering. The freshman year is slightly different for chemical engineering, biomedical engineering and materials science and engineering degrees in that students take CHEM 119 or CHEM 107/CHEM 117 and CHEM 120. Students pursuing degrees in biological and agricultural engineering should refer to the specific curriculum for this major. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year

Fall			Semester Credit Hours
CHEM 107	General Chemistry for Engineering Students ^{1,4}		3
CHEM 117	General Chemistry for Engineering Students Laboratory ^{1,4}		1
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric		3
ENGR 102	Engineering Lab I - Computation ¹		2

MATH 151	Engineering Mathematics I ^{1,2}	4
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16
Spring		
ENGR 216/ PHYS 216	Experimental Physics and Engineering Lab II - Mechanics ¹	2
MATH 152	Engineering Mathematics II ¹	4
PHYS 206	Newtonian Mechanics for Engineering and Science ¹	3
University Core Curriculum (p. 26) ³		3
Select one of the following:		3-4
CHEM 120	Fundamentals of Chemistry II ^{1,4}	
University Core Curriculum (p. 26) ^{3,5}		
Semester Credit Hours		15-16
Total Semester Credit Hours		31-32

¹ A grade of C or better is required.

² Entering students will be given a math placement exam. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.

³ Of the 21 hours shown as University Core Curriculum electives, 3 must be from creative arts (see AREN curriculum for more information), 3 from social and behavioral sciences (see DAEN and IDIS curriculum for more information), 3 from language, philosophy and culture (see CVEN, EVEN and PETE curriculum for more information), 6 from American history and 6 from government/political science. The required 3 hours of international and cultural diversity and 3 hours of cultural discourse may be met by courses satisfying the creative arts, social and behavioral sciences, language, philosophy and culture, and American history requirements if they are also on the approved list of international and cultural diversity (p. 49) courses and cultural discourse (p. 48) courses.

⁴ BMEN, CHEN and MSEN require 8 hours of fundamentals of chemistry which are satisfied with CHEM 119 or CHEM 107/CHEM 117 and CHEM 120; Students with an interest in BMEN, CHEN and MSEN can take CHEM 120 second semester freshman year. CHEM 120 will substitute for CHEM 107/CHEM 117.

⁵ For BS-PETE, allocate 3 hours to core communications course (ENGL 210, COMM 203, COMM 205, or COMM 243) and/or 3 hours to UCC elective. For BS-MEEN, allocate 3 hours to core communications course (ENGL 203, ENGL 210, COMM 203 or COMM 205) and/or 3 hours to UCC elective.

Second Year

Fall		Semester Credit Hours
CSCE 120	Program Design and Concepts ¹	3
ECEN 248	Introduction to Digital Systems Design ¹	4
MATH 251 or MATH 253	Engineering Mathematics III ¹ or Engineering Mathematics III	3
PHYS 207	Electricity and Magnetism for Engineering and Science ¹	3
PHYS 217/ ENGR 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism ¹	2
Semester Credit Hours		15

Spring

CSCE 221	Data Structures and Algorithms ¹	4
CSCE 222/ ECEN 222	Discrete Structures for Computing ¹	3
ECEN 214	Electrical Circuit Theory ¹	4
ECEN 303 or STAT 211	Random Signals and Systems ¹ or Principles of Statistics I	3
MATH 308	Differential Equations ¹	3
Semester Credit Hours		17

Third Year

Fall

CSCE 313	Introduction to Computer Systems ¹	4
CSCE 350/ ECEN 350	Computer Architecture and Design ¹	4
CSCE 481	Seminar ¹	1
ECEN 314	Signals and Systems ¹	3
MATH 311	Topics in Applied Mathematics I ¹	3
Select one of the following: ¹		3
ENGL 210	Technical and Professional Writing	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
Semester Credit Hours		18

Spring

CSCE 331	Foundations of Software Engineering ¹	4
CSCE 462 or ECEN 449	Microcomputer Systems ¹ or Microprocessor Systems Design	3
ECEN 325	Electronics ¹	4
ECEN 454	Digital Integrated Circuit Design ¹	3
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		17

Fourth Year

Fall

Senior design ^{1,6}		3
University Core Curriculum (p. 26) ³		3
Area elective ^{1,7}		6
Engineering elective ^{1,8}		3
High Impact Experience ⁹		0
CSCE 399 or ECEN 399	High-Impact Experience or High Impact Professional Development	
Semester Credit Hours		15

Spring

Senior Design ^{1,6}		3
University Core Curriculum (p. 26) ³		6
Area elective ^{1,7}		6
Semester Credit Hours		15
Total Semester Credit Hours		97

⁶ 6 hours chosen from either (ECEN 403 and ECEN 404) or (CSCE 483 and an additional 3 hours of Area electives.)

⁷ Area electives chosen in consultation with academic advisor.

⁸ Select from: MATH 407, MATH 412, MATH 414, MATH 431, MATH 471, MEEN 315, MEEN 221, MEEN 222/MSEN 222, PHYS 221, PHYS 222.

⁹ All students are required to complete a high-impact experience in order to graduate. The list of possible high-impact experiences is available in the CSE or ECE advising office.

Total Program Hours 128

Computer Science - BA

This program blends computing skills with multiple fields, preparing students for interdisciplinary careers.

The Bachelor of Arts degree with a major in Computer Science provides students with the opportunity to obtain computing knowledge and skills to be coupled with their non-computing interests in a wide variety of areas such as liberal arts, science, education, business, data science, robotics, etc. The degree allows students to build up strong computational fundamentals that are custom-fit to domains of interest that require such skills. The degree program is designed to provide flexibility in the choice of courses, both in computing and in the students' field of interest, so that students, after graduation, can have a broader range of career options, both in industry and in academia, reflecting the increasing demand for interdisciplinary talent where computing plays a major role.

Program Mission

The mission of the Computer Science program at Texas A&M University is to prepare intellectual, professional, and ethical graduates with a strong background in computing, who use computing skills to solve multidisciplinary challenges.

Program Requirements

First Year

Fall		Semester Credit Hours
CSCE 181	Introduction to Computing ¹	1
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition or Composition and Rhetoric	3
Select one of the following: ¹		4
CSCE 110	Programming I	
CSCE 111	Introduction to Computer Science Concepts and Programming	
CSCE 206	Structured Programming in C	
Select one of the following:		3
MATH 142	Business Calculus ²	
MATH 147	Calculus I for Biological Sciences	
MATH 151	Engineering Mathematics I	
MATH 171	Calculus I	
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		14

Spring

CSCE 120	Program Design and Concepts ¹	3
Select one of the following:		3
MATH 140	Mathematics for Business and Social Sciences ²	
MATH 148	Calculus II for Biological Sciences	
MATH 152	Engineering Mathematics II	

MATH 168	Finite Mathematics	
MATH 172	Calculus II	
PHIL 240	Introduction to Logic	
University Core Curriculum (p. 26) ³		3
University Core Curriculum (p. 26) ³		3
Concentration elective ⁴		3
Semester Credit Hours		15

Second Year

Fall

CSCE 221	Data Structures and Algorithms ¹	4
CSCE 222/ ECEN 222	Discrete Structures for Computing	3
Select one of the following:		3
STAT 211	Principles of Statistics I	
STAT 301	Introduction to Biometry	
STAT 302	Statistical Methods	
STAT 303	Statistical Methods	
University Core Curriculum (p. 26) ³		3
Concentration elective ⁴		3
Semester Credit Hours		16

Spring

CSCE 312	Computer Organization ¹	4
CSCE 314	Programming Languages ¹	3
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
ENGL 210	Technical and Professional Writing	
University Core Curriculum (p. 26) ³		3
Concentration elective ⁴		3
Semester Credit Hours		16

Third Year

Fall

CSCE 313	Introduction to Computer Systems ¹	4
CSCE 331	Foundations of Software Engineering ¹	4
CSCE 481	Seminar ¹	1
University Core Curriculum (p. 26) ³		3
Concentration elective ⁴		3
Semester Credit Hours		15

Spring

CSCE 411	Design and Analysis of Algorithms ¹	3
University Core Curriculum (p. 26) ³		3
Concentration elective ⁴		3
Concentration elective ⁴		3
Prescribed elective ⁵		3
Semester Credit Hours		15

Fourth Year

Fall

University Core Curriculum (p. 26) ³		3
University Core Curriculum (p. 26) ³		3
Concentration elective ⁴		3
Concentration elective ⁴		3

Prescribed elective ⁵	3
Semester Credit Hours	15
Spring	
CSCE 482 Senior Capstone Design ¹	3
University Core Curriculum (p. 26) ³	3
Concentration elective ⁴	3
Concentration elective ⁴	2
Prescribed elective ⁵	3
Semester Credit Hours	14
Total Semester Credit Hours	120

¹ All CSCE courses (excluding the prescribed electives) require a grade of C or better.

² Students who select MATH 140 and MATH 142 as their Math options must take MATH 140 and receive a grade of C or better before taking MATH 142.

³ Of the 30 hours shown as University Core Curriculum electives, 9 must be from life and physical sciences, 3 from creative arts, 3 from language, philosophy and culture, 3 from social and behavioral sciences, 6 from American history and 6 from government/political science. The required 3 hours of International and Cultural Diversity and 3 hours of Cultural Discourse may be met by courses also satisfying the creative arts, language, philosophy and culture, social and behavioral sciences and American history requirements if they are also on the approved list of International and Cultural Diversity (p. 49) and Cultural Discourse (p. 48).

⁴ To be selected in consultation with major advisor.

⁵ Select from CSCE 305, CSCE 310, CSCE 320/STAT 335, CSCE 400#479 (p. 985), CSCE 489.

Computer Science - BS

The computer science curriculum is designed to prepare students to enter the rapidly expanding field of computing.

The four-year undergraduate curriculum in Computer Science at Texas A&M provides a sound preparation in computing, as well as in science, mathematics, English, and statistics. Students take a broad set of core computer science courses in the early semesters, which exposes them to the main concepts in computing. During the later semesters, students take elective computer science courses drawn from four tracks (algorithms and theory, computer systems, software, and information and intelligent systems) to provide both breadth and depth. The electives can be used to tailor the curriculum to match the student's interests. Graduate courses may be taken by qualified students for some of the electives.

A major in Computer Science includes an area of concentration that allows students to design a course of study that complements their computer science coursework and takes advantage of opportunities offered by other departments across the university.

Program Mission

The mission of the computer science program is to prepare intellectual, professional and ethical graduates, capable of meeting challenges in the field of computer science.

Program Educational Objectives

The Program Educational Objectives of the BS in Computer Science program describe what the program's graduates are expected to attain within a few years of graduation:

1. Graduates will use computer science principles to identify and solve emerging technological and societal problems.
2. Graduates who choose to enter the workforce will become technological leaders and innovators in their fields.
3. Graduates who choose to pursue advanced degrees will gain admission to and succeed in prestigious graduate programs.
4. Graduates will engage in life-long learning to adapt to new technologies, tools, and methodologies needed to respond to a changing world.

This program is approved to be offered at the Texas A&M University at Galveston campus.

Program Requirements

The freshman year is identical for degrees in aerospace engineering, architectural engineering, civil engineering, computer engineering, computer science, data engineering, electrical engineering, electronic systems engineering technology, environmental engineering, industrial distribution, industrial engineering, interdisciplinary engineering, manufacturing and mechanical engineering technology, mechanical engineering, multidisciplinary engineering technology, nuclear engineering, ocean engineering, and petroleum engineering. The freshman year is slightly different for chemical engineering, biomedical engineering and materials science and engineering degrees in that students take CHEM 119 or CHEM 107/CHEM 117 and CHEM 120. Students pursuing degrees in biological and agricultural engineering should refer to the specific curriculum for this major. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year

Fall		Semester Credit Hours
CHEM 107	General Chemistry for Engineering Students ^{1,4}	3
CHEM 117	General Chemistry for Engineering Students Laboratory ^{1,4}	1
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	3
ENGR 102	Engineering Lab I - Computation ¹	2
MATH 151	Engineering Mathematics I ^{1,2}	4
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16
Spring		
ENGR 216/ PHYS 216	Experimental Physics and Engineering Lab II - Mechanics ¹	2
MATH 152	Engineering Mathematics II ¹	4
PHYS 206	Newtonian Mechanics for Engineering and Science ¹	3
University Core Curriculum (p. 26) ³		3

Select one of the following:	3-4
CHEM 120 Fundamentals of Chemistry II ^{1,4}	
University Core Curriculum (p. 26) ^{3,5}	
Semester Credit Hours	15-16
Total Semester Credit Hours	31-32

¹ A grade of C or better is required.

² Entering students will be given a math placement exam. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.

³ Of the 21 hours shown as University Core Curriculum electives, 3 must be from creative arts (see AREN curriculum for more information), 3 from social and behavioral sciences (see DAEN and IDIS curriculum for more information), 3 from language, philosophy and culture (see CVEN, EVEN and PETE curriculum for more information), 6 from American history and 6 from government/political science. The required 3 hours of international and cultural diversity and 3 hours of cultural discourse may be met by courses satisfying the creative arts, social and behavioral sciences, language, philosophy and culture, and American history requirements if they are also on the approved list of international and cultural diversity (p. 49) courses and cultural discourse (p. 48) courses.

⁴ BMEN, CHEN and MSEN require 8 hours of fundamentals of chemistry which are satisfied with CHEM 119 or CHEM 107/CHEM 117 and CHEM 120; Students with an interest in BMEN, CHEN and MSEN can take CHEM 120 second semester freshman year. CHEM 120 will substitute for CHEM 107/CHEM 117.

⁵ For BS-PETE, allocate 3 hours to core communications course (ENGL 210, COMM 203, COMM 205, or COMM 243) and/or 3 hours to UCC elective. For BS-MEEN, allocate 3 hours to core communications course (ENGL 203, ENGL 210, COMM 203 or COMM 205) and/or 3 hours to UCC elective.

Second Year

Fall		Semester Credit Hours
CSCE 181	Introduction to Computing ¹	1
CSCE 120	Program Design and Concepts ¹	3
CSCE 222/ ECEN 222	Discrete Structures for Computing ¹	3
MATH 304	Linear Algebra ¹	3
Science elective ^{6,7}		4
General elective ⁶		1
Semester Credit Hours		15
Spring		
CSCE 221	Data Structures and Algorithms ¹	4
CSCE 312	Computer Organization ¹	4
CSCE 314	Programming Languages ¹	3
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
ENGL 210	Technical and Professional Writing	
Emphasis area elective ^{1,8}		3
Semester Credit Hours		17

Third Year

Fall

CSCE 313	Introduction to Computer Systems ¹	4
CSCE 331	Foundations of Software Engineering ¹	4
STAT 211	Principles of Statistics I ¹	3
University Core Curriculum (p. 26) ³		3
Emphasis area elective ^{1,8}		3
Semester Credit Hours		17

Spring

CSCE 411	Design and Analysis of Algorithms ¹	3
CSCE 481	Seminar ¹	1
Select one of the following: ¹		3
MATH 251	Engineering Mathematics III	
MATH 308	Differential Equations	
STAT 212	Principles of Statistics II	
Computer science elective (p. 985) ^{1,9}		6
Science elective ⁷		3
High Impact Experience ¹⁰		0
CSCE 399	High-Impact Experience	
Semester Credit Hours		16

Fourth Year

Fall

University Core Curriculum (p. 26) ³		3
Computer science elective (p. 985) ^{1,9}		9
Emphasis area elective ^{1,8}		3
Semester Credit Hours		15

Spring

CSCE 482	Senior Capstone Design ¹	3
University Core Curriculum (p. 26) ³		6
Computer science elective (p. 985) ^{1,9}		3
Emphasis area elective ^{1,8}		3
Semester Credit Hours		15
Total Semester Credit Hours		95

⁶ If the student takes ENGR 217/PHYS 217 and PHYS 207, the 3 hours of PHYS 207 go towards the science requirement along with 1 hour of ENGR 217/PHYS 217. The other hour of ENGR 217/PHYS 217 can be used as general elective.

⁷ See advisor for list of acceptable science courses.

⁸ The emphasis area should be chosen only after consultation with a departmental advisor who will help the student arrange a program appropriate to his or her plans following graduation. Students should file a degree plan before taking minor courses to ensure their use in the degree plan.

⁹ Of the 18 hours shown as Computer science electives, 3 must be from systems directed electives, 3 must be from software directed electives, 3 must be from info/intel systems directed electives, 6 must be from upper level CSCE electives, and 3 must be from CSCE electives. See advisor for list of acceptable course choices.

¹⁰ All students are required to complete a high-impact experience in order to graduate. The list of possible high-impact experiences is available in the CSCE advising office.

Total Program Hours 126

Computer Science - Minor

The minor in Computer Science provides the student with an introduction to the fundamentals of this area of study.

The minor, available to students in all majors (except for CPSC, COMP, CECN, CEEN, and CPEN), focuses on developing a basic foundation in computing, including components of programming, data structures and algorithm analysis, and computer architecture. The minor is administered by the Department of Computer Science and Engineering. Eligible students must submit an application in order to be considered for and allowed to pursue a minor in Computer Science.

Program Requirements

Code	Title	Semester Credit Hours
CSCE 120 or CSCE 121	Program Design and Concepts or Introduction to Program Design and Concepts	3-4
CSCE 221	Data Structures and Algorithms	4
CSCE 222/ ECEN 222	Discrete Structures for Computing	3
CSCE 312	Computer Organization	4
CSCE 313 or CSCE 314	Introduction to Computer Systems or Programming Languages	3-4
Total Semester Credit Hours		17

Students must make a grade of C or better in all courses.

Completion of all minor coursework with GPA of 2.75 or better required.

All 300-level CSCE courses must be taken at TAMU; no transfer coursework will be accepted.

Cybersecurity - Minor

This minor provides cybersecurity fundamentals, including programming and ethics, tailored to various student interests and majors.

The Cybersecurity Minor is designed to appeal to both less technically-oriented and more technically-oriented undergraduate students, across multiple departments, in multiple colleges. All students who enroll in the minor will acquire a basic understanding of programming, and a firmly grounded understanding of cybersecurity, to include cyber ethics. The inclusion of these courses in the minor will allow students to specialize in the area of cybersecurity that is most closely aligned with their respective interests and their degree plans.

Program Requirements

Select one of the following tracks:

Code	Title	Semester Credit Hours
Engineering Track		
CSCE 313	Introduction to Computer Systems	4
CSCE 410	Operating Systems	3
CSCE 465	Computer and Network Security	3
Select 6 hours from the following:		6
CSCE 402	Law and Policy in Cybersecurity	

CSCE 451	Software Reverse Engineering	
CSCE 463	Networks and Distributed Processing	
CSCE 485	Directed Studies ¹	
CYBR 403/ CSCE 477	Cybersecurity Risk	
CYBR 484	Professional Internship ¹	
CYBR 485	Directed Studies ¹	
CYBR 491	Research ¹	
ECEN 424	Fundamentals of Networking	
ECEN 484	Professional Internship ¹	
ECEN 485	Directed Studies ¹	

Total Semester Credit Hours **16**

Code	Title	Semester Credit Hours

Interdisciplinary Track

CSCE 402 or ITSV 308	Law and Policy in Cybersecurity or Cybersecurity and Digital Ethics	3

Select one of the following: **4**

CSCE 110	Programming I	
CSCE 111	Introduction to Computer Science Concepts and Programming	
CSCE 121	Introduction to Program Design and Concepts	
ESET 269	Embedded Systems Development in C	

Select 9 hours from the following: **9**

BMEN 428/CSCE 461	Embedded Systems for Medical Applications	
CSCE 402	Law and Policy in Cybersecurity ²	
CSCE 436	Computer-Human Interaction	
CSCE 465	Computer and Network Security	
CYBR 403/ CSCE 477	Cybersecurity Risk	
ECEN 424	Fundamentals of Networking	
ESET 315	Local-and-Metropolitan-Area Networks	
ESET 349	Microcontroller Architecture	
ESET 415	Advanced Network Systems and Security	
ESET 455	Wireless Transmission Systems	
FIVS 123	Forensic Investigations	
FIVS 205	Introduction to Forensic and Investigative Sciences	
GEOG 392	GIS Programming	
ISTM 310	Network Communications and Infrastructure	
ISTM 315	Database Programming	
ISTM 320	Business Systems Analysis and Design	
MATH 470	Communications and Cryptography	
MATH 471	Communications and Cryptography II	

POLS 447	National Security Policy
ITSV 303	Unix System Administration Practices
ITSV 308	Cybersecurity and Digital Ethics ²
ITSV 316	Database Systems Administration and Application

Total Semester Credit Hours 16

Code	Title	Semester Credit Hours
Technology track		
ITSV 308	Cybersecurity and Digital Ethics	3
Select 13 hours from the following:		13
CSCE 402	Law and Policy in Cybersecurity	
CYBR 403/ CSCE 477	Cybersecurity Risk	
ESET 269	Embedded Systems Development in C	
ESET 315	Local-and-Metropolitan-Area Networks	
ESET 349	Microcontroller Architecture	
ESET 415	Advanced Network Systems and Security	
ESET 419	Engineering Technology Capstone I ¹	
ESET 420	Engineering Technology Capstone II ¹	
ESET 456	Embedded Sensors and Internet of Things (IoT) Systems	
ITSV 303	Unix System Administration Practices	
ITSV 316	Database Systems Administration and Application	
TCMG 476	Technical Network Capstone ¹	
Total Semester Credit Hours		16

¹ Course must be approved by the Director of Interdisciplinary Engineering for inclusion in the minor and include applications in cybersecurity.

² Course may be applied to latter category only if it is not applied above.

Minimum required GPA to declare minor is a 2.5.

Must make a grade of C or better in each course used towards minor.

Must achieve an overall GPA of 2.5 in approved minor coursework.

Minimum of 6 hours at 300-400 level.

Game Design and Development - Minor

This minor provides a foundation in the principles of game design and software development.

The Minor in Game Design and Development is offered in cooperation with the Department of Visualization. Enrollment in the minor is managed through the Department of Visualization. The minor offers students the

opportunity to develop the knowledge and skills associated with the aesthetic and technical aspects of game creation. Students develop core competencies, collaborate on the design and development of game projects, and engage in authentic, situated creative problem-solving to broaden their horizons as interdisciplinary team members. A minimum GPA of 3.2 is required for admittance into the minor.

Program Requirements

Code	Title	Semester Credit Hours
CSCE 110 & CSCE 111	Programming I and Introduction to Computer Science Concepts and Programming	4
or CSCE 121	or Introduction to Program Design and Concepts	
CSCE 441 or VIST 386	Computer Graphics or Game Design I	3
CSCE 443/ VIST 487	Game Development	3
Select two from:		6
COMM 230/	Communication Technology Skills	
JOUR 230		
COMM 453	Communication and Video Games	
CSCE 436	Computer-Human Interaction	
VIST 370	Interactive Virtual Environments	
VIST 374	Multimedia Design and Development	
Total Semester Credit Hours		16

Cyber Operations - Certificate

The certificate in Cyber Operations was created for students who have a deeply technical education with a particular emphasis on technologies and techniques related to specialized cyber operations (e.g., collection, exploitation, and response), critical to intelligence, military, and law enforcement organizations authorized to perform these specialized operations. This curriculum supports Texas A&M's designation as a Center of Academic Excellence in Cyber Operations by the National Security Agency.

This certificate is available only to students enrolled in the Computer Science major.

Program Requirements

Code	Title	Semester Credit Hours
CSCE 402	Law and Policy in Cybersecurity	3
CSCE 451	Software Reverse Engineering	3
CSCE 464	Wireless and Mobile Systems	3
CSCE 465	Computer and Network Security	3
Total Semester Credit Hours		12

Must earn a grade of C or better in each course used towards certificate.

Department of Electrical and Computer Engineering

Almost any technology that distinguishes the 20th and 21st centuries from previous history has the imprint of electrical and computer engineering - electric power, radio, television, radar, satellite communication, global positioning system, medical diagnostic and procedure systems, sophisticated domestic appliances, cell phones, computers and sophisticated sensors and control systems used in underwater, space exploration and national security. Electrical and computer engineering has advanced national and global prosperity through research, development and application of electrical and computer technologies and sciences for the benefit of humanity, and has helped create the global village. By choosing electrical or computer engineering our graduates embark on an exciting and productive career with endless opportunities and help in shaping a better future for mankind.

The curriculum is designed to prepare the undergraduate for work in the highly diverse electrical and computer engineering profession. A solid foundation in physics, chemistry and mathematics is used to support courses in the fundamentals of electrical and computer engineering. The use of computers is integrated throughout the curriculum, and basic studies in circuits, electronics, electromagnetic fields and digital logic lead to a flexible program of electives in the junior and senior year. Electives may be chosen from the broad fields of analog and mixed-signal electronics, biomedical imaging, sensing and genomic signal processing, computer engineering and systems, device science and nanotechnology, electric power systems and power electronics, electromagnetics and microwaves, and information science and learning systems. Laboratory work is structured to first familiarize the student with the basic concepts and then to apply these concepts to solve engineering problems.

Undergraduate education plays a major part in helping the department to achieve its mission. The Electrical and Computer Engineering programs are accredited by the Engineering Accreditation Commission of ABET, www.abet.org. More information on these efforts can be found at the Department of Electrical and Computer Engineering (<http://engineering.tamu.edu/electrical/>) website by clicking on the link for ABET Accreditation.

Faculty

Annapareddy, Narasimha, Professor
Electrical & Computer Eng
PHD, University of Illinois at Urbana-Champaign, 1990

Balog, Robert S, Professor
Electrical & Computer Eng
PHD, University of Illinois, 2006

Begovic, Miroslav M, Professor
Electrical & Computer Eng
PHD, Virginia Polytechnic Institute, 1989

Birchfield, Adam Barlow, Assistant Professor
Electrical & Computer Eng
PHD, Texas A&M University, 2018

Boutros, Joseph J, Professor
Electrical & Computer Eng-Qatar Campus
PHD, Telecom Paris Tech (ENST), 1996

Braga Neto, Ulisses, Professor
Electrical & Computer Eng
PHD, Johns Hopkins University, 2002

Butler-Purry, Karen L, Professor
Electrical & Computer Eng
PHD, Howard University, 1994

Cantrell, Pierce E, Senior Associate Professor
Electrical & Computer Eng
PHD, Georgia Institute of Technology, 1981

Chamberland, Jean-Francois, Professor
Electrical & Computer Eng
PHD, University of Illinois, 2004

Chen, Xin, Assistant Professor
Electrical & Computer Eng
PHD, Harvard University, 2022

Choi, Seong G, Associate Professor
Electrical & Computer Eng
PHD, University of Illinois, 1994

Datta, Aniruddha, Professor
Electrical & Computer Eng
PHD, University of Southern California, 1991

Davis, Katherine M, Associate Professor
Electrical & Computer Eng
PHD, University of Illinois at Urbana-Champaign, 2011

Duffield, Nicholas G, Professor
Electrical & Computer Eng
PHD, Queen Mary College, Univ. of London, 1987

Ehsani, Mehrdad, Professor
Electrical & Computer Eng
PHD, University of Wisconsin, Madison, 1981

Enjeti, Prasad N, Professor
Electrical & Computer Eng
PHD, Concordia University, Montreal, 1988

Entesari, Kamran, Professor
Electrical & Computer Eng
PHD, University of Michigan, 2006

Georghiades, Costas N, Professor
Electrical & Computer Eng
PHD, Washington University in St. Louis, 1985

Gong, Jiarui, Assistant Professor
Electrical & Computer Eng
PHD, University of Wisconsin-Madison, 2022

Gratz, Paul V, Professor
Electrical & Computer Eng
PHD, The University of Texas at Austin, 2008

Han, Arum, Professor
Electrical & Computer Eng
PHD, Georgia Institute of Technology, 2005

Harris, Harlan R, Associate Professor
Electrical & Computer Eng
PHD, Texas Tech University, 2003

Hemmer, Philip R, Professor
Electrical & Computer Eng
PHD, Massachusetts Inst of Technology, 1984

Hou, I-Hong, Professor
Electrical & Computer Eng
PHD, University of Illinois Urbana Champaign, 2011

Hoyos, Sebastian, Professor
Electrical & Computer Eng
PHD, University of Delaware, 2004

Hu, Jiang, Professor
Electrical & Computer Eng
PHD, University of Minnesota, 2001

Iskander, Marco, Instructional Assistant Professor
Electrical & Computer Eng
MBA, University of Waterloo, 2020

Jang, Wonhyeok, Lecturer
Electrical & Computer Eng
PHD, University of Illinois at Urbana-Champaign, 2017

Ji, Jim, Professor
Electrical & Computer Eng-Qatar Campus
PHD, University of Illinois at Urbana-Champaign, 2003

Ji, Jim X, Professor
Electrical & Computer Eng
PHD, University of Illinois, 2003

Johnson, Matthew Christopher, Instructional Assistant Professor
Electrical & Computer Eng
PHD, Texas A&M University, 2017

Kalafatis, Stavros, Professor of the Practice
Electrical & Computer Eng
MS, University of Arizona, 1991

Karsilayan, Aydin I, Associate Professor
Electrical & Computer Eng
PHD, Portland State University, 2000

Katehi-Tseregounis, Linda P B, Professor
Electrical & Computer Eng
PHD, University of California, Los Angeles, 1984

Kezunovic, Mladen, Professor
Electrical & Computer Eng
PHD, University of Kansas, 1980

Khatri, Sunil P, Professor
Electrical & Computer Eng
PHD, University of California at Berkeley, 1999

Kish, Laszlo B, Professor
Electrical & Computer Eng
PHD, Uppsala University, Sweden, 1994

Koohi, Milad, Assistant Professor
Electrical & Computer Eng
PHD, University of Michigan, 2020

Kumar, P R, Professor
Electrical & Computer Eng
PHD, Washington University in St. Louis, 1977

Lin, Paotai, Associate Professor
Electrical & Computer Eng
PHD, Northwestern University, 2009

Liu, Tie, Professor
Electrical & Computer Eng
PHD, University of Illinois, 2006

Lu, Mi, Professor
Electrical & Computer Eng
PHD, Rice University, 1987

Lusher, John David, Professor of the Practice
Electrical & Computer Eng
PHD, Texas A&M University, 2018

Madsen, Christi K, Professor
Electrical & Computer Eng
PHD, Rutgers State University of New Jersey, 1996

Manisseri Kalathil, Dileep, Associate Professor
Electrical & Computer Eng
PHD, University of Southern California, Los Angeles, 2014

Menon, Arya, Assistant Professor
Electrical & Computer Eng
PHD, Oregon State University, 2021

Michalski, Krzysztof A, Associate Professor
Electrical & Computer Eng
PHD, University of Kentucky, 1981

Miller, Scott L, Professor
Electrical & Computer Eng
PHD, University of California at San Diego, 1988

Moreira-Tamayo, Oscar, Professor of the Practice
Electrical & Computer Eng
PHD, Texas A&M University, 1996

Narayanan, Krishna R, Professor
Electrical & Computer Eng
PHD, Georgia Institute of Technology, 1998

Nevels, Robert D, Professor
Electrical & Computer Eng
PHD, University of Mississippi, 1979

Nowka, Kevin J., Professor of the Practice
Electrical & Computer Eng
PHD, Stanford University, 1995

Overbye, Thomas J, Professor
Electrical & Computer Eng
PHD, University of Wisconsin-Madison, 1991

Palermo, Samuel M, Professor
Electrical & Computer Eng
PHD, Stanford University, 2007

Peeples, Joshua K, Assistant Professor
Electrical & Computer Eng
PHD, University of Florida, 2022

Qian, Xiaoning, Professor
Electrical & Computer Eng
PHD, Yale University, 2005

Rajendran, Jeyavijayan, Associate Professor
Electrical & Computer Eng
PHD, New York University, 2015

Rentzepis, Peter M, Professor
Electrical & Computer Eng
PHD, University of Cambridge, 1963

Righetti, Raffaella, Associate Professor
Electrical & Computer Eng
PHD, University of Houston, 2005

Roy, Sandip, Professor
Electrical & Computer Eng
PHD, Massachusetts Institute of Technology, 2003

Russell, B. Don, Distinguished Professor
Electrical & Computer Eng
PHD, University of Oklahoma, 1975

Savari, Serap A, Associate Professor
Electrical & Computer Eng
PHD, Massachusetts Inst of Technology, 1996

Serpedin, Erchin, Professor
Electrical & Computer Eng
PHD, University of Virginia, 1999

Serpedin, Erchin, Professor
Electrical & Computer Eng-Qatar Campus
PHD, University of Virginia, 1999

Shakkottai, Srinivas G, Professor
Electrical & Computer Eng
PHD, University of Illinois Urbana-Champaign, 2007

Shen, Yang, Associate Professor
Electrical & Computer Eng
PHD, Boston University, 2008

Shi, Weiping, Professor
Electrical & Computer Eng
PHD, University of Illinois Urbana-Champaign, 1992

Silva-Martinez, Jose E, Professor
Electrical & Computer Eng
PHD, Katholieke Universiteit Leuven, 1992

Singh, Chanan, University Distinguished Professor
Electrical & Computer Eng
PHD, University of Saskatchewan, 1972

Sprintson, Alexander, Professor
Electrical & Computer Eng
PHD, Technion-Israel Institute of Technology, 2003

Tian, Chao, Professor
Electrical & Computer Eng
PHD, Cornell University, 2005

Toliat, Hamid A, Professor
Electrical & Computer Eng
PHD, University of Wisconsin, Madison, 1991

Tyler, John, Senior Lecturer
Electrical & Computer Eng
MS, University of Central Texas, 1979

Watson, Karan L., Senior Professor
Electrical & Computer Eng
PHD, Texas Tech University, 1982

Williams, R Stanley, Professor
Electrical & Computer Eng
PHD, University of California at Berkeley, 1978

Wright, Steven M, Professor
Electrical & Computer Eng
PHD, University of Illinois Urbana-Champaign, 1984

Xiong, Zixiang, Professor
Electrical & Computer Eng
PHD, University of Illinois Urbana-Champaign, 1996

Yi, Suin, Assistant Professor
Electrical & Computer Eng
PHD, Texas A&M University, 2017

Yoon, Byung-Jun, Professor
Electrical & Computer Eng
PHD, California Institute of Technology, 2007

Zhang, Han, Research Assistant Professor
Electrical & Computer Eng
PHD, Utah State University, 2019

Zhang, Xi, Professor
Electrical & Computer Eng
PHD, University of Michigan, 2002

Zou, Jun, Professor
Electrical & Computer Eng
PHD, University of Illinois Urbana-Champaign, 2002

Majors

- Bachelor of Science in Computer Engineering (p. 644)
- Bachelor of Science in Electrical Engineering (p. 646)

Minors

- Electrical Engineering Minor (p. 648)

Computer Engineering - BS

This program's curriculum is designed to cover the engineering aspects of both hardware and software—a total computer systems perspective.

All computer engineering students take courses in the following areas: electrical circuits, electronics, digital circuits, computer architecture ranging from embedded systems to data centers, interfacing, programming languages ranging from assembler to high level, data structures, analysis of algorithms, operating systems, software engineering and computer systems. A solid foundation in the basic sciences of physics, chemistry and mathematics is used to support these courses.

The curriculum encompasses much of the core material of traditional Computer Science and Electrical Engineering degrees. Students are able to further enhance their knowledge by taking electives in a broad range of topics: computer networks, computer system architecture, artificial intelligence, machine learning, computer graphics, robotics, cybersecurity, computer languages, large-scale hardware and software systems, Very Large Scale Integrated (VLSI) circuits and systems, microprocessor interfacing and system design, hardware-software interaction and embedded systems.

The bachelor's degree program in computer engineering has been accredited by the Engineering Accreditation Commission of ABET, <http://www.abet.org> (<http://www.abet.org/>). The program's emphasis on design and engineering fundamentals prepares the student for licensing as a professional engineer as well.

Program Mission

The mission of the computer engineering program is threefold:

- The computer engineering program provides students with an education that ensures an excellent understanding of hardware and software systems and the necessary system design and development skills, and that fosters professional curiosity and imagination that drives them throughout their career.
- The program will stimulate and challenge the students with: exceptional, highly motivated faculty members who share knowledge and excitement about computer engineering; well-designed undergraduate and graduate curricula; research opportunities at all levels; and a first-class educational infrastructure.
- The program strives to produce graduates who are well prepared to excel in industry, academia and government, and who will take on leadership roles in shaping the technological landscape of the future.

Program Educational Objectives

The educational objectives of the computer engineering program are to produce graduates whose expected accomplishments within a few years of graduation are:

1. Graduates who choose to pursue a career in industry or government will become productive and valuable computer engineers.
2. Graduates who choose to pursue advanced degrees will gain admission and succeed in top graduate programs.
3. Graduates will lead and work effectively on diverse teams to promote a breadth of perspectives in developing, communicating, and executing solutions across a broad range of computer systems application areas.
4. In keeping with the legacy of an Aggie engineer, graduates will be successful in attaining positions of leadership in their professional careers.

Before commencing course work in the major, students must be admitted to the major or have the approval of the department.

Program Requirements

The freshman year is identical for degrees in aerospace engineering, architectural engineering, civil engineering, computer engineering, computer science, data engineering, electrical engineering, electronic systems engineering technology, environmental engineering, industrial distribution, industrial engineering, interdisciplinary engineering, manufacturing and mechanical engineering technology, mechanical engineering, multidisciplinary engineering technology, nuclear engineering, ocean engineering, and petroleum engineering. The freshman year is slightly different for chemical engineering, biomedical engineering and materials science and engineering degrees in that students take CHEM 119 or CHEM 107/CHEM 117 and CHEM 120. Students pursuing degrees in biological and agricultural engineering should refer to the specific curriculum for this major. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year		Semester Credit Hours
Fall		
CHEM 107	General Chemistry for Engineering Students ^{1,4}	3
CHEM 117	General Chemistry for Engineering Students Laboratory ^{1,4}	1
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	3
ENGR 102	Engineering Lab I - Computation ¹	2
MATH 151	Engineering Mathematics I ^{1,2}	4
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16
Spring		
ENGR 216/ PHYS 216	Experimental Physics and Engineering Lab II - Mechanics ¹	2
MATH 152	Engineering Mathematics II ¹	4
PHYS 206	Newtonian Mechanics for Engineering and Science ¹	3
University Core Curriculum (p. 26) ³		3
Select one of the following:		3-4
CHEM 120	Fundamentals of Chemistry II ^{1,4}	
University Core Curriculum (p. 26) ^{3,5}		
Semester Credit Hours		15-16
Total Semester Credit Hours		31-32

¹ A grade of C or better is required.

² Entering students will be given a math placement exam. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.

³ Of the 21 hours shown as University Core Curriculum electives, 3 must be from creative arts (see AREN curriculum for more information), 3 from social and behavioral sciences (see DAEN and IDIS curriculum for more information), 3 from language, philosophy and culture (see CVEN, EVEN and PETE curriculum for more information), 6 from

American history and 6 from government/political science. The required 3 hours of international and cultural diversity and 3 hours of cultural discourse may be met by courses satisfying the creative arts, social and behavioral sciences, language, philosophy and culture, and American history requirements if they are also on the approved list of international and cultural diversity (p. 49) courses and cultural discourse (p. 48) courses.

⁴ BMEN, CHEN and MSEN require 8 hours of fundamentals of chemistry which are satisfied with CHEM 119 or CHEM 107/CHEM 117 and CHEM 120; Students with an interest in BMEN, CHEN and MSEN can take CHEM 120 second semester freshman year. CHEM 120 will substitute for CHEM 107/CHEM 117.

⁵ For BS-PETE, allocate 3 hours to core communications course (ENGL 210, COMM 203, COMM 205, or COMM 243) and/or 3 hours to UCC elective. For BS-MEEN, allocate 3 hours to core communications course (ENGL 203, ENGL 210, COMM 203 or COMM 205) and/or 3 hours to UCC elective.

Second Year

Fall		Semester Credit Hours
CSCE 120	Program Design and Concepts ¹	3
ECEN 248	Introduction to Digital Systems Design ¹	4
MATH 251 or MATH 253	Engineering Mathematics III ¹ or Engineering Mathematics III	3
PHYS 207	Electricity and Magnetism for Engineering and Science ¹	3
PHYS 217/ ENGR 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism ¹	2
Semester Credit Hours		15
Spring		
CSCE 221	Data Structures and Algorithms ¹	4
CSCE 222/ ECEN 222	Discrete Structures for Computing ¹	3
ECEN 214	Electrical Circuit Theory ¹	4
ECEN 303 or STAT 211	Random Signals and Systems ¹ or Principles of Statistics I	3
MATH 308	Differential Equations ¹	3
Semester Credit Hours		17

Third Year

Fall		
CSCE 313	Introduction to Computer Systems ¹	4
CSCE 350/ ECEN 350	Computer Architecture and Design ¹	4
CSCE 481	Seminar ¹	1
ECEN 314	Signals and Systems ¹	3
MATH 311	Topics in Applied Mathematics I ¹	3
Select one of the following: ¹		3
ENGL 210	Technical and Professional Writing	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
Semester Credit Hours		18

Spring		
CSCE 331	Foundations of Software Engineering ¹	4

CSCE 462 or ECEN 449	Microcomputer Systems ¹ or Microprocessor Systems Design	3
ECEN 325	Electronics ¹	4
ECEN 454	Digital Integrated Circuit Design ¹	3
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		17

Fourth Year

Fall

Senior design ^{1,6}	3
University Core Curriculum (p. 26) ³	3
Area elective ^{1,7}	6
Engineering elective ^{1,8}	3
High Impact Experience ⁹	0
CSCE 399 or ECEN 399	High-Impact Experience or High Impact Professional Development
Semester Credit Hours	
	15

Spring

Senior Design ^{1,6}	3
University Core Curriculum (p. 26) ³	6
Area elective ^{1,7}	6
Semester Credit Hours	15
Total Semester Credit Hours	97

⁶ 6 hours chosen from either (ECEN 403 and ECEN 404) or (CSCE 483 and an additional 3 hours of Area electives.)

⁷ Area electives chosen in consultation with academic advisor.

⁸ Select from: MATH 407, MATH 412, MATH 414, MATH 431, MATH 471, MEEN 315, MEEN 221, MEEN 222/MSEN 222, PHYS 221, PHYS 222.

⁹ All students are required to complete a high-impact experience in order to graduate. The list of possible high-impact experiences is available in the CSE or ECE advising office.

Total Program Hours 128

Electrical Engineering - BS

This program prepares students for careers in electrical engineering, covering multiple specializations with graduates excelling in industry, academia, and leadership roles.

The Department of Electrical and Computer Engineering at Texas A&M University offers a Bachelor of Science degree option to its undergraduate students desiring to major in Electrical Engineering.

Electrical engineers design, develop, test and supervise the manufacture of sophisticated electrical and electronic systems such as: cell phones, iPods, digital TVs, medical imaging, smart appliances, automobiles and advanced satellite systems. Many electrical engineers also work in areas closely related to computers. Areas of specialization include analog and mixed-signal electronics; biomedical imaging, sensing and genomic signal processing; computer engineering and systems; device science and nanotechnology; energy and power; electromagnetics and microwaves; and information science and systems.

The bachelor's degree program in electrical engineering has been accredited by the Engineering Accreditation Commission of ABET (<http://www.abet.org/>). With ABET accreditation, students, parents, employers

and the society we serve can be confident that a program meets the quality standards that produce graduates prepared to enter a global workforce.

Program Mission

The mission of the electrical engineering program is threefold:

- To create new knowledge and challenge young minds by participation in the process of discovery and invention;
- To educate electrical engineers with a solid background of fundamentals, stretching their imagination, and preparing them for an exciting future; and
- To serve the society through research, education, and outreach activities.

Program Educational Objectives

The educational objectives of the electrical engineering program are to produce graduates whose expected accomplishments within a few years of graduation are:

1. Graduates who choose to pursue a career in industry or government will become productive and valuable electrical engineers.
2. Graduates who choose to pursue advanced degrees will be able to gain admission to graduate programs and succeed in top graduate programs.
3. Graduates will lead and work effectively on diverse teams to promote a breadth of perspectives in developing, communicating, and executing solutions across a broad range of electrical engineering application areas.
4. In keeping with the legacy of an Aggie Engineer, graduates will be successful in attaining positions of leadership in their professional careers.

Before commencing course work in the major, students must be admitted to the major or have the approval of the department.

Program Requirements

The freshman year is identical for degrees in aerospace engineering, architectural engineering, civil engineering, computer engineering, computer science, data engineering, electrical engineering, electronic systems engineering technology, environmental engineering, industrial distribution, industrial engineering, interdisciplinary engineering, manufacturing and mechanical engineering technology, mechanical engineering, multidisciplinary engineering technology, nuclear engineering, ocean engineering, and petroleum engineering. The freshman year is slightly different for chemical engineering, biomedical engineering and materials science and engineering degrees in that students take CHEM 119 or CHEM 107/CHEM 117 and CHEM 120. Students pursuing degrees in biological and agricultural engineering should refer to the specific curriculum for this major. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year Fall

		Semester Credit Hours
CHEM 107	General Chemistry for Engineering Students ^{1,4}	3
CHEM 117	General Chemistry for Engineering Students Laboratory ^{1,4}	1
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	3
ENGR 102	Engineering Lab I - Computation ¹	2
MATH 151	Engineering Mathematics I ^{1,2}	4
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16

Spring

ENGR 216/ PHYS 216	Experimental Physics and Engineering Lab II - Mechanics ¹	2
MATH 152	Engineering Mathematics II ¹	4
PHYS 206	Newtonian Mechanics for Engineering and Science ¹	3
University Core Curriculum (p. 26) ³		3
Select one of the following:		3-4
CHEM 120	Fundamentals of Chemistry II ^{1,4}	
University Core Curriculum (p. 26) ^{3,5}		
Semester Credit Hours		15-16
Total Semester Credit Hours		31-32

¹ A grade of C or better is required.

² Entering students will be given a math placement exam. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.

³ Of the 21 hours shown as University Core Curriculum electives, 3 must be from creative arts (see AREN curriculum for more information), 3 from social and behavioral sciences (see DAEN and IDIS curriculum for more information), 3 from language, philosophy and culture (see CVEN, EVEN and PETE curriculum for more information), 6 from American history and 6 from government/political science. The required 3 hours of international and cultural diversity and 3 hours of cultural discourse may be met by courses satisfying the creative arts, social and behavioral sciences, language, philosophy and culture, and American history requirements if they are also on the approved list of international and cultural diversity (p. 49) courses and cultural discourse (p. 48) courses.

⁴ BMEN, CHEN and MSEN require 8 hours of fundamentals of chemistry which are satisfied with CHEM 119 or CHEM 107/CHEM 117 and CHEM 120; Students with an interest in BMEN, CHEN and MSEN can take CHEM 120 second semester freshman year. CHEM 120 will substitute for CHEM 107/CHEM 117.

⁵ For BS-PETE, allocate 3 hours to core communications course (ENGL 210, COMM 203, COMM 205, or COMM 243) and/or 3 hours to UCC elective. For BS-MEEN, allocate 3 hours to core communications course (ENGL 203, ENGL 210, COMM 203 or COMM 205) and/or 3 hours to UCC elective.

Second Year

Fall		Semester Credit Hours
CSCE 120	Program Design and Concepts ¹	3
ECEN 248	Introduction to Digital Systems Design ¹	4
MATH 251 or MATH 253	Engineering Mathematics III ¹ or Engineering Mathematics III	3
PHYS 207	Electricity and Magnetism for Engineering and Science ¹	3
PHYS 217/ ENGR 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism ¹	2
Semester Credit Hours		15

Spring

ECEN 214	Electrical Circuit Theory ¹	4
ECEN 250	Machine Learning for Electrical Engineering ¹	3
MATH 308	Differential Equations ¹	3
MATH 311	Topics in Applied Mathematics I ¹	3
PHYS 222	Modern Physics for Engineers ¹	3
Semester Credit Hours		16

Third Year

Fall		
ECEN 314	Signals and Systems ¹	3
ECEN 322	Electric and Magnetic Fields ¹	3
ECEN 325	Electronics ¹	4
ECEN 340	Electric Energy Conversion ¹	3
Select one of the following: ¹		3
ENGL 210	Technical and Professional Writing	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
Semester Credit Hours		16

Spring

ECEN 303	Random Signals and Systems ¹	3
ECEN 350/ CSCE 350	Computer Architecture and Design ¹	4
ECEN 370	Electronic Properties of Materials ¹	3
University Core Curriculum (p. 26) ³		3
Technical elective ^{1,6}		3
Semester Credit Hours		16

Fourth Year

Fall		
ECEN 403	Electrical Design Laboratory I ¹	3
University Core Curriculum (p. 26) ³		6
High Impact Experience ⁷		0
ECEN 399	High Impact Professional Development	
ECEN elective ^{1,8}		9
Semester Credit Hours		18

Spring

ECEN 404	Electrical Design Laboratory II ¹	3
University Core Curriculum (p. 26) ³		3

ECEN elective ^{1,8}	10
Semester Credit Hours	16
Total Semester Credit Hours	97

⁶ Select from ASTR 314, CSCE 313, CSCE 314, ESET 352, MATH 401, MATH 407, MATH 412, MATH 414, MATH 417, MATH 470, MATH 471, MEEN 221, MEEN 222/MSEN 222, MEEN 315, MSEN 325, PHYS 221.

⁷ All students are required to complete a high-impact experience in order to graduate. The list of possible high-impact experiences is available in the ECEN advising office.

⁸ Select from ECEN 326, ECEN 333, ECEN 338, ECEN 360, ECEN 410-480 (p. 1009), ECEN 489.

Total Program Hours 128

Electrical Engineering - Minor

The Department of Electrical and Computer Engineering offers a minor to students who are interested in electrical engineering applications related to circuits, signals and systems, electronics, instrumentation, and digital systems. Students interested in the Electrical Engineering minor should contact the undergraduate advising office of the Electrical and Computer Engineering Department for further information.

Program Requirements

Code	Title	Semester Credit Hours
ECEN 215	Principles of Electrical Engineering or ECEN 214 or Electrical Circuit Theory	3
ECEN 248	Introduction to Digital Systems Design	4
ECEN 314	Signals and Systems	3
ECEN 325	Electronics	4
ECEN Elective (p. 1009) ¹		3
Total Semester Credit Hours		17

¹ Select course from ECEN 303, ECEN 322, ECEN 340, ECEN 350/CSCE 350, ECEN 370.

Students must make a grade of "C" or better in all courses. All courses must be taken at Texas A&M University; no transfer work will be accepted.

Further Requirements: A minimum grade point average of 2.75 is required for entering the minor. Prerequisite coursework includes the calculus sequence, MATH 308, and PHYS 207 or equivalents. Students majoring in Computer Engineering will not be permitted to minor in Electrical Engineering since the coursework prescribed for the minor is required coursework for the Computer Engineering degree.

Department of Engineering Technology and Industrial Distribution

The Department of Engineering Technology and Industrial Distribution offers four baccalaureate degree programs in electronics systems

engineering technology, industrial distribution, manufacturing and mechanical engineering technology, and multidisciplinary engineering technology. While these degrees are distinct, they share several common features including a sound foundation of mathematics and basic sciences, a strong core of technical courses, and an emphasis on written and oral communications. The curricula emphasize the latest state-of-the-art technologies, innovation and entrepreneurship. Finally, all four degrees are designed to prepare students for careers in industry with strong opportunities for advancement. Because these programs are highly applied and have a focus on project-based learning and experiential education, most of the department's courses have hands-on laboratories that allow students to put theory to practice.

The mission of the Department of Engineering Technology and Industrial Distribution is to:

- maintain nationally recognized programs in engineering technology and industrial distribution
- focus on educating highly-qualified students with hands-on skills, providing them with experiences in advanced integration of both conventional and emerging technologies, a unique understanding of management and business practices, and an entrepreneurial point of view
- provide leadership within the COE and university in interdisciplinary applied research, to include the development and deployment of new technology
- promote and develop long term partnerships with industry and government that foster enhancements and interactions in education, research, and professional development

Electronic Systems Engineering Technology (ESET)

Electronic Systems Engineering Technology (ESET) prepares graduates for careers in electronic product and system design, development, and test across a diverse range of industries. These industries include semiconductor, telecommunications, networking, manufacturing, energy and power, and medical.

The ESET program is accredited by the Engineering Technology Accreditation Commission of ABET, <http://www.abet.org> (<https://www.abet.org/>). For more information about the Electronic Systems Engineering Technology program including the mission and program educational objectives, please see the program requirements (p. 654).

Graduates are awarded the Bachelor of Science in Electronic Systems Engineering Technology.

Industrial Distribution (IDIS)

Bachelor of Science in Industrial Distribution prepares graduates for technical sales, sales management, business development, procurement, supply chain management, operations management, and other managerial positions. Students are prepared for employment in industry segments that include: aerospace; automation solutions; building materials; chemical and petrochemical; electrical; electronics; information systems and technology; healthcare; fluid power; general line; heating, ventilation and air conditioning; management consulting; mechanical power; metals; oil and gas; plastics; pipe, valve, and fitting; plumbing; safety equipment; semiconductor; specialty tools; and welding. The day-to-day challenges faced by the industrial distributor or the manufacturer's representative require the person to be a professional with many capabilities. To fulfill this demand, the curriculum provides

studies in distribution, business, communications, finance/profitability, information technology, applied technology, analytics management, engineering, ethics, and project management. Graduates receive a Bachelor of Science degree in Industrial Distribution.

The BS in Industrial Distribution program is accredited by the Engineering Technology Accreditation Commission of ABET, <http://www.abet.org> (<https://www.abet.org/>). For more information about the Industrial Distribution program, please see the program requirements (p. 655).

Graduates are awarded the Bachelor of Science in Industrial Distribution.

Manufacturing and Mechanical Engineering Technology (MMET)

Manufacturing and Mechanical Engineering Technology (MMET) prepares students for dynamic careers in a wide range of industries ranging from oil and gas, to aerospace, and food and beverage. These careers involve design, manufacturing, maintenance, and sometimes sales. Graduates are versatile and effective in diverse areas that require understanding of the dependencies among material properties, product design, costs, manufacturing systems, and process technologies.

The Manufacturing and Mechanical Engineering Technology program is accredited by the Engineering Technology Accreditation Commission of ABET, <http://www.abet.org> (<http://www.abet.org/>). For more information about the Manufacturing and Mechanical Engineering Technology program including the mission and program educational objectives, please see the program requirements (p. 657).

Graduates are awarded the Bachelor of Science in Manufacturing and Mechanical Engineering Technology.

Multidisciplinary Engineering Technology (MXET)

Multidisciplinary Engineering Technology (MXET) combines core concepts from the electronics and mechanical engineering technology disciplines and provides students with a strong background in embedded systems, electronic system design, instrumentation, controls, statics, dynamics, thermodynamics, mechanical system design, and project management. The curriculum is then augmented through a technical focus area. The Mechatronics and STEM Education focus areas are currently available and additional focus areas will be identified and created. The Mechatronics focus prepares graduates for diverse careers in aerospace, automotive, oil and gas, medical and communications industries where entry-level employees require a broad-based education in system-level design, development, documentation and delivery of new and innovative products. The STEM Education focus prepares graduates to teach math, science, and engineering at the secondary education level.

The BS in Multidisciplinary Engineering Technology program is accredited by the Engineering Technology Accreditation Commission of ABET, <http://www.abet.org> (<https://www.abet.org/>). For more information about the Multidisciplinary Engineering Technology program, please see the program requirements (p. 653).

Graduates are awarded the Bachelor of Science in Multidisciplinary Engineering Technology.

Department Academic Policies

The Department of Engineering Technology and Industrial Distribution (ETID) imposes academic requirements in addition to those imposed by

the University (Texas A&M University Student Rules) and college. For complete details concerning these and other academic policies, students should contact the ETID Undergraduate Advising Office and are referred to the ETID (<http://engineering.tamu.edu/etid/>) website.

A student must complete all prerequisites for a course with a grade of C or better by the start of the semester in which the student plans to enroll in the course. A student is responsible for checking the prerequisites for each course to ensure the prerequisite requirements have been satisfied. A student who registers for a course for which he/she lacks the necessary prerequisite course(s) and/or the prerequisite grade requirement will be required to drop the course. A student who is told to drop a course and is still enrolled by the deadline set each semester may be administratively dropped by the department. If a student is administratively dropped from a course, the student is responsible for all financial obligations associated with the drop. An administrative drop may adversely impact (including, but not limited to): health insurance benefits, financial aid, athletic eligibility, INS status, veterans' benefits, and eligibility to participate in extracurricular activities.

The department encourages students to participate in industrial internships or the Cooperative Education Program to acquire practical experience to complement their engineering technology education.

Before commencing course work in the major students must be admitted to the major or have the approval of the department.

Faculty

Allison, Lee, Associate Professor
Eng Tech & Ind Distribution
PHD, Oklahoma State University, 2016

Alvarado, Jorge L, Professor
Eng Tech & Ind Distribution
PHD, University of Illinois, 2004

Antonaros, Richard, Visiting Senior Lecturer
Eng Tech & Ind Distribution
PHD, Capella University, 2010

Aoufi, Rabah, Senior Lecturer
Eng Tech & Ind Distribution
MS, Missouri University of Science & Technology, 1980

Asadi, Amir, Associate Professor
Eng Tech & Ind Distribution
PHD, University of Manitoba, 2013

Assad, Chahriar, Senior Lecturer
Eng Tech & Ind Distribution
PHD, Texas A&M University, 1994

Aucoin, B. Michael, Senior Lecturer
Eng Tech & Ind Distribution
PHD, Texas A&M University, 1982

Bayat, Noushin, Visiting Professor of the Practice
Eng Tech & Ind Distribution
EDD, Pepperdine University, 2018

Bolander, Willy C, Professor
Eng Tech & Ind Distribution
PHD, University of Houston, 2011

Borsh, Robert M, Associate Professor of the Practice
Eng Tech & Ind Distribution
MID, Texas A&M University, 2003

Bosshard, John C, Lecturer
Eng Tech & Ind Distribution
PHD, Texas A&M University, 2012

Bowers, Brooke Nicole, Visiting Senior Lecturer
Eng Tech & Ind Distribution
MID, Texas A&M University, 2020

Bradley, Gary D, Senior Lecturer
Eng Tech & Ind Distribution
MS, Texas A&M University, 2013

Burns, Karrie M, Visiting Senior Lecturer
Eng Tech & Ind Distribution
BA, Texas A&M University, 2005

Butler, Scott N, Lecturer
Eng Tech & Ind Distribution
MS, Sam Houston State University, 1986

Calabria, Michael, Visiting Senior Lecturer
Eng Tech & Ind Distribution
BS, State University of New York at Oswego, 1975

Capar, Ismail, Associate Professor
Eng Tech & Ind Distribution
PHD, Mississippi State University, 2007

Cengil, Aysenur Betul, Visiting Instructional Assistant Professor
Eng Tech & Ind Distribution
PHD, University of Arkansas, 2024

Cengil, Fatih, Visiting Instructional Assistant Professor
Eng Tech & Ind Distribution
MS, Ozyegin University, 2018

Clark, Norman L, Instructional Professor
Eng Tech & Ind Distribution
PHD, Texas A&M University, 2015

Comstock, Tom, Senior Lecturer
Eng Tech & Ind Distribution
MBA, Texas A&M University, 1976

Craig, David O, Senior Lecturer
Eng Tech & Ind Distribution
MS, The University of Texas at Austin, 1997

Crosby, Garth Valentine, Associate Professor
Eng Tech & Ind Distribution
PHD, Florida International University, 2007

Decker, Lance Nelson, Visiting Senior Lecturer
Eng Tech & Ind Distribution
PHD, Texas A&M University, 2023

Dudley, Taylor Scott, Visiting Lecturer
Eng Tech & Ind Distribution
MBA, University of Texas at Austin, 2018

Dyson, Joseph Brandon, Visiting Lecturer
Eng Tech & Ind Distribution
MID, Texas A&M University, 2006

Ekin, Sabit, Associate Professor
Eng Tech & Ind Distribution
PHD, Texas A&M University, 2012

Elliott, Stephen Dwight, Visiting Senior Lecturer
Eng Tech & Ind Distribution
MID, Texas A&M University, 2005

Fierro, Alonso, Visiting Lecturer
Eng Tech & Ind Distribution
MS, Texas A&M University, 2010

Fink, Rainer J, Professor
Eng Tech & Ind Distribution
PHD, Texas A&M University, 1995

Fleming, Dixie A, Visiting Senior Lecturer
Eng Tech & Ind Distribution
MS, St Edwards University, 2015

Frymire, Read, Senior Lecturer
Eng Tech & Ind Distribution
BS, Texas A&M University, 1983

Gao, Jun, Visiting Senior Lecturer
Eng Tech & Ind Distribution
PHD, University of New Mexico, 2007

Gharib, Mohamed, Instructional Associate Professor
Eng Tech & Ind Distribution
PHD, Southern Methodist University, 2011

Godage, Isuru S, Assistant Professor
Eng Tech & Ind Distribution
PHD, University of Genova, 2013

Goulart, Ana E, Professor
Eng Tech & Ind Distribution
PHD, Georgia Institute of Technology, 2005

Gunasekaran, Senthilmurugan, Visiting Senior Lecturer
Eng Tech & Ind Distribution
DEN, Texas A&M University, 2014

Hammad, Eman M, Assistant Professor
Eng Tech & Ind Distribution
PHD, University of Toronto, 2018

Hannam, Jason S, Visiting Associate Professor of the Practice
Eng Tech & Ind Distribution
MEN, Texas A&M University, 2021

Havern, Christopher Von, Visiting Senior Lecturer
Eng Tech & Ind Distribution
MBA, Texas A&M University, 2002

Hembree, Jackson P, Visiting Senior Lecturer
Eng Tech & Ind Distribution
MEN, Texas A&M University, 2022

Hernandez, Claudia Patricia, Visiting Senior Lecturer
Eng Tech & Ind Distribution
MEN, Texas A&M University, 2023

Hollis, Tom E, Associate Professor of the Practice
Eng Tech & Ind Distribution
MBA, Our Lady of the Lake University, 1998

Holsey, Ronal K, Senior Lecturer
Eng Tech & Ind Distribution
BS, Texas A&M University, 1988

Holt, Ryan C, Visiting Associate Professor of the Practice
Eng Tech & Ind Distribution
MEN, Texas A&M University, 2020

Hsieh, Sheng-Jen, Professor
Eng Tech & Ind Distribution
PHD, Texas Tech University, 1995

Hudson, Lee E, Visiting Associate Professor of the Practice
Eng Tech & Ind Distribution
PHD, Texas A&M University, 2003

Hughes, John J, Senior Lecturer
Eng Tech & Ind Distribution
MS, Iona College, 1982

Hung, Wayne NP, Professor
Eng Tech & Ind Distribution
PHD, University of California at Berkeley, 1987

Hur, Byul, Associate Professor
Eng Tech & Ind Distribution
PHD, University of Florida, 2011

Iakovou, Eleftherios, Professor
Eng Tech & Ind Distribution
PHD, Cornell University, 1992

Jimenez, Christopher, Visiting Senior Lecturer
Eng Tech & Ind Distribution
MEN, Texas A&M University, 2021

Jin, Congrui, Assistant Professor
Eng Tech & Ind Distribution
PHD, Cornell University, 2012

Johnson, Jay, Senior Lecturer
Eng Tech & Ind Distribution
MBA, Texas A&M University, 2001

Johnson, Mark H, Professor of the Practice
Eng Tech & Ind Distribution
MS, Central Michigan University, 1991

Johnson, Michael D, Professor
Eng Tech & Ind Distribution
PHD, Massachusetts Institute of Technology, 2004

Jones, Kaffia, Visiting Senior Lecturer
Eng Tech & Ind Distribution
PHD, Saybrook University, 2010

Kabir, Elnaz, Assistant Professor
Eng Tech & Ind Distribution
PHD, University of Michigan, 2021

Karim, Muhammad Faeyz, Instructional Associate Professor
Eng Tech & Ind Distribution
PHD, Nanyang Technological University, 2008

Kuttolamadom, Mathew, Professor
Eng Tech & Ind Distribution
PHD, Clemson University, 2012

Lee, Kiju, Associate Professor
Eng Tech & Ind Distribution
PHD, Johns Hopkins University, 2009

Leonard, Matthew J, Lecturer
Eng Tech & Ind Distribution
BS, Texas A&M University, 1987

Liu, Yuexin, Instructional Assistant Professor
Eng Tech & Ind Distribution
PHD, New Jersey Institute of Technology, 2022

Loranger, Leigha M, Senior Lecturer
Eng Tech & Ind Distribution
MEN, Texas A&M University, 2020

Maguire, Christopher J, Lecturer
Eng Tech & Ind Distribution
MEN, Texas A&M University, 2020

Mahmoud, Ahmed Mohamed, Senior Lecturer
Eng Tech & Ind Distribution
MS, Texas A&M University, 1990

Mai, Bin, Assistant Professor
Eng Tech & Ind Distribution
PHD, The University of Texas at Dallas, 2006

Meier, Magnus F, Senior Lecturer
Eng Tech & Ind Distribution
MA, University of Duisburg-Essen, 1998

Mendoza Diaz, Noemi V, Assistant Professor
Eng Tech & Ind Distribution
PHD, Texas A&M University, 2006

Mody, Rustom K, Senior Lecturer
Eng Tech & Ind Distribution
MBA, University of Houston, 1986

Munns, Thomas G., Lecturer
Eng Tech & Ind Distribution
MEN, Texas A&M University, 1982

Nagarathnam, Bharani B, Instructional Associate Professor
Eng Tech & Ind Distribution
PHD, Texas A&M University, 2016

Natarajarathinam, Malini, Professor
Eng Tech & Ind Distribution
PHD, University of Alabama, 2007

Nepal, Bimal P, Professor
Eng Tech & Ind Distribution
PHD, Wayne State University, 2005

Nie, Xiaofeng, Associate Professor
Eng Tech & Ind Distribution
PHD, University of Buffalo - The State University of New York, 2008

Nohe, Elizabeth B, Visiting Senior Lecturer
Eng Tech & Ind Distribution
PHD, Walden University, 2020

Pandey, Gaurav, Associate Professor
Eng Tech & Ind Distribution
PHD, The University of Michigan, 2014

Patterson, Albert E, Assistant Professor
Eng Tech & Ind Distribution
PHD, University of Illinois at Urbana-Champaign, 2021

Porter, Jay R, Professor
Eng Tech & Ind Distribution
PHD, Texas A&M University, 1993

Porter, Logan Lynn, Instructional Assistant Professor
Eng Tech & Ind Distribution
DEN, Lamar University, 2014

Preusser, Denise Ann, Senior Lecturer
Eng Tech & Ind Distribution
PHD, Saybrook University, 2010

Price, Angie H, Associate Professor
Eng Tech & Ind Distribution
PHD, Texas A&M University, 1999

Rao, Mano, Visiting Senior Lecturer
Eng Tech & Ind Distribution
PHD, Carnegie Mellon University, 1991

Rey, Danny G, Associate Professor of the Practice
Eng Tech & Ind Distribution
BS, Texas A&M University, 1990

Reyes Denizard, Nelymar, Senior Lecturer
Eng Tech & Ind Distribution
PHD, Carlos Albizu University, 2018

Rouziou, Maria, Assistant Professor
Eng Tech & Ind Distribution
PHD, HEC Paris, 2016

Shepard, Mark Cullom, Visiting Lecturer
Eng Tech & Ind Distribution
MS, University of Houston, 2018

Sherrod, Denise, Visiting Senior Lecturer
Eng Tech & Ind Distribution
MEN, Texas A&M University, 2021

Simmons, Tiffany Ann, Visiting Lecturer
Eng Tech & Ind Distribution
MS, Southern Illinois University, 2019

Smith, Chris Shane, Lecturer
Eng Tech & Ind Distribution
MS, University of Arkansas at Little Rock, 1996

Smith, Clint D, Lecturer
Eng Tech & Ind Distribution
MBA, University of Houston, 2002

Song, Donggil, Associate Professor
Eng Tech & Ind Distribution
PHD, Indiana University Bloomington, 2015

Song, Xingyong, Professor
Eng Tech & Ind Distribution
PHD, University of Minnesota, Twin Cities, 2011

Speed, Fred M, Senior Lecturer
Eng Tech & Ind Distribution
JD, Ohio State University, 1995
PHD, University of Alabama - Huntsville, 1992

Spence, Lisa A, Senior Lecturer
Eng Tech & Ind Distribution
PHD, Gonzaga University, 2022

Sweeney, David S, Visiting Associate Professor of the Practice
Eng Tech & Ind Distribution
PHD, Texas A&M University, 2018

Swink, Virginia C, Visiting Senior Lecturer
Eng Tech & Ind Distribution
BS, King's College, 1986

Thompson, Stephen William, Senior Lecturer
Eng Tech & Ind Distribution
PHD, University of Dundee, 1976

Tingey, Scott M, Visiting Senior Lecturer
Eng Tech & Ind Distribution
MBA, Washington State University, 2000

Tofighi Zavareh, Amir, Assistant Professor
Eng Tech & Ind Distribution
PHD, Texas A&M University, 2019

Tong, David Y C, Visiting Senior Lecturer
Eng Tech & Ind Distribution
MA, Houston Baptist University, 2019

Ufodike, Chukwuzubelu O, Assistant Professor
Eng Tech & Ind Distribution
PHD, Florida A&M University, 2020

Vadali, Sharada R., Senior Lecturer
Eng Tech & Ind Distribution
PHD, Texas A&M University, 1996

Vajipeyajula, Bhaskar, Instructional Assistant Professor
Eng Tech & Ind Distribution
PHD, Texas A&M University, 2021

Vestal, Evan D, Senior Lecturer
Eng Tech & Ind Distribution
MBA, Sam Houston State University, 1998

Wallace, James P, Senior Lecturer
Eng Tech & Ind Distribution
MS, Texas A&M University, 1993

Wang, Hairong, Visiting Lecturer
Eng Tech & Ind Distribution
MS, Georgia Institute of Technology, 2021

Wang, Jyhwen, Professor
Eng Tech & Ind Distribution
PHD, Northwestern University, 1991

Wascom, David, Visiting Senior Lecturer
Eng Tech & Ind Distribution
MS, Louisiana State University, 1990

Webster, Sunshine P, Instructional Associate Professor
Eng Tech & Ind Distribution
PHD, The University of Texas at Austin, 2009

Whiteacre, Matthew M, Senior Lecturer
Eng Tech & Ind Distribution
MEN, Texas A&M University, 1984

Wiley, Harley M, Lecturer
Eng Tech & Ind Distribution
BS, Texas A&M University, 1978

Yagua, Norma Lucia, Visiting Lecturer
Eng Tech & Ind Distribution
PHD, Texas A&M University, 2011

Yang, Xiaomin, Senior Lecturer
Eng Tech & Ind Distribution
PHD, Purdue University, 2002

Zhan, Wei, Professor
Eng Tech & Ind Distribution
PHD, Washington University in St. Louis, 1991

Zoghi, Behbood, Visiting Instructional Professor
Eng Tech & Ind Distribution
PHD, Texas A&M University, 1993

Majors

- Bachelor of Science in Electronic Systems Engineering Technology (p. 654)
- Bachelor of Science in Industrial Distribution (p. 655)
- Bachelor of Science in Manufacturing and Mechanical Engineering Technology (p. 657)
- Bachelor of Science in Multidisciplinary Engineering Technology, Electro Marine Engineering Technology Track (p. 659)
- Bachelor of Science in Multidisciplinary Engineering Technology, Mechatronics Track (p. 661)
- Bachelor of Science in Multidisciplinary Engineering Technology, STEM Education Track (p. 663)

Minors

- Embedded Systems Integration Minor (p. 665)
- Information Technology Service Management Minor (p. 665)
- Technical Sales Minor (p. 666)

Electronic Systems Engineering Technology - BS

The program combines engineering and industrial knowledge and methods to develop, design, and implement new innovative products.

Electronic Systems Engineering Technology (ESET) prepares graduates for careers in electronic product and system development across a diverse range of industries that include the medical, computer, power, automotive, oil and gas, information/communication technologies, and quality of life sectors. While graduates of the program receive a rigorous technical education and take engineering and technology positions within industry, they are also well prepared for positions in technical sales and project management. The ESET curriculum is based on a strong underpinning of engineering math and science courses followed by a core technical sequence. This core includes analog and digital electronics, embedded systems design, software development using C and assembly language, wired/wireless communications, electronics test, statistical tools for engineers, instrumentation and control systems. Throughout their curriculum, students work on multiple open-ended projects to design, implement, test, and evaluate hardware and software systems. One of the most unique aspects of the Electronic Systems Engineering Technology program is that almost every technical course provides a hands-on laboratory experience using facilities equipped with state-of-the-art computer systems, test equipment, and industry-standard computer-aided design and analysis packages. The technical curriculum is augmented with coursework in written and oral communications, product/system development, device/system testing and technical project management. A team-based industry-sponsored capstone design sequence provides a challenging opportunity to apply technical, managerial, and communications skills to solving a real-world problem.

The Electronic Systems Engineering Technology program is accredited by the Engineering Technology Accreditation Commission of ABET, <http://www.abet.org/>.

ESET Program Mission

The Electronic Systems Engineering Technology Program at Texas A&M University prepares graduates for immediate impact and long-term career success by providing a real-world experiential education coupled with personalized undergraduate experiences in electronics product development, test, system integration, and engineering research.

ESET Program Vision

To be a nationally recognized educational leader in innovative electronic product/systems development and applied research solutions.

ESET Program Educational Objectives

Graduates of the electronic systems engineering technology Program:

1. continue to develop technical skills to be productive, innovative, and have successful careers in regional, state, national and global electronic product and system development industries.
2. continue to develop increasing levels of leadership, teamwork, and be able to communicate information to technical and non-technical stakeholders.
3. continue to exhibit a commitment to professional ethics in their careers.

4. continue professional growth through a desire for a lifetime of further opportunities, learning, and flexibility to adapt to a fast-changing environment in engineering industries.

A continuous cycle of assessment and program improvement is used to ensure that these objectives are being met. Through interactions with industry and academic partners, the Electronic Systems Engineering Technology program continues to offer a state-of-the-art curriculum that produces successful graduates.

Program Requirements

The freshman year is identical for degrees in aerospace engineering, architectural engineering, civil engineering, computer engineering, computer science, data engineering, electrical engineering, electronic systems engineering technology, environmental engineering, industrial distribution, industrial engineering, interdisciplinary engineering, manufacturing and mechanical engineering technology, mechanical engineering, multidisciplinary engineering technology, nuclear engineering, ocean engineering, and petroleum engineering. The freshman year is slightly different for chemical engineering, biomedical engineering and materials science and engineering degrees in that students take CHEM 119 or CHEM 107/CHEM 117 and CHEM 120. Students pursuing degrees in biological and agricultural engineering should refer to the specific curriculum for this major. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year

		Semester Credit Hours
Fall		
CHEM 107	General Chemistry for Engineering Students ^{1,4}	3
CHEM 117	General Chemistry for Engineering Students Laboratory ^{1,4}	1
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	3
ENGR 102	Engineering Lab I - Computation ¹	2
MATH 151	Engineering Mathematics I ^{1,2}	4
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16
Spring		
ENGR 216/PHYS 216	Experimental Physics and Engineering Lab II - Mechanics ¹	2
MATH 152	Engineering Mathematics II ¹	4
PHYS 206	Newtonian Mechanics for Engineering and Science ¹	3
University Core Curriculum (p. 26) ³		3
Select one of the following:		3-4
CHEM 120	Fundamentals of Chemistry II ^{1,4}	
University Core Curriculum (p. 26) ^{3,5}		
Semester Credit Hours		15-16
Total Semester Credit Hours		31-32

¹ A grade of C or better is required.

² Entering students will be given a math placement exam. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.

³ Of the 21 hours shown as University Core Curriculum electives, 3 must be from creative arts (see AREN curriculum for more information), 3 from social and behavioral sciences (see DAEN and IDIS curriculum for more information), 3 from language, philosophy and culture (see CVEN, EVEN and PETE curriculum for more information), 6 from American history and 6 from government/political science. The required 3 hours of international and cultural diversity and 3 hours of cultural discourse may be met by courses satisfying the creative arts, social and behavioral sciences, language, philosophy and culture, and American history requirements if they are also on the approved list of international and cultural diversity (p. 49) courses and cultural discourse (p. 48) courses.

⁴ BMEN, CHEN and MSEN require 8 hours of fundamentals of chemistry which are satisfied with CHEM 119 or CHEM 107/CHEM 117 and CHEM 120; Students with an interest in BMEN, CHEN and MSEN can take CHEM 120 second semester freshman year. CHEM 120 will substitute for CHEM 107/CHEM 117.

⁵ For BS-PETE, allocate 3 hours to core communications course (ENGL 210, COMM 203, COMM 205, or COMM 243) and/or 3 hours to UCC elective. For BS-MEEN, allocate 3 hours to core communications course (ENGL 203, ENGL 210, COMM 203 or COMM 205) and/or 3 hours to UCC elective.

Second Year

Fall		Semester Credit Hours
ENGR 217/PHYS 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism ¹	2
ESET 210	Circuit Analysis ¹	4
ESET 219	Digital Electronics ¹	4
ESET 269	Embedded Systems Development in C ¹	3
PHYS 207	Electricity and Magnetism for Engineering and Science ¹	3
Semester Credit Hours		16
Spring		
ESET 211	Power Systems and Circuit Applications ¹	3
ESET 315	Local-and-Metropolitan-Area Networks ¹	4
ESET 329	Six Sigma and Applied Statistics ¹	3
ESET 349	Microcontroller Architecture ¹	4
Mathematics (p. 1135) ^{1,6}		3
Semester Credit Hours		17

Third Year

Fall		
ESET 319	Engineering Leadership ¹	3
ESET 333	Product Development ¹	3
ESET 350	Analog Electronics ¹	4
ESET 355	Electromagnetics and High Frequency Systems ¹	4
ESET 369	Embedded Systems Software ¹	4
Semester Credit Hours		18
Spring		
ENTC 399	High Impact Experience ⁷	0

ESET 352	Electronics Testing I ¹	4
ESET 359	Electronic Instrumentation ¹	4
ESET 415	Advanced Network Systems and Security ¹	3
ESET 455	Wireless Transmission Systems ¹	4
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		18

Fourth Year

Fall		
ESET 419	Engineering Technology Capstone I ¹	3
ESET 462	Control Systems ¹	4
Technical elective ^{1,6}		3
Select one of the following:		3
ENGL 210	Technical and Professional Writing	
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
Semester Credit Hours		13

Spring		
ESET 420	Engineering Technology Capstone II ¹	2
Technical elective ^{1,6}		3
University Core Curriculum (p. 26) ³		3
University Core Curriculum (p. 26) ³		3
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		14
Total Semester Credit Hours		96

⁶ See departmental advisor for a list of approved electives. ENTC 485 is not for general use as a technical elective.

⁷ All students are required to complete a high-impact experience in order to graduate. The list of possible high-impact experiences is available in the ETID advising office.

This curriculum lists the minimum number of classes required for graduation. Additional courses may be taken.

Total Program Hours 127

Industrial Distribution - BS

The Bachelor of Science in Industrial Distribution prepares graduates for technical sales, sales management, business development, procurement, supply chain management, operations management and other managerial positions.

Students are prepared for employment in industry segments that include: aerospace; automation solutions; building materials; chemical and petrochemical; electrical; electronics; information systems and technology; healthcare; fluid power; general line; heating, ventilation and air conditioning; management consulting; mechanical power; metals; oil and gas; plastics; pipe, valve, and fitting; plumbing; safety equipment; semiconductor; specialty tools; and welding. The day-to-day challenges faced by the industrial distributor or the manufacturer's representative require the person to be a professional with many capabilities. To fulfill this demand, the curriculum provides studies in distribution, business, communications, finance/profitability, information technology, applied technology, analytics management, engineering, ethics, and project management. Graduates receive a Bachelor of Science degree in Industrial Distribution.

The Industrial Distribution program is accredited by the Engineering Technology Accreditation Commission of ABET, <http://www.abet.org/>.

For more information about the IDIS program, please see the program requirements.

IDIS Program Mission

The mission of the Industrial Distribution Program at Texas A&M University is to:

- Prepare graduates for sales engineering, sales management, supply chain operations and logistics management mid-management positions with wholesale distributors, who purchase, warehouse, sell, distribute and service a wide variety of products, and with manufacturers who sell through distributors.
- Conduct applied research and develop new best practices in industrial distribution, logistics, and supply chain management that mutually benefits the university and its industrial, governmental, and academic collaborators.
- Provide service and leadership in the promotion and advancement of the department, the university and the industrial distribution profession.
- Maintain a nationally recognized program through excellence in hands-on education, applied research, and service.

IDIS Program Vision

The mission of the Industrial Distribution Program at Texas A&M University is:

- To be a nationally recognized leader in Industrial Distribution education and applied research, including technical sales and distribution operations and supply chain management.

IDIS Program Educational Objectives

Graduates of the industrial distribution program are:

1. Successful in designing, integrating, and implementing technical sales, operations, and customer services management systems in industrial distribution and supply chain management-related industries.
2. Exemplifying ethical standards in their professional careers.
3. Providing leadership in their respective organizations during their careers.
4. Actively engaged in lifelong learning and sustainable productivity in a dynamic work environment.

Program Requirements

The freshman year is identical for degrees in aerospace engineering, architectural engineering, civil engineering, computer engineering, computer science, data engineering, electrical engineering, electronic systems engineering technology, environmental engineering, industrial distribution, industrial engineering, interdisciplinary engineering, manufacturing and mechanical engineering technology, mechanical engineering, multidisciplinary engineering technology, nuclear engineering, ocean engineering, and petroleum engineering. The freshman year is slightly different for chemical engineering, biomedical engineering and materials science and engineering degrees in that students take CHEM 119 or CHEM 107/CHEM 117 and CHEM 120. Students pursuing degrees in biological and agricultural engineering should refer to the specific curriculum for this major. It is recognized that

many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year

Fall		Semester Credit Hours
CHEM 107	General Chemistry for Engineering Students ^{1,4}	3
CHEM 117	General Chemistry for Engineering Students Laboratory ^{1,4}	1
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	3
ENGR 102	Engineering Lab I - Computation ¹	2
MATH 151	Engineering Mathematics I ^{1,2}	4
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16
Spring		
ENGR 216/PHYS 216	Experimental Physics and Engineering Lab II - Mechanics ¹	2
MATH 152	Engineering Mathematics II ¹	4
PHYS 206	Newtonian Mechanics for Engineering and Science ¹	3
University Core Curriculum (p. 26) ³		3
Select one of the following:		3-4
CHEM 120	Fundamentals of Chemistry II ^{1,4}	
University Core Curriculum (p. 26) ^{3,5}		
Semester Credit Hours		15-16
Total Semester Credit Hours		31-32

¹ A grade of C or better is required.

² Entering students will be given a math placement exam. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.

³ Of the 21 hours shown as University Core Curriculum electives, 3 must be from creative arts (see AREN curriculum for more information), 3 from social and behavioral sciences (see DAEN and IDIS curriculum for more information), 3 from language, philosophy and culture (see CVEN, EVEN and PETE curriculum for more information), 6 from American history and 6 from government/political science. The required 3 hours of international and cultural diversity and 3 hours of cultural discourse may be met by courses satisfying the creative arts, social and behavioral sciences, language, philosophy and culture, and American history requirements if they are also on the approved list of international and cultural diversity (p. 49) courses and cultural discourse (p. 48) courses.

⁴ BMEN, CHEN and MSEN require 8 hours of fundamentals of chemistry which are satisfied with CHEM 119 or CHEM 107/CHEM 117 and CHEM 120; Students with an interest in BMEN, CHEN and MSEN can take CHEM 120 second semester freshman year. CHEM 120 will substitute for CHEM 107/CHEM 117.

⁵ For BS-PETE, allocate 3 hours to core communications course (ENGL 210, COMM 203, COMM 205, or COMM 243) and/or 3 hours to UCC elective. For BS-MEEN, allocate 3 hours to core communications

course (ENGL 203, ENGL 210, COMM 203 or COMM 205) and/or 3 hours to UCC elective.

Second Year

Fall		Semester Credit Hours
ENGR 217/ PHYS 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism ¹	2
IDIS 240	Introduction to Industrial Distribution ¹	3
ISTM 209	Business Information Systems Concepts ¹	3
PHYS 207	Electricity and Magnetism for Engineering and Science ¹	3
Select one of the following: ¹		3
STAT 201	Elementary Statistical Inference	
STAT 211	Principles of Statistics I	
STAT 303	Statistical Methods	
Semester Credit Hours		14

Spring

ACCT 209 or ACCT 229	Survey of Accounting Principles ¹ or Introductory Accounting	3
ECON 202	Principles of Economics ^{1, 6}	3
MGMT 209	Principles of Business Regulations and Law ¹	3
MMET 201	Manufacturing and Materials ¹	4
University Core Curriculum (p. 26) ^{3, 6}		3
Semester Credit Hours		16

Third Year

Fall		Semester Credit Hours
ENGL 210	Technical and Professional Writing ¹	3
IDIS 330	Sales Engineering ¹	4
IDIS 340	Manufacturer Distributor Relations ¹	3
IDIS 343	Distribution Logistics ¹	3
University Core Curriculum (p. 26) ^{3, 6}		3
Semester Credit Hours		16
Spring		Semester Credit Hours
ENTC 399	High Impact Experience ⁷	0
ESET 300	Industrial Electricity ¹	4
IDIS 344	Distributor Information and Control Systems ¹	4
IDIS 364	Distributor Financial Management ¹	3
MMET 301	Mechanical Power Transmission ¹	3
Technical elective ^{1, 8}		3
Semester Credit Hours		17

Fourth Year

Fall		Semester Credit Hours
ESET 400	Industrial Automation ¹	4
IDIS 424	Purchasing Applications in Distribution ¹	3
IDIS 433	Industrial Sales Force Development ¹	3
IDIS 443	Distribution Project and Process Management ¹	3
MMET 401	Fluid Power Transmission ¹	3
Semester Credit Hours		16

Spring

IDIS 434	The Quality Process in Distribution ¹	3
IDIS 444	Distribution Project and Process Management II ¹	3
IDIS 450	Analytics for Distribution Operation ¹	4
University Core Curriculum (p. 26) ^{3, 6}		3
Directed elective ⁸		3
Semester Credit Hours		16
Total Semester Credit Hours		95

⁶ Students in Industrial Distribution satisfy the 3 hour core curriculum social and behavioral sciences (KSOC) by taking ECON 202 as a required course.

⁷ All students are required to complete a high-impact experience in order to graduate. The list of possible high-impact experiences is available in the ETID advising office.

⁸ See a departmental advisor for a list of acceptable directed electives and technical electives.

The curriculum lists the minimum number of classes required for graduation. Additional courses may be taken.

Total Program Hours 126

Manufacturing and Mechanical Engineering Technology - BS

This program prepares students for multiple industries, equipping them with skills in design, automation, and manufacturing, and a deep understanding of material and process dependencies.

Manufacturing and Mechanical Engineering Technology (MMET) prepares students for dynamic careers in a wide range of industries including and not limited to oil/gas, aerospace, transportation, technical service, and food/beverage. These careers involve design, manufacturing, automation, maintenance, technology development /integration, and technical field service. Graduates are versatile and effective in diverse areas that require understanding of dependencies among material properties, product design, costs, manufacturing systems, and process technologies.

The Manufacturing and Mechanical Engineering Technology program is accredited by the Engineering Technology Accreditation Commission of ABET, <http://www.abet.org/>.

For more information about the MMET program, please see the program requirements.

MMET Program Mission

To actively recruit, train, and support qualified future professionals for industrial practice, applied research, and to develop innovative interdisciplinary technologies that create mutual benefits for the university, industry, government, and academic partners.

MMET Program Vision

To lead the advancement of manufacturing and mechanical engineering technology education and applied research for industry and academia.

MMET Program Educational Objectives

Graduates of the manufacturing and mechanical engineering technology program:

1. Apply manufacturing and mechanical technical knowledge, problem solving skills, and implementation skills for careers in design, installation, operations, technical sales, or service functions in industry.
2. Provide increasing level of leadership and responsibility.
3. Continue engaging in sustainable productivity in a dynamic work environment.

Program Requirements

The freshman year is identical for degrees in aerospace engineering, architectural engineering, civil engineering, computer engineering, computer science, data engineering, electrical engineering, electronic systems engineering technology, environmental engineering, industrial distribution, industrial engineering, interdisciplinary engineering, manufacturing and mechanical engineering technology, mechanical engineering, multidisciplinary engineering technology, nuclear engineering, ocean engineering, and petroleum engineering. The freshman year is slightly different for chemical engineering, biomedical engineering and materials science and engineering degrees in that students take CHEM 119 or CHEM 107/CHEM 117 and CHEM 120. Students pursuing degrees in biological and agricultural engineering should refer to the specific curriculum for this major. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year

Fall		Semester Credit Hours
CHEM 107	General Chemistry for Engineering Students ^{1,4}	3
CHEM 117	General Chemistry for Engineering Students Laboratory ^{1,4}	1
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	3
ENGR 102	Engineering Lab I - Computation ¹	2
MATH 151	Engineering Mathematics I ^{1,2}	4
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16
Spring		
ENGR 216/ PHYS 216	Experimental Physics and Engineering Lab II - Mechanics ¹	2
MATH 152	Engineering Mathematics II ¹	4
PHYS 206	Newtonian Mechanics for Engineering and Science ¹	3
University Core Curriculum (p. 26) ³		3
Select one of the following:		3-4
CHEM 120	Fundamentals of Chemistry II ^{1,4}	

University Core Curriculum (p. 26) ^{3,5}	
Semester Credit Hours	15-16
Total Semester Credit Hours	31-32

¹ A grade of C or better is required.

² Entering students will be given a math placement exam. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.

³ Of the 21 hours shown as University Core Curriculum electives, 3 must be from creative arts (see AREN curriculum for more information), 3 from social and behavioral sciences (see DAEN and IDIS curriculum for more information), 3 from language, philosophy and culture (see CVEN, EVEN and PETE curriculum for more information), 6 from American history and 6 from government/political science. The required 3 hours of international and cultural diversity and 3 hours of cultural discourse may be met by courses satisfying the creative arts, social and behavioral sciences, language, philosophy and culture, and American history requirements if they are also on the approved list of international and cultural diversity (p. 49) courses and cultural discourse (p. 48) courses.

⁴ BMEN, CHEN and MSEN require 8 hours of fundamentals of chemistry which are satisfied with CHEM 119 or CHEM 107/CHEM 117 and CHEM 120; Students with an interest in BMEN, CHEN and MSEN can take CHEM 120 second semester freshman year. CHEM 120 will substitute for CHEM 107/CHEM 117.

⁵ For BS-PETE, allocate 3 hours to core communications course (ENGL 210, COMM 203, COMM 205, or COMM 243) and/or 3 hours to UCC elective. For BS-MEEN, allocate 3 hours to core communications course (ENGL 203, ENGL 210, COMM 203 or COMM 205) and/or 3 hours to UCC elective.

Second Year

Fall		Semester Credit Hours
ENGR 217/ PHYS 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism ¹	2
MMET 105	Engineering Graphics ¹	2
MMET 181	Manufacturing and Assembly Processes I ¹	3
MMET 206	Nonmetallic Materials ¹	3
PHYS 207	Electricity and Magnetism for Engineering and Science ¹	3
STAT 211	Principles of Statistics I ¹	3
Semester Credit Hours		16
Spring		
ISEN 302	Economic Analysis of Engineering Projects ¹	2
MMET 207	Metallic Materials ¹	3
MMET 275	Mechanics for Technologists ¹	3
MMET 281	Manufacturing and Assembly Processes II ¹	3
Select one of the following:		3
ENGL 210	Technical and Professional Writing	
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		17

Third Year**Fall**

ESET 300	Industrial Electricity	4
MMET 303	Fluid Mechanics and Power ¹	4
MMET 376	Strength of Materials ¹	4
MMET 380	Computer-Aided Manufacturing ¹	3
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		18

Spring

MMET 320	Quality Assurance ¹	3
MMET 361	Product Design and Solid Modeling ¹	3
MMET 363	Mechanical Design Applications I ¹	3
MMET 383	Manufacturing Information Systems ¹	4
Technical elective ^{1,6}		3
High Impact Experience ⁷		0
ENTC 399	High Impact Experience	
Semester Credit Hours		16

Fourth Year**Fall**

MMET 370	Thermodynamics for Technologists ¹	4
MMET 402	Inspection Methods and Procedures ¹	3
MMET 410	Manufacturing Automation and Robotics ¹	3
MMET 429	Managing People and Projects in a Technological Society ¹	3
MMET 463	Mechanical Design Applications II ¹	3
Semester Credit Hours		16

Spring

MMET 412	Production and Inventory Planning ¹	3
MMET 422	Manufacturing Technology Projects ¹	2
University Core Curriculum (p. 26) ³		6
Technical elective ^{1,6}		3
Semester Credit Hours		14
Total Semester Credit Hours		97

⁶ See departmental advisor for a list of approved technical electives. Students interested in Co-op may use ENGR 385 for up to 3 semester credit hours. ENTC 485 is not for general use as a technical elective.

⁷ All students are required to complete a high-impact experience in order to graduate. The list of possible high-impact experiences is available in the ETID advising office.

The curriculum lists the minimum number of classes required for graduation. Additional courses may be taken.

Total Program Hours 128

Multidisciplinary Engineering Technology - BS, Electro Marine Engineering Technology Track

Multidisciplinary Engineering Technology (MXET) prepares students for careers requiring an understanding of technical problems and systems

that combine principles from two or more engineering technology disciplines.

This degree is designed to be flexible, giving the student a strong background in electronic and mechanical systems, which is then augmented with a 29-hour focus area. Graduates of the program receive a rigorous technical education and typically take engineering and technology positions appropriate to their focus area of study. The MXET curriculum is based on a strong underpinning of engineering math and science courses followed by a core technical sequence. This core includes mechanical, electronic and embedded systems/software fundamentals, principles and design concepts. Throughout their curriculum, students work on multiple open-ended projects to design, implement, test, and evaluate mechanical and electronic hardware and software systems. One of the most unique aspects of the Multidisciplinary Engineering Technology program is that most technical courses provide a hands-on laboratory experience using state-of-the-art equipment and industry-standard design and analysis software. The technical curriculum is augmented with courses in written/oral communications and technical project management. A team-based industry-sponsored capstone design sequence provides a challenging opportunity to apply technical, managerial, and communications skills to solve a real-world problem.

The Multidisciplinary Engineering Technology program is accredited by the Engineering Technology Accreditation Commission of ABET, <http://www.abet.org/>.

For more information about the MXET program, please see the program requirements.

MXET Program Mission

The Multidisciplinary Engineering Technology Program at Texas A&M University prepares graduates for immediate impact and long-term career success by providing a real-world experiential education coupled with personalized undergraduate experiences in mechanical, electronic, control, computer, communication systems, and robotics.

MXET Program Vision

Provide a high-quality undergraduate education with a multidisciplinary curriculum that evolves to keep pace with the rapid growth of engineering and technology in various areas of multidisciplinary engineering technology.

MXET Program Educational Objectives

Graduates of the multidisciplinary engineering technology program:

1. Are engaged in building and using technical knowledge of the design, manufacture, supply chain, and service of complex systems that span multiple engineering technology disciplines.
2. Continue providing leadership in their respective organizations.
3. Are engaged productively in a dynamic work environment through a commitment to lifelong learning.
4. Practice high standards of professional ethics in their careers.

A continuous cycle of assessment and program improvement is used to ensure that these objectives are being met. Through interactions with industry and academic partners, the Multidisciplinary Engineering Technology program offers a state-of-the-art curriculum that produces successful graduates.

MXET Tracks

The MXET program has a common core of courses and 29 additional credit hours that allow students to gain further experience with the focus area of choice. Currently, there are three focus areas, each representing a track of the MXET program. These tracks are mechatronics, STEM education, and electro-marine engineering technology.

Electro Marine Engineering Technology Track

The Electro Marine Engineering Technology track has an emphasis in marine mechatronics, a multidisciplinary field that includes a combination of electrical, mechanical, communications, control, and marine engineering technology topics. Students interested in wireless communications, automation, instrumentation and/or robotics will gain hands-on experience with a focus on marine electronic systems. Additionally, students graduating with this degree and obtaining a license will be well prepared to become an electronic technology officer (ETO). In the near future, at least one ETO will be required on each sailing vessel.

This program is approved to be offered at the Texas A&M University at Galveston campus.

Program Requirements

The freshman year is identical for degrees in aerospace engineering, architectural engineering, civil engineering, computer engineering, computer science, data engineering, electrical engineering, electronic systems engineering technology, environmental engineering, industrial distribution, industrial engineering, interdisciplinary engineering, manufacturing and mechanical engineering technology, mechanical engineering, multidisciplinary engineering technology, nuclear engineering, ocean engineering, and petroleum engineering. The freshman year is slightly different for chemical engineering, biomedical engineering and materials science and engineering degrees in that students take CHEM 119 or CHEM 107/CHEM 117 and CHEM 120. Students pursuing degrees in biological and agricultural engineering should refer to the specific curriculum for this major. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year

Fall		Semester Credit Hours
CHEM 107	General Chemistry for Engineering Students ^{1,4}	3
CHEM 117	General Chemistry for Engineering Students Laboratory ^{1,4}	1
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	3
ENGR 102	Engineering Lab I - Computation ¹	2
MATH 151	Engineering Mathematics I ^{1,2}	4
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16
Spring		
ENGR 216/ PHYS 216	Experimental Physics and Engineering Lab II - Mechanics ¹	2
MATH 152	Engineering Mathematics II ¹	4

PHYS 206	Newtonian Mechanics for Engineering and Science ¹	3
University Core Curriculum (p. 26) ³		3
Select one of the following:		3-4
CHEM 120	Fundamentals of Chemistry II ^{1,4}	
University Core Curriculum (p. 26) ^{3,5}		
Semester Credit Hours		15-16
Total Semester Credit Hours		31-32

¹ A grade of C or better is required.

² Entering students will be given a math placement exam. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.

³ Of the 21 hours shown as University Core Curriculum electives, 3 must be from creative arts (see AREN curriculum for more information), 3 from social and behavioral sciences (see DAEN and IDIS curriculum for more information), 3 from language, philosophy and culture (see CVEN, EVEN and PETE curriculum for more information), 6 from American history and 6 from government/political science. The required 3 hours of international and cultural diversity and 3 hours of cultural discourse may be met by courses satisfying the creative arts, social and behavioral sciences, language, philosophy and culture, and American history requirements if they are also on the approved list of international and cultural diversity (p. 49) courses and cultural discourse (p. 48) courses.

⁴ BMEN, CHEN and MSEN require 8 hours of fundamentals of chemistry which are satisfied with CHEM 119 or CHEM 107/CHEM 117 and CHEM 120; Students with an interest in BMEN, CHEN and MSEN can take CHEM 120 second semester freshman year. CHEM 120 will substitute for CHEM 107/CHEM 117.

⁵ For BS-PETE, allocate 3 hours to core communications course (ENGL 210, COMM 203, COMM 205, or COMM 243) and/or 3 hours to UCC elective. For BS-MEEN, allocate 3 hours to core communications course (ENGL 203, ENGL 210, COMM 203 or COMM 205) and/or 3 hours to UCC elective.

Second Year

Fall		Semester Credit Hours
ENGR 217/ PHYS 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism ¹	2
ESET 210	Circuit Analysis ¹	4
ESET 219	Digital Electronics ¹	4
PHYS 207	Electricity and Magnetism for Engineering and Science ¹	3
Math elective ^{1,6}		3
Semester Credit Hours		16
Spring		
ESET 269	Embedded Systems Development in C ¹	3
ESET 350	Analog Electronics ¹	4
MMET 207	Metallic Materials ¹	3
MMET 275	Mechanics for Technologists ¹	3
MMET 370 or MARE 315	Thermodynamics for Technologists ¹ or Thermodynamics for Technologists	4
Semester Credit Hours		17

Third Year**Fall**

ESET 211	Power Systems and Circuit Applications ^{1,7}	3
ESET 349	Microcontroller Architecture ^{1,7}	4
MMET 376	Strength of Materials ¹	4
MXET 375	Applied Dynamic Systems ¹	3
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
ENGL 210	Technical and Professional Writing	
Semester Credit Hours		17

Spring

ESET 315	Local-and-Metropolitan-Area Networks ^{1,7}	4
ESET 359	Electronic Instrumentation ¹	4
ESET 369	Embedded Systems Software ^{1,7}	4
MMET 363	Mechanical Design Applications I ¹	3
High Impact Experience ⁸		0
ENTC 399	High Impact Experience	
Semester Credit Hours		15

Fourth Year**Fall**

ESET 355	Electromagnetics and High Frequency Systems ^{1,7}	4
ESET 419	Engineering Technology Capstone I ¹	3
MXET 300	Mechatronics I – Mobile Robotic Systems ^{1,7}	3
University Core Curriculum (p. 26) ³		6
Semester Credit Hours		16

Spring

ESET 420	Engineering Technology Capstone II ¹	2
ESET 455	Wireless Transmission Systems ^{1,7}	4
MARE 402	Shipboard Automation and Control ^{1,7}	3
University Core Curriculum (p. 26) ³		6
Semester Credit Hours		15
Total Semester Credit Hours		96

⁶ See a departmental advisor for a list of approved electives.

⁷ Meets the 29 hr Electro Marine Engineering Technology focus area requirements.

⁸ All students are required to complete a high-impact experience in order to graduate. The list of possible high-impact experiences is available from a departmental advisor.

This curriculum lists the minimum number of classes required for graduation. Additional courses may be taken.

Total Program Hours 127**Multidisciplinary Engineering Technology - BS, Mechatronics Track**

Multidisciplinary Engineering Technology (MXET) prepares students for careers requiring an understanding of technical problems and systems

that combine principles from two or more engineering technology disciplines.

This degree is designed to be flexible, giving the student a strong background in electronic and mechanical systems, which is then augmented with a focus area. Graduates of the program receive a rigorous technical education and typically take engineering and technology positions appropriate to their focus area of study. The MXET curriculum is based on a strong underpinning of engineering math and science courses followed by a core technical sequence. This core includes mechanical, electronic and embedded systems/software fundamentals, principles and design concepts. Throughout their curriculum, students work on multiple open-ended projects to design, implement, test, and evaluate mechanical and electronic hardware and software systems. One of the most unique aspects of the Multidisciplinary Engineering Technology program is that most technical courses provide a hands-on laboratory experience using state-of-the-art equipment and industry-standard design and analysis software. The technical curriculum is augmented with courses in written/oral communications and technical project management. A team-based industry-sponsored capstone design sequence provides a challenging opportunity to apply technical, managerial, and communications skills to solve a real-world problem.

The Multidisciplinary Engineering Technology program is accredited by the Engineering Technology Accreditation Commission of ABET, <http://www.abet.org/>.

For more information about the MXET program, please see the program requirements.

MXET Program Mission

The Multidisciplinary Engineering Technology Program at Texas A&M University prepares graduates for immediate impact and long-term career success by providing a real-world experiential education coupled with personalized undergraduate experiences in mechanical, electronic, control, computer, communication systems, and robotics.

MXET Program Vision

Provide a high-quality undergraduate education with a multidisciplinary curriculum that evolves to keep pace with the rapid growth of engineering and technology in various areas of multidisciplinary engineering technology.

MXET Program Educational Objectives

Graduates of the multidisciplinary engineering technology program:

1. Are engaged in building and using technical knowledge of the design, manufacture, supply chain, and service of complex systems that span multiple engineering technology disciplines.
2. Continue providing leadership in their respective organizations.
3. Are engaged productively in a dynamic work environment through a commitment to lifelong learning.
4. Practice high standards of professional ethics in their careers.

A continuous cycle of assessment and program improvement is used to ensure that these objectives are being met. Through interactions with industry and academic partners, the Multidisciplinary Engineering Technology program offers a state-of-the-art curriculum that produces successful graduates.

MXET Tracks

The MXET program has a common core of courses and 29 additional credit hours that allow students to gain further experience with the focus area of choice. Currently, there are three focus areas, each represents a track of the MXET program. These tracks are mechatronics, STEM education, and electro marine engineering technology.

Mechatronics Track

The Mechatronics track prepares students to design, develop and support products and systems that combine mechanical, electronic, robotics, automation, communication, control, and embedded computing principles.

This program is approved to be offered at the Texas A&M Higher Education Center in McAllen, Texas.

Program Requirements

The freshman year is identical for degrees in aerospace engineering, architectural engineering, civil engineering, computer engineering, computer science, data engineering, electrical engineering, electronic systems engineering technology, environmental engineering, industrial distribution, industrial engineering, interdisciplinary engineering, manufacturing and mechanical engineering technology, mechanical engineering, multidisciplinary engineering technology, nuclear engineering, ocean engineering, and petroleum engineering. The freshman year is slightly different for chemical engineering, biomedical engineering and materials science and engineering degrees in that students take CHEM 119 or CHEM 107/CHEM 117 and CHEM 120. Students pursuing degrees in biological and agricultural engineering should refer to the specific curriculum for this major. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year

Fall		Semester Credit Hours
CHEM 107	General Chemistry for Engineering Students ^{1,4}	3
CHEM 117	General Chemistry for Engineering Students Laboratory ^{1,4}	1
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	3
ENGR 102	Engineering Lab I - Computation ¹	2
MATH 151	Engineering Mathematics I ^{1,2}	4
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16
Spring		
ENGR 216/PHYS 216	Experimental Physics and Engineering Lab II - Mechanics ¹	2
MATH 152	Engineering Mathematics II ¹	4
PHYS 206	Newtonian Mechanics for Engineering and Science ¹	3
University Core Curriculum (p. 26) ³		3
Select one of the following:		3-4
CHEM 120	Fundamentals of Chemistry II ^{1,4}	

University Core Curriculum (p. 26) ^{3,5}

Semester Credit Hours	15-16
Total Semester Credit Hours	31-32

- ¹ A grade of C or better is required.
- ² Entering students will be given a math placement exam. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.
- ³ Of the 21 hours shown as University Core Curriculum electives, 3 must be from creative arts (see AREN curriculum for more information), 3 from social and behavioral sciences (see DAEN and IDIS curriculum for more information), 3 from language, philosophy and culture (see CVEN, EVEN and PETE curriculum for more information), 6 from American history and 6 from government/political science. The required 3 hours of international and cultural diversity and 3 hours of cultural discourse may be met by courses satisfying the creative arts, social and behavioral sciences, language, philosophy and culture, and American history requirements if they are also on the approved list of international and cultural diversity (p. 49) courses and cultural discourse (p. 48) courses.
- ⁴ BMEN, CHEN and MSEN require 8 hours of fundamentals of chemistry which are satisfied with CHEM 119 or CHEM 107/CHEM 117 and CHEM 120; Students with an interest in BMEN, CHEN and MSEN can take CHEM 120 second semester freshman year. CHEM 120 will substitute for CHEM 107/CHEM 117.
- ⁵ For BS-PETE, allocate 3 hours to core communications course (ENGL 210, COMM 203, COMM 205, or COMM 243) and/or 3 hours to UCC elective. For BS-MEEN, allocate 3 hours to core communications course (ENGL 203, ENGL 210, COMM 203 or COMM 205) and/or 3 hours to UCC elective.

Second Year

Fall		Semester Credit Hours
ENGR 217/PHYS 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism ¹	2
ESET 210	Circuit Analysis ¹	4
ESET 219	Digital Electronics ¹	4
MMET 207	Metallic Materials ¹	3
PHYS 207	Electricity and Magnetism for Engineering and Science ¹	3
Semester Credit Hours		16
Spring		
ESET 269	Embedded Systems Development in C ¹	3
ESET 350	Analog Electronics ¹	4
MMET 275	Mechanics for Technologists ¹	3
University Core Curriculum (p. 26) ³		3
Math elective ^{1,6}		3
Semester Credit Hours		16
Third Year		
Fall		
ESET 349	Microcontroller Architecture ^{1,7}	4
MMET 303	Fluid Mechanics and Power ^{1,7}	4
MMET 361	Product Design and Solid Modeling ^{1,7}	3
MMET 376	Strength of Materials	4

MXET 375	Applied Dynamic Systems ¹	3
Semester Credit Hours		18
Spring		
ENTC 399	High Impact Experience ⁸	0
ESET 359	Electronic Instrumentation ¹	4
ESET 369	Embedded Systems Software ^{1,7}	4
MMET 363	Mechanical Design Applications I ¹	3
MMET 370	Thermodynamics for Technologists ¹	4
MXET 300	Mechatronics I – Mobile Robotic Systems ^{1,7}	3
Semester Credit Hours		18
Fourth Year		
Fall		
ESET 419 or MMET 429	Engineering Technology Capstone I ¹ or Managing People and Projects in a Technological Society	3
ESET 462	Control Systems ^{1,7}	4
MXET 400	Mechatronics II – Industrial Robotic Systems ^{1,7}	3
Technical elective ^{1,6}		2
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		15
Spring		
ESET 420 or MMET 422	Engineering Technology Capstone II ¹ or Manufacturing Technology Projects	2
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
ENGL 210	Technical and Professional Writing	
Technical elective ^{1,6}		2
University Core Curriculum (p. 26) ³		3
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		13
Total Semester Credit Hours		96

⁶ See a departmental advisor for a list of approved electives.

⁷ Meets the 29 hour Mechatronics focus area requirements.

⁸ All students are required to complete a high-impact experience in order to graduate. The list of possible high-impact experiences is available in the ETID advising office.

This curriculum lists the minimum number of classes required for graduation. Additional courses may be taken.

Total Program Hours 127

Multidisciplinary Engineering Technology - BS, STEM Education Track

Multidisciplinary Engineering Technology (MXET) prepares students for careers requiring an understanding of technical problems and systems that combine principles from two or more engineering technology disciplines.

This degree is designed to be flexible, giving the student a strong background in electronic and mechanical systems, which is then augmented with a focus area. Graduates of the program receive a rigorous technical education and typically take engineering and technology positions appropriate to their focus area of study. The MXET curriculum is based on a strong underpinning of engineering math and science courses followed by a core technical sequence. This core includes mechanical, electronic and embedded systems/software fundamentals, principles and design concepts. Throughout their curriculum, students work on multiple open-ended projects to design, implement, test, and evaluate mechanical and electronic hardware and software systems. One of the most unique aspects of the Multidisciplinary Engineering Technology program is that most technical courses provide a hands-on laboratory experience using state-of-the-art equipment and industry-standard design and analysis software. The technical curriculum is augmented with courses in written/oral communications and technical project management. A team-based industry-sponsored capstone design sequence provides a challenging opportunity to apply technical, managerial, and communications skills to solve a real-world problem.

The Multidisciplinary Engineering Technology program is accredited by the Engineering Technology Accreditation Commission of ABET, <http://www.abet.org/>.

For more information about the MXET program, please see the program requirements.

MXET Program Mission

The Multidisciplinary Engineering Technology Program at Texas A&M University prepares graduates for immediate impact and long-term career success by providing a real-world experiential education coupled with personalized undergraduate experiences in mechanical, electronic, control, computer, communication systems, and robotics.

MXET Program Vision

Provide a high-quality undergraduate education with a multidisciplinary curriculum that evolves to keep pace with the rapid growth of engineering and technology in various areas of multidisciplinary engineering technology.

MXET Program Educational Objectives

Graduates of the multidisciplinary engineering technology program:

1. Are engaged in building and using technical knowledge of the design, manufacture, supply chain, and service of complex systems that span multiple engineering technology disciplines.
2. Continue providing leadership in their respective organizations.
3. Are engaged productively in a dynamic work environment through a commitment to lifelong learning.
4. Practice high standards of professional ethics in their careers.

A continuous cycle of assessment and program improvement is used to ensure that these objectives are being met. Through interactions with industry and academic partners, the Multidisciplinary Engineering Technology program offers a state-of-the-art curriculum that produces successful graduates.

MXET Tracks

The MXET program has a common core of courses and 29 additional credit hours that allow students to gain further experience with the focus area of choice. Currently, there are three focus areas, each represents a track of the MXET program. These tracks are mechatronics, STEM education, and electro marine engineering technology.

STEM Education Track

The STEM education track has been established through a partnership with the College of Education and Human Development and includes twenty-nine credit hours of coursework in education. These courses, including a semester-long practicum, specifically prepare graduates to teach at the secondary education level. Graduates from this program will be qualified to take the State of Texas math, physical science, and engineering teaching certification exam.

Program Requirements

The freshman year is identical for degrees in aerospace engineering, architectural engineering, civil engineering, computer engineering, computer science, data engineering, electrical engineering, electronic systems engineering technology, environmental engineering, industrial distribution, industrial engineering, interdisciplinary engineering, manufacturing and mechanical engineering technology, mechanical engineering, multidisciplinary engineering technology, nuclear engineering, ocean engineering, and petroleum engineering. The freshman year is slightly different for chemical engineering, biomedical engineering and materials science and engineering degrees in that students take CHEM 119 or CHEM 107/CHEM 117 and CHEM 120. Students pursuing degrees in biological and agricultural engineering should refer to the specific curriculum for this major. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year

Fall		Semester Credit Hours
CHEM 107	General Chemistry for Engineering Students ^{1,4}	3
CHEM 117	General Chemistry for Engineering Students Laboratory ^{1,4}	1
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	3
ENGR 102	Engineering Lab I - Computation ¹	2
MATH 151	Engineering Mathematics I ^{1,2}	4
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16
Spring		
ENGR 216/PHYS 216	Experimental Physics and Engineering Lab II - Mechanics ¹	2
MATH 152	Engineering Mathematics II ¹	4
PHYS 206	Newtonian Mechanics for Engineering and Science ¹	3
University Core Curriculum (p. 26) ³		3
Select one of the following:		3-4

CHEM 120	Fundamentals of Chemistry II ^{1,4}	
University Core Curriculum (p. 26) ^{3,5}		
Semester Credit Hours		15-16
Total Semester Credit Hours		31-32

¹ A grade of C or better is required.

² Entering students will be given a math placement exam. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.

³ Of the 21 hours shown as University Core Curriculum electives, 3 must be from creative arts (see AREN curriculum for more information), 3 from social and behavioral sciences (see DAEN and IDIS curriculum for more information), 3 from language, philosophy and culture (see CVEN, EVEN and PETE curriculum for more information), 6 from American history and 6 from government/political science. The required 3 hours of international and cultural diversity and 3 hours of cultural discourse may be met by courses satisfying the creative arts, social and behavioral sciences, language, philosophy and culture, and American history requirements if they are also on the approved list of international and cultural diversity (p. 49) courses and cultural discourse (p. 48) courses.

⁴ BMEN, CHEN and MSEN require 8 hours of fundamentals of chemistry which are satisfied with CHEM 119 or CHEM 107/CHEM 117 and CHEM 120; Students with an interest in BMEN, CHEN and MSEN can take CHEM 120 second semester freshman year. CHEM 120 will substitute for CHEM 107/CHEM 117.

⁵ For BS-PETE, allocate 3 hours to core communications course (ENGL 210, COMM 203, COMM 205, or COMM 243) and/or 3 hours to UCC elective. For BS-MEEN, allocate 3 hours to core communications course (ENGL 203, ENGL 210, COMM 203 or COMM 205) and/or 3 hours to UCC elective.

Second Year

Fall		Semester Credit Hours
ENGR 217/PHYS 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism ¹	2
ESET 210	Circuit Analysis ¹	4
ESET 219	Digital Electronics ¹	4
MMET 207	Metallic Materials ¹	3
PHYS 207	Electricity and Magnetism for Engineering and Science ¹	3
Semester Credit Hours		16
Spring		
ESET 269	Embedded Systems Development in C ¹	3
ESET 350	Analog Electronics ¹	4
INST 210	Understanding Special Populations ¹	3
MMET 275	Mechanics for Technologists ¹	3
MMET 370	Thermodynamics for Technologists ¹	4
Semester Credit Hours		17
Summer		
Math elective ^{1,7}		3
Semester Credit Hours		3
Third Year		
Fall		
ESET 349	Microcontroller Architecture ^{1,6}	4

MXET 375	Applied Dynamic Systems ¹	3
MMET 376	Strength of Materials ^{1,6}	4
TEFB 322	Teaching and Schooling in Modern Society ^{1,6}	3
Technical elective ^{1,7}		4
Semester Credit Hours		18
Spring		
ENTC 399	High Impact Experience ⁸	0
ESET 359	Electronic Instrumentation ¹	4
ESET 419 or MMET 429	Engineering Technology Capstone I ¹ or Managing People and Projects in a Technological Society	3
MMET 363	Mechanical Design Applications I ¹	3
RDNG 465	Reading in the Middle and Secondary Grades ^{1,6}	3
TEFB 324	Teaching Skills II ^{1,6}	3
Semester Credit Hours		16
Summer		
University Core Curriculum (p. 26) ³		6
Semester Credit Hours		6
Fourth Year		
Fall		
EDCI 358	Instructional Methods in Engineering and Technology Education ^{1,6}	3
ESET 420 or MMET 422	Engineering Technology Capstone II ¹ or Manufacturing Technology Projects	2
TEFB 406 or TEFB 407	Science in the Middle and Secondary School ^{1,6} or Mathematics in the Middle and Senior School	3
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
ENGL 210	Technical and Professional Writing	
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		14
Spring		
MEFB 497	Supervised Clinical Teaching ^{1,6}	6
Semester Credit Hours		6
Total Semester Credit Hours		96

⁶ Meets the 29 hour [STEM Education](#) focus area requirements.

⁷ See a departmental advisor for a list of approved electives.

⁸ All students are required to complete a high-impact experience in order to graduate. The list of possible high-impact experiences is available in the ETID advising office.

This curriculum lists the minimum number of classes required for graduation. Additional courses may be taken.

Total Program Hours 127

Embedded Systems Integration - Minor

The Embedded Systems Integration minor offered by the Department of Engineering Technology and Industrial Distribution teaches students about embedded systems hardware and software development and how these systems are used in modern products.

Our cars, cell phones, health care devices, every-day appliances and physical devices that are connected to form the internet-of-things (IoT) operate based on small "computers" that sense the environment, make decisions, communicate, and control operations; essentially making our devices "smart." These "computers" or embedded processors/microcontrollers are a fundamental component in most modern products and systems and are used across a wide range of industries that include medical, oil/gas, process control, automotive, communications, and quality of life.

The minor is available to not only engineering students, but also students outside the College of Engineering who are interested in studying technology and understanding the devices that power our lives.

Students interested in an Embedded Systems Integration minor should see an advisor in Engineering Technology and Industrial Distribution for more information.

Program Requirements

Code	Title	Semester Credit Hours
ESET 219	Digital Electronics	4
ESET 269	Embedded Systems Development in C	3
ESET 333	Product Development	3
ESET 349	Microcontroller Architecture	4
ESET 369	Embedded Systems Software	4
Total Semester Credit Hours		18

Students must make a grade of "C" or better in all courses.

Information Technology Service Management - Minor

The Information Technology Service Management (ITSM) minor is designed to provide students with a solid understanding of the ITSM framework and its critical role in creating value for organization.

In addition to fundamental IT technical competencies, the ITSM minor focuses on teaching concepts, management techniques, and values that align IT activities with organizational goals. Some topics covered in the ITSM minor include engaging IT stakeholders through the service value network, creating value streams and value-generating processes through IT-enabled products and services, planning and delivering continual improvement with necessary agility for the digital transformation, and integrating development and operational practices to optimize digital value generation. The ITSM minor allows students from a wide variety of backgrounds to expand their expertise to IT service management and enhance their capabilities to contribute to overall organizational success.

Program Requirements

Code	Title	Semester Credit Hours
ITSV 101	Introduction to Information Technology Service Management	1
ITSV 272	Foundations of Information Technology Management	3
ITSV 274	Foundations of Networking	3
ITSV 303	Unix System Administration Practices	4
ITSV 385	Information Technology Management and Service Delivery	3
ITSV 465	DevOps and High Velocity Service Delivery	4
Total Semester Credit Hours		18

Minimum required GPA to declare minor is a 2.5.

Must make a grade of C or better in each course used towards minor.

Must achieve an overall GPA of 2.5 in approved minor coursework.

Technical Sales - Minor

This program equips non-industrial distribution majors with B-2-B industrial sales skills, focusing on solution-based selling and communication, to position them as trusted problem solvers.

The Technical Sales Minor offered by the Department of Engineering Technology and Industrial Distribution is very specific to Business-to-Business (B-2-B) Industrial Sales. The courses in this minor will teach students about an Industrial Solution-based Sales Process and help them understand the strategies and structures of Industrial Sales organizations.

These courses will help engineering and professional students improve their interpersonal communication skills. They will learn to effectively engage others in the conversation to better understand issues to which solutions can be provided in areas of product or systems design, integration, fabrication, etc. Students who complete the Technical Sales Minor will be capable of presenting themselves such that they will be perceived as solution providers rather than someone trying to sell something.

The minor is available to non-industrial distribution majors only. Interested undergraduate students from all the other engineering and engineering technology majors and those from outside the College of Engineering who are interested in pursuing a career in industrial sales or simply want to better understand how industrial sales organizations operate can apply for the minor.

Program Requirements

Code	Title	Semester Credit Hours
IDIS 240	Introduction to Industrial Distribution	3
IDIS 330	Sales Engineering	4
IDIS 340 or IDIS 344	Manufacturer Distributor Relations or Distributor Information and Control Systems	3

IDIS 371	Industrial Distribution Technical Sales Seminar	1
IDIS 433	Industrial Sales Force Development	3
IDIS 471	Industrial Business to Business Marketing	3
Total Semester Credit Hours		17

Must make a grade of C or better in each course used towards the minor.

Wm Michael Barnes '64 Department of Industrial and Systems Engineering

Industrial and systems engineering is an engineering discipline devoted to the design, installation, improvement and control of integrated systems of people, materials, and facilities in a wide range of organizations that produce goods or render services. Like other engineering fields, industrial engineering is concerned with solving problems through the application of specialized knowledge in mathematics and science, as well as the principles of engineering. Two major distinctions of our discipline, among the engineering disciplines, is the unique focus of industrial and systems engineering on human factors and the quantification and systematic removal of uncertainty from production systems. Industrial and systems engineering has five major focus areas: advanced manufacturing, operations research, data sciences and machine learning, health and human systems, and systems engineering.

An important characteristic of industrial and systems engineering is its systems approach to integrate the basic resources of production and service systems and other relevant resources, such as information and energy, in such a way as to create a smooth, efficient and competitive operation within an enterprise. Industrial and systems engineers are needed in virtually all types of enterprises, ranging from industries such as manufacturing, distribution, logistics, transportation, and construction; service sectors such as health care, telecommunications, retail, banking, and engineering consulting to government agencies, military, and non-profit organizations.

The mission of the Wm Michael Barnes '64 Department of Industrial and Systems Engineering is to serve the state, nation, and global community by educating industrial engineering students to be well founded in engineering fundamentals and to have the knowledge and skills required to design, develop, improve, implement and control sophisticated production and service systems in an environment characterized by complex technical and social challenges. Throughout this educational process, students will be instilled with the highest standards of professional and ethical behavior. It is the intent of the undergraduate industrial engineering program to equip its graduates to achieve the following accomplishments a few years after graduation:

1. Graduates are successful in advancing the practice of industrial engineering.
2. Graduates are providing leadership in their respective organizations exemplifying ethical standards and practices.
3. Graduates are actively engaged in lifelong learning through professional development.

The undergraduate program in Industrial Engineering at Texas A&M University is accredited by the Engineering Accreditation Commission of ABET, www.abet.org.

Industrial and systems engineering students may participate in one of two accelerated programs: the Accelerated Bachelor of Science and Master of Public Health or the Accelerated Bachelor of Science and Master of Science in Finance. Students who successfully complete either of these programs graduate with both degrees in just five years. The department also has a combination program for academically qualified students who want to take selected graduate courses in industrial and systems engineering and receive both graduate and undergraduate credit by meeting specific requirements.

Students may also participate in the Undergraduate Minor Program offered by Texas A&M University. This program is usually comprised of 15 to 18 hours, some of which may be substituted as technical electives. The most common minors are math, business and engineering project management. The department encourages students to participate in industrial internships or the Cooperative Education Program to acquire practical experience to complement their industrial engineering education. Internships are generally encouraged during the summer months only. Students who participate in the Co-op program during three academic semesters may count the three credit hours as a technical elective in their curriculum.

Graduate degrees including the Master of Science (MS), Master of Engineering (MEng), and Doctor of Philosophy (PhD) are also offered by the department in addition to the Bachelor of Science in Industrial Engineering and the two accelerated programs. For graduate degree information, please see the Texas A&M University Graduate Catalog.

Before commencing course work in the major, students must be admitted to the major or have the approval of the department.

Faculty

Aprahamian, Hayer, Associate Professor
Industrial & Systems Engineering
PHD, Virginia Tech, 2018

Banerjee, Amarnath, Professor
Industrial & Systems Engineering
PHD, University of Illinois at Chicago, 1999

Bennett, Kem, Senior Professor
Industrial & Systems Engineering
PHD, Texas Tech University, 1970

Bukkapatnam, Satish T, Professor
Industrial & Systems Engineering
PHD, Pennsylvania State University, 1997

Butenko, Sergiy I, Professor
Industrial & Systems Engineering
PHD, University of Florida, 2003

Currie-Gregg, Nancy J, Professor of the Practice
Industrial & Systems Engineering
PHD, University of Houston, 1997

Curry, Guy L, Senior Professor
Industrial & Systems Engineering
PHD, University of Arkansas, 1971

Do, Michael D, Professor of the Practice
Industrial & Systems Engineering
PHD, University of Arizona, 2012

Eckman, David J, Assistant Professor
Industrial & Systems Engineering
PHD, Cornell University, 2019

Eksin, Ceyhun, Associate Professor
Industrial & Systems Engineering
PHD, University of Pennsylvania, 2015

Elizondo, Jon P, Lecturer
Industrial & Systems Engineering
PHD, Texas A&M University, 2021

Elwany, Alaa, Associate Professor
Industrial & Systems Engineering
PHD, Georgia Institute of Technology, 2009

Erraguntla, Madhav, Professor of the Practice
Industrial & Systems Engineering
PHD, Texas A&M University, 1996

Feldman, Rich, Senior Professor
Industrial & Systems Engineering
PHD, Northwestern University, 1975

Ferris, Thomas K, Associate Professor
Industrial & Systems Engineering
PHD, University of Michigan at Ann Arbor, 2010

Garcia, Alfredo A, Professor
Industrial & Systems Engineering
PHD, University of Michigan, 1997

Geunes, Joseph Patrick, Professor
Industrial & Systems Engineering
PHD, Pennsylvania State University, 1999

Gutman, David Huckleberry, Assistant Professor
Industrial & Systems Engineering
PHD, Carnegie Mellon University, 2019

Idan, Lihi, Assistant Professor
Industrial & Systems Engineering
PHD, Yale University, 2022

Jeong, Jihoon, Assistant Professor
Industrial & Systems Engineering
PHD, University of Texas at Austin, 2020

Lawley, Mark A, Professor
Industrial & Systems Engineering
PHD, University of Illinois at Urbana-Champaign, 1995

Lee, Jaesung, Assistant Professor
Industrial & Systems Engineering
PHD, University of Wisconsin - Madison, 2022

Li, Yan, Assistant Professor
Industrial & Systems Engineering
PHD, Georgia Institute of Technology, 2024

Malave, Ceasar, Professor
Industrial & Systems Engineering
PHD, University of South Florida, 1987

Maros, Marie, Assistant Professor
Industrial & Systems Engineering
PHD, KTH Royal Institute of Technology, 2019

Mayer, Richard John, Professor of the Practice
Industrial & Systems Engineering
PHD, Texas A&M University, 1988

Miller, Scott S, Lecturer
Industrial & Systems Engineering
MBA, University of Houston, 1996

Momcilovic, Petar, Associate Professor
Industrial & Systems Engineering
PHD, Columbia University, 2003

Moreno-Centeno, Erick, Associate Professor
Industrial & Systems Engineering
PHD, University of California at Berkeley, 2010

Ntaimo, Lewis, Professor
Industrial & Systems Engineering
PHD, University of Arizona, 2004

Park, Jangho, Assistant Professor
Industrial & Systems Engineering
PHD, Virginia Tech, Blacksburg, 2021

Parsaei, Hamid R, Professor
Industrial & Systems Engineering
PHD, University of Texas Arlington, 1984

Pei, ZJ, Professor
Industrial & Systems Engineering
PHD, University of Illinois, 1995

Rodgers, Annette Milagros, Associate Professor of the Practice
Industrial & Systems Engineering
BS, Texas A&M University, 1982

Sagapuram, Dinakar, Associate Professor
Industrial & Systems Engineering
PHD, Purdue University, 2013

Sasangohar, Farzan, Associate Professor
Industrial & Systems Engineering
PHD, University of Toronto, 2015

Smith, Donald R, Senior Associate Professor
Industrial & Systems Engineering
PHD, University of Arkansas, 1973

Tuo, Rui, Associate Professor
Industrial & Systems Engineering
PHD, Chinese Academy of Sciences, 2013

Valdez Flores, Ciriaco, Professor of the Practice
Industrial & Systems Engineering
PHD, Texas A&M University, 1987

Vazquez, Jose A, Senior Lecturer
Industrial & Systems Engineering
MA, University of Iowa, 1986

Wang, Shiren, Professor
Industrial & Systems Engineering
PHD, Florida State University, 2006

Wang, Yen J, Senior Lecturer
Industrial & Systems Engineering
PHD, Northwestern University, 1991

Zahabi, Maryam, Associate Professor
Industrial & Systems Engineering
PHD, North Carolina State University, 2017

Zhang, Shixuan, Assistant Professor
Industrial & Systems Engineering
PHD, Georgia Tech, 2022

Zhang, Xudong, Professor
Industrial & Systems Engineering
PHD, University of Michigan Ann Arbor, 1997

Majors

- Bachelor of Science in Data Engineering (p. 668)
- Bachelor of Science in Industrial Engineering (p. 670)
- Bachelor of Science in Industrial Engineering and Master of Public Health in Occupational Safety and Health, 5-Year Degree Program (p. 671)
- Bachelor of Science in Industrial Engineering and Master of Science in Finance, 5-Year Degree Program (p. 673)

Minors

- Industrial Engineering Minor (p. 675)

Certificates

- Data Center Operations Engineering Certificate (p. 675)
- Data Engineering Certificate (p. 676)
- Engineering Systems Management Certificate (p. 676)

Data Engineering - BS

The Data Engineering program trains students in data handling, manipulation, mining, visualization, and storage methods that lead to optimal information and knowledge extraction to facilitate decision-making in complex systems.

Data Engineering is an emerging field focused on transforming data into contextual information using quantitative and computational tools. The program includes a two-semester long capstone senior design experience, which is a part of the hands-on experience with workshop-style real-world problem-solving situations.

Program Requirements

The freshman year is identical for degrees in aerospace engineering, architectural engineering, civil engineering, computer engineering, computer science, data engineering, electrical engineering, electronic systems engineering technology, environmental engineering, industrial distribution, industrial engineering, interdisciplinary engineering,

manufacturing and mechanical engineering technology, mechanical engineering, multidisciplinary engineering technology, nuclear engineering, ocean engineering, and petroleum engineering. The freshman year is slightly different for chemical engineering, biomedical engineering and materials science and engineering degrees in that students take CHEM 119 or CHEM 107/CHEM 117 and CHEM 120. Students pursuing degrees in biological and agricultural engineering should refer to the specific curriculum for this major. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year

Fall		Semester Credit Hours
CHEM 107	General Chemistry for Engineering Students ^{1,4}	3
CHEM 117	General Chemistry for Engineering Students Laboratory ^{1,4}	1
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	3
ENGR 102	Engineering Lab I - Computation ¹	2
MATH 151	Engineering Mathematics I ^{1,2}	4
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16
Spring		
ENGR 216/PHYS 216	Experimental Physics and Engineering Lab II - Mechanics ¹	2
MATH 152	Engineering Mathematics II ¹	4
PHYS 206	Newtonian Mechanics for Engineering and Science ¹	3
University Core Curriculum (p. 26) ³		3
Select one of the following:		3-4
CHEM 120	Fundamentals of Chemistry II ^{1,4}	
University Core Curriculum (p. 26) ^{3,5}		
Semester Credit Hours		15-16
Total Semester Credit Hours		31-32

¹ A grade of C or better is required.

² Entering students will be given a math placement exam. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.

³ Of the 21 hours shown as University Core Curriculum electives, 3 must be from creative arts (see AREN curriculum for more information), 3 from social and behavioral sciences (see DAEN and IDIS curriculum for more information), 3 from language, philosophy and culture (see CVEN, EVEN and PETE curriculum for more information), 6 from American history and 6 from government/political science. The required 3 hours of international and cultural diversity and 3 hours of cultural discourse may be met by courses satisfying the creative arts, social and behavioral sciences, language, philosophy and culture, and American history requirements if they are also on the approved list of international and cultural diversity (p. 49) courses and cultural discourse (p. 48) courses.

⁴ BMEN, CHEN and MSEN require 8 hours of fundamentals of chemistry which are satisfied with CHEM 119 or CHEM 107/CHEM 117 and

CHEM 120; Students with an interest in BMEN, CHEN and MSEN can take CHEM 120 second semester freshman year. CHEM 120 will substitute for CHEM 107/CHEM 117.

⁵ For BS-PETE, allocate 3 hours to core communications course (ENGL 210, COMM 203, COMM 205, or COMM 243) and/or 3 hours to UCC elective. For BS-MEEN, allocate 3 hours to core communications course (ENGL 203, ENGL 210, COMM 203 or COMM 205) and/or 3 hours to UCC elective.

Second Year

Fall		Semester Credit Hours
CSCE 120	Program Design and Concepts ¹	3
CSCE 222/ECEN 222	Discrete Structures for Computing ¹	3
ENGR 217/PHYS 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism ¹	2
MATH 251 or MATH 253	Engineering Mathematics III ¹ or Engineering Mathematics III	3
PHYS 207	Electricity and Magnetism for Engineering and Science ¹	3
STAT 211 or ECEN 303	Principles of Statistics I ¹ or Random Signals and Systems	3
Semester Credit Hours		17
Spring		
CSCE 221	Data Structures and Algorithms ¹	4
DAEN 210	Uncertainty Modeling ¹	3
ECON 202 or ECON 203	Principles of Economics ^{1,6} or Principles of Economics	3
MATH 304 or MATH 323	Linear Algebra ¹ or Linear Algebra	3
Select one of the following:		3
CSCE 305	Computational Data Science ¹	
ECEN 360	Computational Data Science ¹	
STAT 315	Computational Data Science ¹	
Semester Credit Hours		16

Third Year

Fall		
CSCE 310	Database Systems ¹	3
DAEN 300	Data Engineering Coding Experience I ¹	1
DAEN 321 or STAT 212	Quantitative Models for Statistical and Machine Learning ¹ or Principles of Statistics II	3
DAEN 331	Optimization of Analytics ¹	3
ISEN 302	Economic Analysis of Engineering Projects ¹	2
MATH 308	Differential Equations ¹	3
Semester Credit Hours		15

Spring

DAEN 301	Data Engineering Coding Experience II ¹	1
DAEN 323	Statistical Learning and Decisions ¹	3
DAEN 328	Data Engineering for Humans ¹	3
CSCE 320/STAT 335	Principles of Data Science ¹	3

Select one of the following:	3
COMM 203 Public Speaking	
COMM 205 Communication for Technical Professions	
ENGL 203 Writing about Literature	
ENGL 210 Technical and Professional Writing	
University Core Curriculum (p. 26) ³	3
Semester Credit Hours	16
Fourth Year	
Fall	
DAEN 400 Case Studies in Data Engineering ¹	3
DAEN 429 Data Analytics II ¹	3
DAEN 459 Capstone Senior Design Planning ¹	3
DAEN 427/ ISEN 427 Decision and Risk Analysis ¹	3
University Core Curriculum (p. 26) ³	3
DAEN Technical Elective ⁷	3
High Impact Experience ⁸	
DAEN 399 Professional Development	
Semester Credit Hours	18
Spring	
DAEN 460 Capstone Senior Design ¹	3
University Core Curriculum (p. 26) ³	3
DAEN Technical Elective ^{1,7}	6
Technical Elective ⁹	3
Semester Credit Hours	15
Total Semester Credit Hours	97

⁶ ECON 202 or ECON 203 will count as the Social and Behavioral Sciences requirement.

⁷ Select from DAEN 410, DAEN 420, DAEN 430, DAEN 489.

⁸ All students are required to complete a high-impact experience in order to graduate. The list of possible high-impact experiences is available in the ISEN and DAEN undergraduate advising office.

⁹ Select from ISEN 414, ISEN 440, ISEN 489, MATH 407, MATH 411, STAT 414, STAT 421, STAT 424/MATH 424.

Total Program Hours 128

Industrial Engineering - BS

Industrial and systems engineering is a discipline devoted to the design, installation, improvement and control of integrated systems of people, materials, and facilities across a wide range of organizations that produce goods or render services.

Like other engineering fields, industrial and systems engineering is concerned with solving problems through the application of specialized knowledge in mathematics and science, as well as the principles of engineering. Two major distinctions of our discipline, among the engineering disciplines, is the unique focus of industrial and systems engineering on human factors and the quantification and systematic removal of uncertainty from production systems. Industrial and systems engineering has five major focus areas: advanced manufacturing, operations research, data sciences and machine learning, health and human systems, and systems engineering.

Program Requirements

The freshman year is identical for degrees in aerospace engineering, architectural engineering, civil engineering, computer engineering, computer science, data engineering, electrical engineering, electronic systems engineering technology, environmental engineering, industrial distribution, industrial engineering, interdisciplinary engineering, manufacturing and mechanical engineering technology, mechanical engineering, multidisciplinary engineering technology, nuclear engineering, ocean engineering, and petroleum engineering. The freshman year is slightly different for chemical engineering, biomedical engineering and materials science and engineering degrees in that students take CHEM 119 or CHEM 107/CHEM 117 and CHEM 120. Students pursuing degrees in biological and agricultural engineering should refer to the specific curriculum for this major. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year		Semester Credit Hours
Fall		
CHEM 107	General Chemistry for Engineering Students ^{1,4}	3
CHEM 117	General Chemistry for Engineering Students Laboratory ^{1,4}	1
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	3
ENGR 102	Engineering Lab I - Computation ¹	2
MATH 151	Engineering Mathematics I ^{1,2}	4
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16
Spring		
ENGR 216/ PHYS 216	Experimental Physics and Engineering Lab II - Mechanics ¹	2
MATH 152	Engineering Mathematics II ¹	4
PHYS 206	Newtonian Mechanics for Engineering and Science ¹	3
University Core Curriculum (p. 26) ³		3
Select one of the following:		3-4
CHEM 120	Fundamentals of Chemistry II ^{1,4}	
University Core Curriculum (p. 26) ^{3,5}		
Semester Credit Hours		15-16
Total Semester Credit Hours		31-32

¹ A grade of C or better is required.

² Entering students will be given a math placement exam. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.

³ Of the 21 hours shown as University Core Curriculum electives, 3 must be from creative arts (see AREN curriculum for more information), 3 from social and behavioral sciences (see DAEN and IDIS curriculum for more information), 3 from language, philosophy and culture (see CVEN, EVEN and PETE curriculum for more information), 6 from American history and 6 from government/political science. The required 3 hours of international and cultural diversity and 3 hours of cultural discourse may be met by courses satisfying the creative

arts, social and behavioral sciences, language, philosophy and culture, and American history requirements if they are also on the approved list of international and cultural diversity (p. 49) courses and cultural discourse (p. 48) courses.

⁴ BMEN, CHEN and MSEN require 8 hours of fundamentals of chemistry which are satisfied with CHEM 119 or CHEM 107/CHEM 117 and CHEM 120; Students with an interest in BMEN, CHEN and MSEN can take CHEM 120 second semester freshman year. CHEM 120 will substitute for CHEM 107/CHEM 117.

⁵ For BS-PETE, allocate 3 hours to core communications course (ENGL 210, COMM 203, COMM 205, or COMM 243) and/or 3 hours to UCC elective. For BS-MEEN, allocate 3 hours to core communications course (ENGL 203, ENGL 210, COMM 203 or COMM 205) and/or 3 hours to UCC elective.

Second Year

Fall

		Semester Credit Hours
ENGR 217/ PHYS 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism ¹	2
ISEN 210	Deterministic Optimization Modeling and Design ¹	2
ISEN 302	Economic Analysis of Engineering Projects ¹	2
MATH 251 or MATH 253	Engineering Mathematics III ¹ or Engineering Mathematics III	3
PHYS 207	Electricity and Magnetism for Engineering and Science ¹	3
Select one of the following: ¹		4
CSCE 110	Programming I	
CSCE 111	Introduction to Computer Science Concepts and Programming	
CSCE 206	Structured Programming in C	
Semester Credit Hours		16

Spring

ISEN 230	Informatics for Industrial Engineers ¹	3
MATH 304	Linear Algebra ¹	3
MEEN 221	Statics and Particle Dynamics ¹	3
MMET 181 or ISEN 281	Manufacturing and Assembly Processes I ¹ or Essentials of Modern Manufacturing Methods for Engineering Design	3
STAT 211	Principles of Statistics I ¹	3
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
Semester Credit Hours		18

Third Year

Fall

ISEN 310	Uncertainty Modeling for Industrial Engineering ¹	3
ISEN 320	Operations Research I ¹	3
ISEN 330	Human Systems Interaction ¹	3

MATH 308	Differential Equations ¹	3
MSEN 222/ MEEN 222	Materials Science ¹	3
Select one of the following: ¹		3
BAEN 320	Engineering Thermodynamics	
ECEN 215	Principles of Electrical Engineering	
MEEN 315	Principles of Thermodynamics	
Semester Credit Hours		18

Spring

ISEN 340	Operations Research II ¹	3
ISEN 350	Quality Engineering ¹	3
ISEN 355	System Simulation ¹	3
ISEN 370	Production Systems Engineering ¹	3
University Core Curriculum (p. 26) ³		3
High Impact Experience ⁶		0
ISEN 399	Professional Development	
Semester Credit Hours		15

Fourth Year

Fall

University Core Curriculum (p. 26) ³		6
Technical elective ^{1, 7}		9
Semester Credit Hours		15

Spring

ISEN 460	Capstone Senior Design ¹	3
University Core Curriculum (p. 26) ³		3
Technical elective ^{1, 7}		9
Semester Credit Hours		15
Total Semester Credit Hours		97

⁶ All students are required to complete a high-impact experience in order to graduate. The list of possible high-impact experiences is available in the industrial engineering advising office.

⁷ A total of 18 hours of technical electives is required, of which 12 hours must be industrial engineering courses. The choice of courses to be taken must be made in consultation with the student's advisor and/or the industrial engineering advising office.

The Bachelor of Science degree in Industrial Engineering requires a grade of C or better for required industrial engineering (ISEN) courses and supporting courses. If a course is repeated, only the most recent grade is used in fulfilling this requirement.

Total Program Hours 128

Industrial Engineering - 5-Year Bachelor of Science and Master of Public Health in Occupational Safety and Health

This combination program enables motivated students to efficiently complete both the Bachelor of Science in Industrial Engineering and the Master of Public Health in Occupational Safety and Health in five years.

This combination program, BS in Industrial Engineering and MPH in Occupational Safety and Health, helps satisfy the need for engineers with

formal education in health to bolster the quality of life to the public in underserved areas. In particular, industrial engineers are immersed in the practical health related issues prevalent in these areas and help engineer technologies that can overcome the barriers usually faced by point-of-care devices.

Program Requirements

The freshman year is identical for degrees in aerospace engineering, architectural engineering, civil engineering, computer engineering, computer science, data engineering, electrical engineering, electronic systems engineering technology, environmental engineering, industrial distribution, industrial engineering, interdisciplinary engineering, manufacturing and mechanical engineering technology, mechanical engineering, multidisciplinary engineering technology, nuclear engineering, ocean engineering, and petroleum engineering. The freshman year is slightly different for chemical engineering, biomedical engineering and materials science and engineering degrees in that students take CHEM 119 or CHEM 107/CHEM 117 and CHEM 120. Students pursuing degrees in biological and agricultural engineering should refer to the specific curriculum for this major. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year

Fall		Semester Credit Hours
CHEM 107	General Chemistry for Engineering Students ^{1,4}	3
CHEM 117	General Chemistry for Engineering Students Laboratory ^{1,4}	1
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	3
ENGR 102	Engineering Lab I - Computation ¹	2
MATH 151	Engineering Mathematics I ^{1,2}	4
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16
Spring		
ENGR 216/ PHYS 216	Experimental Physics and Engineering Lab II - Mechanics ¹	2
MATH 152	Engineering Mathematics II ¹	4
PHYS 206	Newtonian Mechanics for Engineering and Science ¹	3
University Core Curriculum (p. 26) ³		3
Select one of the following:		3-4
CHEM 120	Fundamentals of Chemistry II ^{1,4}	
University Core Curriculum (p. 26) ^{3,5}		
Semester Credit Hours		15-16
Total Semester Credit Hours		31-32

¹ A grade of C or better is required.

² Entering students will be given a math placement exam. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.

³ Of the 21 hours shown as University Core Curriculum electives, 3 must be from creative arts (see AREN curriculum for more information), 3

from social and behavioral sciences (see DAEN and IDIS curriculum for more information), 3 from language, philosophy and culture (see CVEN, EVEN and PETE curriculum for more information), 6 from American history and 6 from government/political science. The required 3 hours of international and cultural diversity and 3 hours of cultural discourse may be met by courses satisfying the creative arts, social and behavioral sciences, language, philosophy and culture, and American history requirements if they are also on the approved list of international and cultural diversity (p. 49) courses and cultural discourse (p. 48) courses.

⁴ BMEN, CHEN and MSEN require 8 hours of fundamentals of chemistry which are satisfied with CHEM 119 or CHEM 107/CHEM 117 and CHEM 120; Students with an interest in BMEN, CHEN and MSEN can take CHEM 120 second semester freshman year. CHEM 120 will substitute for CHEM 107/CHEM 117.

⁵ For BS-PETE, allocate 3 hours to core communications course (ENGL 210, COMM 203, COMM 205, or COMM 243) and/or 3 hours to UCC elective. For BS-MEEN, allocate 3 hours to core communications course (ENGL 203, ENGL 210, COMM 203 or COMM 205) and/or 3 hours to UCC elective.

Second Year

Fall		Semester Credit Hours
ENGR 217/ PHYS 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism ¹	2
MATH 251 or MATH 253	Engineering Mathematics III ¹ or Engineering Mathematics III	3
MMET 181	Manufacturing and Assembly Processes I ¹	3
PHYS 207	Electricity and Magnetism for Engineering and Science ¹	3
STAT 211	Principles of Statistics I ¹	3
Select one of the following: ¹		4
CSCE 110	Programming I	
CSCE 111	Introduction to Computer Science Concepts and Programming	
CSCE 206	Structured Programming in C	
Semester Credit Hours		18
Spring		
ISEN 210	Deterministic Optimization Modeling and Design ¹	2
ISEN 230	Informatics for Industrial Engineers ¹	3
ISEN 302	Economic Analysis of Engineering Projects ¹	2
ISEN 310	Uncertainty Modeling for Industrial Engineering ¹	3
MATH 304	Linear Algebra ¹	3
MEEN 221	Statics and Particle Dynamics ¹	3
Select one of the following:		3
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
Semester Credit Hours		19

Third Year**Fall**

ISEN 320	Operations Research I ¹	3
ISEN 330	Human Systems Interaction ¹	3
MATH 308	Differential Equations ¹	3
MSEN 222/ MEEN 222	Materials Science	3
Select one of the following:		3
BAEN 320	Engineering Thermodynamics	
ECEN 215	Principles of Electrical Engineering	
MEEN 315	Principles of Thermodynamics	

Semester Credit Hours	15

Spring

ISEN 340	Operations Research II ¹	3
ISEN 350	Quality Engineering ¹	3
ISEN 355	System Simulation ¹	3
ISEN 370	Production Systems Engineering ¹	3
High Impact Experience ⁷		0
ISEN 399	Professional Development	
University Core Curriculum (p. 26) ³		6

Semester Credit Hours	18

Fourth Year**Fall**

PHEO 618	Occupational Safety	3
SOPH 601	Health Behavior	3
SOPH 602	Health Policy and Management	3
SOPH 603	Epidemiology	3
Technical elective ¹		6

Semester Credit Hours	18

Spring

ISEN 460	Capstone Senior Design ¹	3
PHEO 640	Industrial Hygiene	3
PHEO 678	Occupational Biomechanics ⁶	3
University Core Curriculum (p. 26) ³		3

Semester Credit Hours	12

Summer

PHEO 684	Practicum	3
University Core Curriculum (p. 26) ³		3

Semester Credit Hours	6

Fifth Year**Fall**

ISEN 630 or ISEN 631	Human Operator in Complex Systems or Cognitive Systems Engineering	3
PHEO 630	Environmental/Occupational Diseases	3
PHEO 674	Environmental and Occupational Health Research Methods	3
PHEO 682	Industrial and System Safety	3

Semester Credit Hours	12

Spring

PHEO 655	Human Factors	3
PHEO 679	Ergonomics of the Upper Extremities	3
SOPH 680	Public Health Capstone	3

Select one of the following:	3

PHEO 645	Health and Safety at Hazardous Waste Sites

ISEN/PHEO elective ⁸	

Semester Credit Hours	12

Total Semester Credit Hours	130

⁶ Courses taken for credit in both the undergraduate and graduate degree for a combined total of 12 hours: PHEO 618, PHEO 640, PHEO 678, PHEO 679.

⁷ All students are required to complete a high-impact experience in order to graduate. The list of possible high-impact experiences is available in the INEN advising office.

⁸ ISEN/PHEO electives are approved by the BS/MPH program director and graduate advisor. ISEN electives must be taken for a grade of C or better.

The program includes a total of 173 hours which up to 12 hours may be applied toward both the Bachelor of Science in Industrial Engineering and the Master of Public Health in Occupational Safety and Health.

Total Program Hours 173**Industrial Engineering - 5-year Bachelor of Science and Master of Science in Finance**

This combination program enables motivated students to efficiently complete both the Bachelor of Science in Industrial Engineering and the Master of Science in Finance in five years.

Industrial and systems engineering has a long-standing history and unique place among engineering majors as the academic discipline responsible for the economic viability of productive systems across industries. Industrial engineers are keenly aware of the goals and objectives of the enterprise. Additionally, industrial engineers receive a core curriculum in the rigorous underpinnings requisite for the quantification of uncertainty and the mitigation of financial risk to the enterprise. This combination degree ensures that the successful graduate from the Mays Business School, department of finance, has a solid background in both the stochastic processes used to characterize and model the uncertainty coupled with the financial acumen requisite to ensure the economic viability of the enterprise. Students of the industrial and systems engineering program will take advantage of a series of internships and practicums that expose the undergraduate to various facets of financial stability and instability in industry. This program will produce a select and skilled group of industrial leaders that will take their place in the industrial world ensuring the viability of productive organizations around the globe.

Program Requirements

The freshman year is identical for degrees in aerospace engineering, architectural engineering, civil engineering, computer engineering, computer science, data engineering, electrical engineering, electronic systems engineering technology, environmental engineering, industrial distribution, industrial engineering, interdisciplinary engineering, manufacturing and mechanical engineering technology, mechanical engineering, multidisciplinary engineering technology, nuclear engineering, ocean engineering, and petroleum engineering. The

freshman year is slightly different for chemical engineering, biomedical engineering and materials science and engineering degrees in that students take CHEM 119 or CHEM 107/CHEM 117 and CHEM 120. Students pursuing degrees in biological and agricultural engineering should refer to the specific curriculum for this major. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year

Fall		Semester Credit Hours
CHEM 107	General Chemistry for Engineering Students ^{1,4}	3
CHEM 117	General Chemistry for Engineering Students Laboratory ^{1,4}	1
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	3
ENGR 102	Engineering Lab I - Computation ¹	2
MATH 151	Engineering Mathematics I ^{1,2}	4
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16
Spring		
ENGR 216/ PHYS 216	Experimental Physics and Engineering Lab II - Mechanics ¹	2
MATH 152	Engineering Mathematics II ¹	4
PHYS 206	Newtonian Mechanics for Engineering and Science ¹	3
University Core Curriculum (p. 26) ³		3
Select one of the following:		3-4
CHEM 120	Fundamentals of Chemistry II ^{1,4}	
University Core Curriculum (p. 26) ^{3,5}		
Semester Credit Hours		15-16
Total Semester Credit Hours		31-32

¹ A grade of C or better is required.

² Entering students will be given a math placement exam. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.

³ Of the 21 hours shown as University Core Curriculum electives, 3 must be from creative arts (see AREN curriculum for more information), 3 from social and behavioral sciences (see DAEN and IDIS curriculum for more information), 3 from language, philosophy and culture (see CVEN, EVEN and PETE curriculum for more information), 6 from American history and 6 from government/political science. The required 3 hours of international and cultural diversity and 3 hours of cultural discourse may be met by courses satisfying the creative arts, social and behavioral sciences, language, philosophy and culture, and American history requirements if they are also on the approved list of international and cultural diversity (p. 49) courses and cultural discourse (p. 48) courses.

⁴ BMEN, CHEN and MSEN require 8 hours of fundamentals of chemistry which are satisfied with CHEM 119 or CHEM 107/CHEM 117 and CHEM 120; Students with an interest in BMEN, CHEN and MSEN can take CHEM 120 second semester freshman year. CHEM 120 will substitute for CHEM 107/CHEM 117.

⁵ For BS-PETE, allocate 3 hours to core communications course (ENGL 210, COMM 203, COMM 205, or COMM 243) and/or 3 hours to UCC elective. For BS-MEEN, allocate 3 hours to core communications course (ENGL 203, ENGL 210, COMM 203 or COMM 205) and/or 3 hours to UCC elective.

Second Year

Fall		Semester Credit Hours
ENGR 217/ PHYS 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism ¹	2
MATH 251 or MATH 253	Engineering Mathematics III ¹ or Engineering Mathematics III	3
MMET 181 or ISEN 281	Manufacturing and Assembly Processes I ¹ or Essentials of Modern Manufacturing Methods for Engineering Design	3
PHYS 207	Electricity and Magnetism for Engineering and Science ¹	3
STAT 211	Principles of Statistics I ¹	3
Select one of the following: ¹		4
CSCE 110	Programming I	
CSCE 111	Introduction to Computer Science Concepts and Programming	
CSCE 206	Structured Programming in C	
Semester Credit Hours		18
Spring		
ACCT 640	Accounting Concepts and Procedures I ⁶	3
ECON 202	Principles of Economics	3
ISEN 210	Deterministic Optimization Modeling and Design ¹	2
ISEN 230	Informatics for Industrial Engineers ¹	3
ISEN 302	Economic Analysis of Engineering Projects ¹	2
MATH 304	Linear Algebra ¹	3
MEEN 221	Statics and Particle Dynamics ¹	3
Semester Credit Hours		19
Summer		
FINC 601	Financial Analysis Practicum	3
FINC 602	Corporate Finance	3
Semester Credit Hours		6
Third Year		
Fall		
ACCT 327	Financial Reporting I ⁷	3
FINC 601	Financial Analysis Practicum	1
ISEN 310	Uncertainty Modeling for Industrial Engineering ^{1,7}	3
ISEN 320	Operations Research I ¹	3
ISEN 330	Human Systems Interaction ¹	3
MATH 308	Differential Equations ¹	3
Semester Credit Hours		16
Spring		
ISEN 340	Operations Research II ¹	3

ISEN 350	Quality Engineering ¹	3
ISEN 355	System Simulation ¹	3
ISEN 370	Production Systems Engineering ¹	3
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
Semester Credit Hours		15
Fourth Year		
Fall		
FINC 601	Financial Analysis Practicum	1
University Core Curriculum (p.) ³		3
Technical elective ^{1, 8}		9
Semester Credit Hours		13
Spring		
ACCT 328	Financial Reporting II ⁷	3
ISEN 460	Capstone Senior Design ¹	3
MEEN 222/ MSEN 222	Materials Science	3
University Core Curriculum (p.) ³		3
High Impact Experience ⁹		0
ISEN 399	Professional Development	
Semester Credit Hours		12
Fifth Year		
Fall		
FINC 601	Financial Analysis Practicum	1
FINC 603	Investments (Graduate Technical Elective) ¹⁰	3
Graduate Technical Elective ¹⁰		3
Select one of the following:		3
BAEN 320	Engineering Thermodynamics	
ECEN 215	Principles of Electrical Engineering	
MEEN 315	Principles of Thermodynamics	
University Core Curriculum (p.)		3
Semester Credit Hours		13
Spring		
ACCT 647/ FINC 647	Financial Statement Analysis	3
FINC 605	Valuation and Financial Modeling	3
Graduate Technical Elective ¹⁰		6
Semester Credit Hours		12
Total Semester Credit Hours		124

⁶ MSF prerequisite course that counts towards ISEN degree.

⁷ Course will double count towards both undergraduate and graduate program.

⁸ A total of 9 hours of technical electives is required. The choice of courses to be taken must be made in consultation with the student's advisor and/or the Industrial Engineering Advising Office.

⁹ All students are required to complete a high-impact experience in order to graduate. The list of possible high-impact experiences is available in the INEN advising office.

¹⁰ The MS Finance degree requires students to take 9 hours of electives in support of their career goals.

The Bachelor of Science degree in Industrial Engineering requires a grade of C or better for required industrial engineering (ISEN) courses.

The program includes a total of 164 hours which up to 9 hours may be applied toward both the Bachelor of Science in Industrial Engineering and the Master of Science in Finance.

Total Program Hours 164 Industrial Engineering - Minor

This program provides students from any major with core industrial and systems engineering skills, including data analytics and process design, enhancing their marketability across multiple industries.

The minor in Industrial and Systems Engineering provides students with the knowledge, skills, and experience related to several of the core areas of ISEN including: operations research, data analytics, human systems design, and production system engineering. Quantification of uncertainty, mathematical modeling, decision making, and process design are skills endemic to ISEN. The electives reflect the diverse nature of the discipline and are aligned with the needs of industry. Industrial and systems engineering, based on the latest Bureau of Labor Statistics numbers, stands as the second largest engineering discipline in the U.S. Industrial and systems engineers are employed across the nearly 450 industry types as identified in the Standard Industrial Classification system. Industrial and systems engineering is focused on the economic viability of productive organizations within those industries. This minor provides the student with a highly marketable knowledge base and skillset that is in high demand in today's global economy.

Program Requirements

Code	Title	Semester Credit Hours
ISEN 230	Informatics for Industrial Engineers	3
ISEN 310	Uncertainty Modeling for Industrial Engineering	3
ISEN 320	Operations Research I	3
Select two of the following:		6
ISEN 340	Operations Research II	
ISEN 350	Quality Engineering	
ISEN 355	System Simulation	
ISEN 370	Production Systems Engineering	
Total Semester Credit Hours		15

Must make a grade of C or better in all courses.

Data Center Operations Engineering - Certificate

This program equips engineers with data systems management skills, focusing on system-level understanding and design, to meet the growing demand in technology-driven industries.

With the rapid acceleration of technology through innovation on a global basis, industries recognize the need for young engineers who possess base line knowledge in areas of data system management

and an understanding of the system level of complex data center processing systems. In both government and industry there is a growing need for undergraduate engineering students that possess the requisite knowledge and skill sets pertaining to complex data systems management and this certificate program includes a set of courses to assure students develop this knowledge and skill set. Completion of this certificate requires completion of the following educational outcomes:

1. to know and apply principles of engineering management
2. to understand principles of systems level engineering and their application to specific data center system operations
3. to be able to go beyond understanding concepts and demonstrate appropriate usage of systems engineering principles in a design context

Program Requirements

Code	Title	Semester Credit Hours
ISEN 440	Systems Thinking	3
Select one of the following:		4
CSCE 110	Programming I	
CSCE 111	Introduction to Computer Science Concepts and Programming	
CSCE 206	Structured Programming in C	
Select two of the following:		6
CSCE 438	Distributed Systems	
CSCE 444	Structures of Interactive Information	
CSCE 470	Information Storage and Retrieval	
ECEN 455	Digital Communications	
ISEN 340	Operations Research II	
ISEN 350	Quality Engineering	
ISEN 411	Engineering Management Techniques	
ISEN 413	Advanced Data Analytics for Industry	
ISEN 414	Total Quality Engineering	
ISEN 442	Organizational Systems	
MEEN 421	Thermal-Fluids Analysis and Design	
MEEN 436	Principles of Heating, Ventilating and Air Conditioning	
MEEN 461	Heat Transfer	
Total Semester Credit Hours		13

Students must make a grade of C or better in all courses.

Data Engineering - Certificate

The Certificate in Data Engineering (DAEN) will equip students with fundamental and advanced technical skills for data-driven decision-making.

The global information-age we are in today has resulted in an increasing demand for technical skills required for storage and handling of complex data, as well as extracting information and knowledge from data to guide decision-making in business, science, and engineering settings, among others.

For additional information, contact the industrial and systems engineering undergraduate advising office at (979) 845-5531 or ieundergradadvising@tamu.edu.

Program Requirements

Code	Title	Semester Credit Hours
ISEN 310	Uncertainty Modeling for Industrial Engineering	3
ISEN 311	Introduction to Data Analytics and Engineering	3
ISEN 413	Advanced Data Analytics for Industry	3
ISEN 427/ DAEN 427	Decision and Risk Analysis	3
Total Semester Credit Hours		12

Students must make a grade of C or better in all courses.

Engineering Systems Management - Certificate

This program provides engineers with essential systems management skills, addressing the industry's demand for expertise in complex engineered systems and management principles.

In many areas of government and industry there is a significant need for undergraduate engineering students that possess the requisite knowledge and skill sets pertaining to engineering systems management in addition to their basic engineering discipline. With the rapid acceleration of technology through innovation on a global basis, industries recognize the need for young engineers who possess base line knowledge in areas of management and an understanding of the system level of complex engineered systems. This certificate program includes a set of courses to assure students develop this knowledge and skill set.

Program Requirements

Code	Title	Semester Credit Hours
ISEN 440	Systems Thinking	3
ISEN 442	Organizational Systems	3
or ISEN 411	or Engineering Management Techniques	
Technical Elective		
Select one of the following:		3
AERO 426	Space System Design	
CHEN 461	Process Dynamics and Control	
CVEN 402/ EVEN 402	Engineered Environmental Systems	
ECEN 420	Linear Control Systems	
ECEN 460	Power System Operation and Control	
ISEN 414	Total Quality Engineering	
MEEN 441	Design of Mechanical Components and Systems	
PETE 325	Petroleum Production Systems	
Business Elective		

Select one of the following:	3
ACCT 209 Survey of Accounting Principles	
ISTM 209 Business Information Systems Concepts	
MGMT 209 Principles of Business Regulations and Law	
MGMT 309 Survey of Management	
Total Semester Credit Hours	12

Must make a grade of C or better in each course used towards certificate.

Department of Materials Science and Engineering

The Department of Materials Science and Engineering is jointly operated by the College of Engineering and College of Arts and Sciences.

The department offers Bachelor of Science, Master of Engineering, Master of Science, and Doctor of Philosophy degrees. This multidisciplinary department includes faculty members from several disciplines, including aerospace engineering, biology, biomedical engineering, chemical engineering, chemistry, electrical engineering, mechanical engineering, nuclear engineering, and physics. Many of today's most pressing scientific problems stem from the limitations of materials currently available, and this department is at the forefront of new knowledge and discovery at Texas A&M University.

What is Materials Science and Engineering?

Materials science and engineering involves the characterization of the physical and chemical properties of solid materials—metals and alloys, ceramics, magnetic materials, polymers, optical materials, semiconductors, superconductors, and composites—for the purpose of using, changing or enhancing inherent properties to create or improve end products. Materials science and engineering involves examining how the microstructure (crystalline or amorphous) of a material can be changed to influence the strength, electrical conductivity, optical, or magnetic properties of a material. This field is inherently multidisciplinary, encompassing mechanical, chemical, biomedical, civil, electrical, and aerospace engineering; physics; and chemistry.

Materials science comprises the study of materials from the macro to the atomic scale—from highway building materials to carbon nanotubes—but, independent of scale, the study of materials is concerned fundamentally with the effect of structure and chemistry on the properties of materials. Materials have historically been so important that different eras of civilization were named according to the materials from which tools were fabricated: the Stone Age, the Bronze Age, and the Iron Age. The development of the semiconductor spawned the modern era of information technology, often called the Silicon Age. Advances in materials science might make this new millennium the Biomaterials/Nanomaterials/Optical Materials Age.

What do Materials Scientists and Engineers do?

In industry, materials scientists and engineers work with natural or synthetic materials and, most often, with combinations of materials to improve existing products or develop novel products. For instance, at Intel, the developer of the processing chip used in most PCs, materials

scientists optimize the materials used in chip packaging, balancing differing coefficients of thermal expansion, heat dissipation, brittleness and compliancy, and cost for optimum performance and economic feasibility.

Other materials scientists are at the forefront of the revolution in biotechnology, developing materials for the components of artificial joints, heart valves, and other replacement body parts. Smart materials in medical and dental applications show tremendous potential, such as compressible stents that reform to their intended shape upon contact with body heat once inserted into an artery, ceramic cement for bone repair, or shape-memory alloys to correct misplaced teeth or spine curvature. (Smart materials have one or more properties that can be dramatically altered, such as multi-viscosity oil, with a viscosity that varies with temperature.)

Related research involves developing smaller and more reliable components, such as ferromagnetic activators acting as tiny machines in military and other applications. In aerospace engineering, materials scientists are developing airframe and fuselage materials with high strength-to-weight ratios and developing smart materials into integrated sensors and actuators for reconfigurable wings and other adaptive structures.

Why is Materials Science and Engineering Important?

Many of the technologies that we need to solve pressing societal problems (efficient energy generation, access to clean water, information processing and storage, safe and efficient transportation, as examples) are fundamentally limited by the materials that we have available to us. Materials scientists and engineers are critical to discovering new materials to advance these technologies.

Materials Science and Engineering at Texas A&M University

The face of materials science and engineering is continuously evolving. Currently, there is massive interest domestically and internationally in new manufacturing processes (3-D printing, additive manufacturing, etc.) and in utilizing computational and informatics approaches to intelligently and rapidly design new materials. Here at Texas A&M, our faculty embrace these new aspects while maintaining vigorous educational and research efforts in the classical core tenants of materials structure, thermodynamics, and kinetics.

For more information, visit the Department of Materials Science and Engineering website.

Faculty

Arroyave, Raymundo, Professor
Materials Science & Engr
PHD, Massachusetts Inst of Technology, 2004

Atli, Kadri Can, Instructional Associate Professor
Materials Science & Engr
PHD, Texas A&M University, 2011

Attari, Vahid, Research Assistant Professor
Materials Science & Engr
PHD, Texas A&M University, 2019

Banerjee, Sarbajit, Senior Professor
Materials Science & Engr
PHD, State University of New York at Stony Brook, 2004

Benzerga, Amine A, Professor
Materials Science & Engr
PHD, Ecole Nationale Supérieure Des Mines De Paris, 2000

Bullard, Jeff, Professor
Materials Science & Engr
PHD, University of California at Berkeley, 1993

Butler, Brady G, Visiting Assistant Professor
Materials Science & Engr
PHD, Johns Hopkins University, 2017

Cagin, Tahir, Professor
Materials Science & Engr
PHD, Clemson University, 1988

Castaneda-Lopez, Homero, Professor
Materials Science & Engr
PHD, Penn State University, 2001

Demblon, Alexander Robert, Research Assistant Professor
Materials Science & Engr
PHD, Texas A&M University, 2023

Demkowicz, Michael J, Professor
Materials Science & Engr
PHD, Massachusetts Institute of Technology, 2005

Dimitriyev, Michael S, Assistant Professor
Materials Science & Engr
PHD, Georgia Institute of Technology, 2017

Hsiao, Kai-Wen, Assistant Professor
Materials Science & Engr
PHD, University of Illinois at Urbana Champaign, 2017

Karaman, Ibrahim, Professor
Materials Science & Engr
PHD, University of Illinois at Urbana-Champaign, 2000

Katehi-Tseregounis, Linda P B, Professor
Materials Science & Engr
PHD, University of California, 1984

Kolluru, Pavan V, Assistant Professor
Materials Science & Engr
PHD, University of Illinois at Urbana-Champaign, 2014

Lagoudas, Dimitris C, Professor
Materials Science & Engr
PHD, Lehigh University, 1986

Lavernia, Enrique J, Professor
Materials Science & Engr
PHD, Massachusetts Institute of Technology, 1986

Lin, Paotai, Associate Professor
Materials Science & Engr
PHD, Northwestern University, 2009

Lin, Yuxuan Cosmi, Assistant Professor
Materials Science & Engr
PHD, Massachusetts Institute of Technology, 2019

Lipkin, Don M, Professor
Materials Science & Engr
PHD, University of California, Santa Barbara, 1996

Ozcan, Hande, Visiting Assistant Professor
Materials Science & Engr
PHD, Texas A&M University, 2020

Pharr, George M, Professor
Materials Science & Engr
PHD, Stanford University, 1979

Qian, Xiaofeng, Associate Professor
Materials Science & Engr
PHD, Massachusetts Institute of Technology, 2008

Radovic, Miladin, Professor
Materials Science & Engr
PHD, Drexel University, 2001

Schoenung, Julie M, Professor
Materials Science & Engr
PHD, Massachusetts Institute of Technology, 1987

Shamberger, Patrick J, Associate Professor
Materials Science & Engr
PHD, University of Washington, 2010

Srivastava, Ankit, Associate Professor
Materials Science & Engr
PHD, University of North Texas, 2013

Su, Hung-Jue, Professor
Materials Science & Engr
PHD, University of Michigan at Ann Arbor, 1988

Sukhishvili, Svetlana A, Professor
Materials Science & Engr
PHD, Lomonosov Moscow State University, 1989

Talreja, Ramesh R, Professor
Materials Science & Engr
PHD, The Technical University of Denmark, 1974

Thomas, Edwin L, Professor
Materials Science & Engr
PHD, Cornell University, 1974

Tu, Qing, Assistant Professor
Materials Science & Engr
PHD, Duke University, 2017

Ware, Taylor H, Associate Professor
Materials Science & Engr
PHD, University of Texas at Dallas, 2013

Xie, Kelvin Yu Xuan, Associate Professor
Materials Science & Engr
PHD, University of Sydney, 2013

Majors

- Bachelor of Science in Materials Science and Engineering (p. 679)

Minors

- Materials Science and Engineering Minor (p. 680)

Certificates

- Corrosion Science and Engineering Certificate (p. 681)
- Polymer Specialty Certificate (p. 682)

Materials Science and Engineering - BS

This program builds a foundation in materials science, merging chemistry, physics, and math to develop and engineer materials for diverse applications, from batteries to semiconductors.

Materials Science and Engineering is an interdisciplinary field centered on understanding the physical and chemical properties of matter and designing materials to serve a specific function (a battery cathode that can store more charge, a lightweight but strong alloy to improve the efficiency in cars, smaller faster semiconductors to make our electronics smarter and more efficient, as a few examples). Materials scientists study the connections between how we make and manufacture a material and how it affects its structure and resulting properties. Materials engineers develop materials and manufacturing techniques and integrate these materials into commercial products.

The BS curriculum builds on a strong foundation in chemistry, physics, and mathematics to explore the fundamental concepts and techniques critical to the field of materials science and engineering. Students have the flexibility to explore interdisciplinary studies or to focus in greater depth on one or more areas of concentration in the allotted technical electives and specialty electives.

This department also offers additional studies in the following Academic Areas of Interest:

- Corrosion Science and Engineering
- Electronic Materials
- Materials Characterization and Failure Analysis
- Soft Materials
- Structural Materials

For your success, our program offers:

- Hands-on lab series starting in sophomore year, culminating in a capstone design course
- Flexibility to choose three specialty electives outside of the major to complement your BS curriculum
- Industry-relevant capstone projects
- Faculty mentoring program starting sophomore year

Program Requirements

The freshman year is identical for degrees in aerospace engineering, architectural engineering, civil engineering, computer engineering, computer science, data engineering, electrical engineering, electronic systems engineering technology, environmental engineering, industrial distribution, industrial engineering, interdisciplinary engineering,

manufacturing and mechanical engineering technology, mechanical engineering, multidisciplinary engineering technology, nuclear engineering, ocean engineering, and petroleum engineering. The freshman year is slightly different for chemical engineering, biomedical engineering and materials science and engineering degrees in that students take CHEM 119 or CHEM 107/CHEM 117 and CHEM 120. Students pursuing degrees in biological and agricultural engineering should refer to the specific curriculum for this major. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year

Fall		Semester Credit Hours
CHEM 107	General Chemistry for Engineering Students ^{1,4}	3
CHEM 117	General Chemistry for Engineering Students Laboratory ^{1,4}	1
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	3
ENGR 102	Engineering Lab I - Computation ¹	2
MATH 151	Engineering Mathematics I ^{1,2}	4
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16
Spring		
ENGR 216/PHYS 216	Experimental Physics and Engineering Lab II - Mechanics ¹	2
MATH 152	Engineering Mathematics II ¹	4
PHYS 206	Newtonian Mechanics for Engineering and Science ¹	3
University Core Curriculum (p. 26) ³		3
Select one of the following:		3-4
CHEM 120	Fundamentals of Chemistry II ^{1,4}	
University Core Curriculum (p. 26) ^{3,5}		
Semester Credit Hours		15-16
Total Semester Credit Hours		31-32

¹ A grade of C or better is required.

² Entering students will be given a math placement exam. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.

³ Of the 21 hours shown as University Core Curriculum electives, 3 must be from creative arts (see AREN curriculum for more information), 3 from social and behavioral sciences (see DAEN and IDIS curriculum for more information), 3 from language, philosophy and culture (see CVEN, EVEN and PETE curriculum for more information), 6 from American history and 6 from government/political science. The required 3 hours of international and cultural diversity and 3 hours of cultural discourse may be met by courses satisfying the creative arts, social and behavioral sciences, language, philosophy and culture, and American history requirements if they are also on the approved list of international and cultural diversity (p. 49) courses and cultural discourse (p. 48) courses.

⁴ BMEN, CHEN and MSEN require 8 hours of fundamentals of chemistry which are satisfied with CHEM 119 or CHEM 107/CHEM 117 and

CHEM 120; Students with an interest in BMEN, CHEN and MSEN can take CHEM 120 second semester freshman year. CHEM 120 will substitute for CHEM 107/CHEM 117.

⁵ For BS-PETE, allocate 3 hours to core communications course (ENGL 210, COMM 203, COMM 205, or COMM 243) and/or 3 hours to UCC elective. For BS-MEEN, allocate 3 hours to core communications course (ENGL 203, ENGL 210, COMM 203 or COMM 205) and/or 3 hours to UCC elective.

Second Year

Fall		Semester Credit Hours
ENGR 217/ PHYS 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism ¹	2
MATH 251	Engineering Mathematics III ¹	3
MSEN 201	Fundamentals of Materials Science and Engineering ¹	3
MSEN 205	Materials in Society ¹	2
PHYS 207	Electricity and Magnetism for Engineering and Science ¹	3
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16

Spring		Semester Credit Hours
COMM 205 or ENGL 210	Communication for Technical Professions ¹ or Technical and Professional Writing	3
MSEN 210	Thermodynamics of Materials ¹	3
MSEN 250	Soft Matter ¹	3
MSEN 260	Structure of Materials ¹	3
MSEN 281	Materials Science and Engineering Seminar ¹	1
MSEN 301	Unified Materials Lab I ¹	3
MSEN 380	Communicating Materials Science and Engineering ^{1,6}	1
Semester Credit Hours		17

Third Year

Fall		Semester Credit Hours
MATH 307	Mathematical Methods for Material Scientists and Engineers ¹	3
MSEN 302	Unified Materials Lab II ^{1,6}	3
MSEN 305	Kinetics of Materials ¹	3
MSEN 320	Deformation and Failure Mechanisms in Engineering Materials ¹	3
University Core Curriculum (p. 26) ³		3
High Impact Experience ⁷		0
MSEN 399	High Impact Professional Development	
Semester Credit Hours		15

Spring		Semester Credit Hours
MSEN 325	Properties of Functional Materials ¹	3
MSEN 330	Numerical Methods for Materials Scientists and Engineers ¹	3
MSEN 360	Materials Characterization ¹	3
MSEN 400	Design and Analysis of Materials Experiments ¹	3

University Core Curriculum (p. 26) ³	3
Technical elective ^{1,8,9}	3

Semester Credit Hours 18

Fourth Year

Fall		Semester Credit Hours
MSEN 401	Materials Design I ¹	3
MSEN 410	Materials Processing ¹	3
University Core Curriculum (p. 26) ³		3
Specialty elective ^{1,8,10}		3
Technical elective ^{1,8,9}		3

Semester Credit Hours 15

Spring		Semester Credit Hours
MSEN 402	Materials Design II ¹	3
University Core Curriculum (p. 26) ³		3
Specialty elective ^{1,8,10}		6
Technical elective ^{1,8,9}		3

Semester Credit Hours 15

Total Semester Credit Hours 96

⁶ This is a writing intensive course.

⁷ All students are required to complete a high-impact experience in order to graduate. A list of possible high-impact experiences is available in the MSEN advising office.

⁸ With MSEN department approval, students may use up to a combined total of 6 hours of 484, 485, 491, and ENGR 385 courses to meet Specialty and Technical Elective requirements on their degree plan.

⁹ Select from any MSEN 300-499 (p. 1155) course not used elsewhere.

¹⁰ Select in consultation with advisor from MSEN 300-499 (p. 1155); AERO 300-499 (p. 897); BAEN 300-499 (p. 942); BMEN 300-499 (p. 955); CHEN 300-499 (p. 967); CVEN 300-499 (p. 990); CSCE 110, CSCE 300-499 (p. 985); ECEN 300-499 (p. 1009); ENGR 300-499 (p. 1029); ISEN 300-499 (p. 1095); MEEN 221, MEEN 300-499 (p. 1140); NUEN 300-499 (p. 1168); BIOL 300-499 (p. 951); CHEM 220, CHEM 227, CHEM 228, CHEM 300-499 (p. 964); MATH 300-499 (p. 1135); PHYS 222, PHYS 300-499 (p. 1205); STAT 211, STAT 212, STAT 300-499 (p. 1248); MGMT 309; MKTG 409; FINC 409. All non-MSEN specialty electives must be approved by the Undergraduate Advising Office, on the basis of satisfying one or more of the MSEN BSE program outcomes (e.g., integrating scientific and engineering principles across disciplines).

Materials Science and Engineering - Minor

This program is intended for students interested in enriching their major undergraduate program of study to incorporate a fundamental understanding of materials processing and structure-property relationships to complement their primary degree.

The Materials Science and Engineering minor program is designed to provide a strong materials science educational program for undergraduate science and engineering majors and to integrate a materials focus into their undergraduate training. Students will have the flexibility to select relevant coursework to customize this program of study to best suit their intended area of focus through consultation with an MSEN faculty advisor.

All students are required to have completed an introductory materials science and engineering prerequisite course before applying for the minor. The prerequisite course *does not apply* to the minor. Completion of the minor will be recorded on the student's university transcript.

For more information, visit the Department of Materials Science and Engineering website.

Program Requirements

Code	Title	Semester Credit Hours
MSEN 210	Thermodynamics of Materials	3
or MSEN 260 or Structure of Materials		
MSEN 200-499 (p. 1155) ¹		6
Select two of the following: ²		6
MSEN 200-499 (p. 1155) ^{3,4}		
BAEN 354	Engineering Properties of Biological Materials ²	
BAEN 427	Engineering Aspects of Packaging ²	
BMEN 344	Biological Interactions and Testing ²	
BMEN 482	Polymeric Biomaterials ²	
BMEN 483	Polymeric Biomaterial Synthesis ²	
CHEM 466	Polymer Chemistry ²	
CHEM 468	Materials Chemistry of Inorganic Materials ²	
CHEN 451	Introduction to Polymer Engineering ²	
CHEN 475	Microelectronics Process Engineering ²	
CVEN 342	Materials of Construction ²	
CVEN 343	Portland Cement Concrete Materials for Civil Engineers ²	
CVEN 417	Bituminous Materials ²	
ECEN 370	Electronic Properties of Materials ²	
ECEN 440	Thin Film Technology and Device Application ²	
MEEN 360	Materials and Manufacturing Selection in Design ²	
MEEN 455	Engineering with Plastics ²	
MEEN 458	Processing and Characterization of Polymers ²	
MEEN 460	Corrosion Engineering ²	
MEEN 471	Elements of Composite Materials ²	
MEEN 475	Materials in Design ²	
MMET 207	Metallic Materials ²	
MMET 313	Industrial Welding Processes ²	
NUEN 465	Nuclear Materials Engineering ²	
PHYS 416	Physics of the Solid State ²	
Total Semester Credit Hours		15

¹ Except MSEN 201, MSEN 205, MSEN 222/MEEN 222, MSEN 281, MSEN 301, MSEN 302, MSEN 380, MSEN 400, MSEN 401, MSEN 402, MSEN 485, MSEN 491.

² Up to 2 of these electives (6 credits total) could consist of "Materials-focused course(s)" within the student's home major.

³ Except MSEN 201, MSEN 205, MSEN 222/MEEN 222, MSEN 281, MSEN 301, MSEN 302, MSEN 380, MSEN 400, MSEN 401, MSEN 402.

⁴ Maximum of 3 credits of MSEN 485 or MSEN 491

Students must make a grade of C or better in all courses.

Student must achieve an overall GPA of 2.5 in approved minor courses.

Corrosion Science and Engineering - Certificate

This program trains engineers in multiple corrosion science applications to address widespread industry demands.

The Certificate in Corrosion Science and Engineering was designed in response to industry demand and the national need in strategic sectors, such as infrastructure renewal, energy (extraction, conversion, and transportation), utilities (in particular water), transportation, production, and manufacturing.

The curriculum incorporates:

- cross-disciplinary components on materials science and engineering, thermodynamics, kinetics, and electrochemistry;
- interdisciplinary, integrative courses on the forms of corrosion, the electrochemical and degradation processes in extreme environments, and the control and mitigation strategies to prevent these processes in specific environments; and
- elective courses related to different engineering disciplines and applications as well as professional internships in industry and national laboratories.

The goals of the corrosion science and engineering certificate program are to train the next generation of scientists and engineers:

1. who will serve as a trained, advanced workforce for industry, academia, and government agencies with a basic understanding of environmental degradation assets required to optimize asset life cycle, production efficiency, and worker safety;
2. are familiar with the technological and computational tools and methods for corrosion and material degradation evaluation, inspection, detection, and prevention;
3. have interdisciplinary collaborative experience in materials preservation and degradation, with individuals from different science and engineering disciplines;
4. contribute to interdisciplinary efforts while developing a comprehensive understanding of the potentials and limitations of corrosion science and engineering; and
5. acquire skills necessary to thrive in their chosen career path.

Program Requirements

Code	Title	Semester Credit Hours
MSEN 440	Materials Electrochemistry and Corrosion	3
MSEN 444	Corrosion and Electrochemistry Lab	3
MSEN 446	Corrosion Prevention and Control Methods	3
Select one of the following:		3

AERO 413	Aerospace Materials Science	
BMEN 344	Biological Interactions and Testing	
CHEN 322	Chemical Engineering Materials	
CVEN 306	Materials Engineering for Civil Engineers	
MMET 207	Metallic Materials	
MSEN 201	Fundamentals of Materials Science and Engineering	
MSEN 222/ MEEN 222	Materials Science	
NUEN 265	Materials Science for Nuclear Energy Applications	
Select one of the following:		3
AERO 411	Applications of Fracture Mechanics to Aerospace Structures	
CHEM 466	Polymer Chemistry	
CHEM 470	Industrial Chemistry	
CHEN 430/ SENG 430	Risk Engineering	
CHEN 457	Environmental Engineering	
MEEN 460	Corrosion Engineering	
NUEN 465	Nuclear Materials Engineering	
PETE 355	Drilling Engineering	
Total Semester Credit Hours		15

Polymer Specialty - Certificate

The Polymer Specialty Certificate is designed to provide a strong interdisciplinary educational program for undergraduate engineering and suitably prepared science students interested in pursuing a polymer career.

This certificate will also provide knowledge to reduce the training time required to turn Texas A&M students into productive members of the industrial workforce. This program is the first of its kind offered in the State of Texas and is administered by the Polymer Technology Consortium. No other universities in the State of Texas offer a formal polymer curriculum, despite the significant role the polymer industry plays in the state's economy.

Benefits of this certificate:

- Gain an interdisciplinary education with an emphasis in polymers
- Be better prepared for jobs focusing on polymers
- Acquire an edge over students from other universities who have no documented polymer knowledge
- Obtain knowledge to foster entrepreneurial thinking
- Receive recognition on university transcript upon completion of certificate requirements and graduation
- Broaden your exposure to a diverse polymer science and engineering curriculum
- Expand employment horizons beyond the traditional industrial jobs

For additional information, contact MSEN Undergraduate Advising (msen-ug-advising@tamu.edu).

Program Requirements

Code	Title	Semester Credit Hours
Select two of the following:		6
BMEN 482	Polymeric Biomaterials	
CHEM 466	Polymer Chemistry	
CHEN 451	Introduction to Polymer Engineering	
MEEN 455	Engineering with Plastics	
MEEN 458	Processing and Characterization of Polymers	
MSEN 250	Soft Matter	
MSEN 420	Polymer Science	
Select two of the following:		6
BAEN 427	Engineering Aspects of Packaging	
BMEN 482	Polymeric Biomaterials	
BMEN 483	Polymeric Biomaterial Synthesis	
CHEM 466	Polymer Chemistry	
CHEN 451	Introduction to Polymer Engineering	
MEEN 455	Engineering with Plastics	
MEEN 458	Processing and Characterization of Polymers	
MSEN 250	Soft Matter	
MSEN 418	Composites Processing and Performance	
MSEN 420	Polymer Science	
MSEN 426	Polymer Laboratories	
MSEN 485	Directed Studies ¹	
or MSEN 491 Research		
Total Semester Credit Hours		12

¹ Up to 3 hours of credit can be substituted with research emphasizing polymers (provided polymer coursework has been initiated). Research must be approved by the director of the Polymer Technology Center.

Students should take at least 2 courses outside their department to receive the Polymer Specialty Certificate.

Must earn a grade of C or better in each course used towards certificate.

Must achieve an overall program GPA of 2.5 in approved certificate coursework.

J. Mike Walker '66 Department of Mechanical Engineering

What is Mechanical Engineering?

Mechanical engineering is a highly diversified profession. The mechanical engineer designs machines, devices, various products and control systems, and works with the generation, conversion, transmission, and utilization of mechanical and thermal power. Assignments often include analysis and synthesis of mechanical, thermal, and fluid systems. Mechanical engineers are also responsible for characterization, specification, and analysis of materials used in design and manufacturing. Manufacturing systems, robotics, electromechanical devices, and control systems are also the purview of the mechanical

engineer. Graduates in mechanical engineering are among the most versatile engineers and enjoy professional employment in industry, government, consulting, and research organizations. The undergraduate program in Mechanical Engineering at Texas A&M University is accredited by the Engineering Accreditation Commission of ABET, www.abet.org.

Where do Mechanical Engineers Work?

The work of mechanical engineers varies from general engineering to numerous, narrow specialties, as required by the wide variety of employers. A general list, though not in any way exhaustive, of the areas of professional employment opportunities available to mechanical engineers includes: design, construction, controls, materials specification and evaluation, analysis of thermal systems, fluid and solid mechanics, manufacturing, plant engineering, research and development, and technical sales. Many mechanical engineers are promoted to management and administrative positions as well.

Mechanical Engineering at Texas A&M

The mission of the Department of Mechanical Engineering is to serve the students of Texas A&M University, the State of Texas, and the nation by:

- providing quality education that is well-grounded in the fundamental principles of engineering, fostering innovation and preparing students for leadership positions and successful careers in industry, government, and academia;
- advancing the knowledge base of mechanical engineering to support the competitiveness of existing industry and to spawn new economic development in Texas and the nation through active involvement in basic and applied research in a global context; and
- successfully pursue life-long learning and advanced study opportunities, and subsequently contribute to the development of advanced concepts and leading edge technologies.

The objectives of the Mechanical Engineering program are to produce graduates who will:

- have successful careers, and become leaders, in industry and the public sector;
- appropriately apply acquired knowledge, work well with other people, effectively communicate ideas and technical information, and continue to learn and improve; and
- successfully pursue advanced studies, if they so choose, opportunities, and subsequently contribute to the development of advanced concepts and leading edge technologies.

Mechanical engineers should possess a thorough understanding of engineering science as well as analytical and practical skills in one of many basic mechanical engineering specialties. The mechanical engineering curriculum at Texas A&M requires students to develop and apply logical thinking, innovative approaches, and ethical standards as a prerequisite for professional competence. The curriculum consists of basic theory courses complemented by laboratory experiences in dynamic systems and controls, design, experimentation, fluid mechanics, heat transfer, manufacturing, and materials. Elective courses are offered in numerous areas including air conditioning, automotive engineering, computer-aided design, control systems, corrosion, energy conversion, internal combustion engines, manufacturing, materials, mechanical design, polymers, mechatronics, metallurgy, power generation, robotics, stress analysis, fluid mechanics, turbomachinery, and others. The selection of elective courses is dictated by the interests and goals of the

student, working with departmental advisors and within the curriculum guidelines.

Experiential Education in Mechanical Engineering

Many students enhance their education by participating in cooperative education and/or professional internships, which offer opportunities for employment in engineering positions while working toward a degree. Numerous study abroad programs are also available for gaining experience and perspectives in the international arena. Participation in student chapters of professional and honor societies provides leadership opportunities, collegial activities, and learning experiences outside the classroom. Many students also participate in research projects through individual directed studies courses with a professor. The mechanical engineering program culminates with a senior capstone design course sequence highlighted by real-life projects sponsored by various industries. Students benefit from the challenges and gratification that come through direct interaction with practicing engineers.

Before commencing course work in the major, students must be admitted to the major or have the approval of the department. The full bachelors program is offered on College Station and Qatar campuses. All mechanical engineering undergraduate coursework is offered on both campuses, whereas some coursework is offered via distance learning.

Faculty

Abido, Mahmoud Ymy, Instructional Assistant Professor
Mechanical Engineering
PHD, University of California, Merced, 2024

Aguilar, Guillermo, Professor
Mechanical Engineering
PHD, University of California - Santa Barbara, 1999

Allaire, Douglas L, Associate Professor
Mechanical Engineering
PHD, Massachusetts Institute of Technology, 2009

Ambrose, Robert O, University Distinguished Professor
Mechanical Engineering
PHD, University of Texas at Austin, 1991

Anand, N. K., Regents Professor
Mechanical Engineering
PHD, Purdue University, 1983

Antao, Dion S, Associate Professor
Mechanical Engineering
PHD, Drexel University, 2013

Balas, Mark J, Professor
Mechanical Engineering
PHD, University of Denver, 1974

Balawi, Shadi Omar, Instructional Professor
Mechanical Engineering
PHD, University of Cincinnati, 2007

Bandyopadhyay, Arkasama, Instructional Assistant Professor
Mechanical Engineering
PHD, University of Texas Austin, 2020

Banerjee, Debjyoti, Professor
Mechanical Engineering
PHD, University of California at Los Angeles, 1999

Borazjani, Iman, Professor
Mechanical Engineering
PHD, University of Minnesota, 2008

Charoenphol, Ploy Phapanin, Instructional Associate Professor
Mechanical Engineering
PHD, University of Michigan, 2012

Chen, Wei, Assistant Professor
Mechanical Engineering
PHD, University of Maryland, 2019

Claridge, David E, Professor
Mechanical Engineering
PHD, Stanford University, 1976

Cooper, Marcia A, Associate Professor
Mechanical Engineering
PHD, California Institute of Technology, 2004

Cope, Dale A, Professor of the Practice
Mechanical Engineering
PHD, Wichita State University, 2002

Corleto, Carlos Roberto, Professor of the Practice
Mechanical Engineering
PHD, Texas A&M University, 1990

Darbha, Swaroop V, Professor
Mechanical Engineering
PHD, University of California at Berkeley, 1994

Delgado, Adolfo, Associate Professor
Mechanical Engineering
PHD, Texas A&M University, 2008

Elliott, Matt S, Instructional Associate Professor
Mechanical Engineering
PHD, Texas A&M, 2013

Erdemir, Ali, University Distinguished Professor
Mechanical Engineering
PHD, Georgia Institute of Technology, 1986

Felts, Jonathan R, Associate Professor
Mechanical Engineering
PHD, University of Illinois Urbana Champaign, 2013

Friesen, Rebecca F, Assistant Professor
Mechanical Engineering
PHD, Northwestern University, 2020

Gao, Wei, Associate Professor
Mechanical Engineering
PHD, University of Texas at Austin, 2014

Gopalswamy, Swaminathan, Research Professor
Mechanical Engineering
PHD, University of California, 1991

Grunlan, Jaime C, Professor
Mechanical Engineering
PHD, University of Minnesota, 2001

Guo, Bing, Professor
Mechanical Engineering-Qatar Campus
PHD, Tsinghua University, China, 1998

Haglund, John S, Instructional Associate Professor
Mechanical Engineering
PHD, Texas A&M University, 2003

Han, Je C, Distinguished Professor
Mechanical Engineering
PHD, Massachusetts Inst of Technology, 1977

Hasnain, Zohaib, Assistant Professor
Mechanical Engineering
PHD, University of Maryland, 2014

Hassan, Ibrahim, Professor
Mechanical Engineering-Qatar Campus
PHD, Manitoba University, 1995

Hassan, Yassin A, University Distinguished Professor; Regents Professor
Mechanical Engineering
PHD, University of Illinois, 1980

Hipwell, M Cynthia, Professor
Mechanical Engineering
PHD, University of California at Berkeley, 1996

Hogan, Harry A, Professor
Mechanical Engineering
PHD, Texas A&M University, 1984

Hossain, Zubaer Md, Instructional Associate Professor
Mechanical Engineering
PHD, University of Illinois at Urbana-Champaign, 2011

Hubbard Jr, James E, University Distinguished Professor
Mechanical Engineering
PHD, Massachusetts Institute of Technology, 1982

Jacobs, Timothy J, Professor
Mechanical Engineering
PHD, University of Michigan, 2005

Jarrahbashi, Dorrin, Associate Professor
Mechanical Engineering
PHD, University of California Irvine, 2014

Kim, Haejune, Instructional Associate Professor
Mechanical Engineering
PHD, University of Wisconsin at Milwaukee, 2014

Kim, Won-Jong, Associate Professor
Mechanical Engineering
PHD, Massachusetts Inst of Technology, 1997

Kim, Yong Joe, Associate Professor
Mechanical Engineering
PHD, Purdue University, 2003

Krishnamoorthy, Aravind, Assistant Professor
Mechanical Engineering
PHD, Massachusetts Institute of Technology, 2016

Krishnamurthy, Vinayak Raman, Associate Professor
Mechanical Engineering
PHD, Purdue University, 2016

Kulatilaka, Waruna D, Professor
Mechanical Engineering
PHD, Purdue University, 2006

Lacy, Thomas E., Professor
Mechanical Engineering
PHD, Georgia Institute of Technology, 1998

Lan, Shoufeng, Assistant Professor
Mechanical Engineering
PHD, Georgia Institute of Technology, 2017

Langari, Reza, Regents Professor
Mechanical Engineering
PHD, University of California at Berkeley, 1991

Lavernia, Enrique J, Professor
Mechanical Engineering
PHD, Massachusetts Institute of Technology, 1986

Layton, Astrid C, Associate Professor
Mechanical Engineering
PHD, Georgia Institute of Technology, 2014

Lee, Cha Bum, Associate Professor
Mechanical Engineering
PHD, Gwangju Institute of Science and Technology, 2012

Lee, Kiju, Associate Professor
Mechanical Engineering
PHD, Johns Hopkins University, 2009

Lewis, Heather Smolensky, Lecturer
Mechanical Engineering
MEN, North Carolina State University, 2000

Li, Ying, Professor
Mechanical Engineering
PHD, University of Florida, 2007

Liang, Hong, Professor
Mechanical Engineering
PHD, Stevens Institute of Technology, 1992

Malak, Richard J, Professor
Mechanical Engineering
PHD, Georgia Institute of Technology, 2008

Mathieu, Olivier E, Research Associate Professor
Mechanical Engineering
PHD, University of Orleans, 2006

McAdams, Daniel A, Professor
Mechanical Engineering
PHD, The University of Texas at Austin, 1999

McFarland, Jacob A, Associate Professor
Mechanical Engineering
PHD, Texas A&M University, 2013

McVay, Matilda W, Instructional Professor
Mechanical Engineering
PHD, Texas A&M University, 1996

Mohiuddin, Waqar, Instructional Associate Professor
Mechanical Engineering
PHD, Texas A&M University, 2008

Moreno, Michael R, Associate Professor
Mechanical Engineering
PHD, Texas A&M University, 2009

Muliana, Anastasia Hanifah, Professor
Mechanical Engineering
PHD, Georgia Institute of Technology, 2004

Needleman, Alan, University Distinguished Professor
Mechanical Engineering
PHD, Harvard University, 1971

O'Neill, Zheng, Professor
Mechanical Engineering
PHD, Oklahoma State University, 2004

Pagilla, Prabhakar R, Professor
Mechanical Engineering
PHD, University of California at Berkeley, 1996

Pal, Raj Kumar, Assistant Professor
Mechanical Engineering
PHD, University of Illinois at Urbana-Champaign, 2015

Palazzolo, Alan B, Professor
Mechanical Engineering
PHD, University of Virginia, 1981

Pan, Heng, Associate Professor
Mechanical Engineering
PHD, University of California-Berkeley, 2009

Pate, Michael B, Professor
Mechanical Engineering
PHD, Purdue University, 1982

Petersen, Eric L, Regents Professor
Mechanical Engineering
PHD, Stanford University, 1998

Pharr, Matt, Associate Professor
Mechanical Engineering
PHD, Harvard University, 2014

Powell Palm, Matthew John, Assistant Professor
Mechanical Engineering
PHD, University of California, Berkeley, 2020

Qiu, Jingjing, Associate Professor
Mechanical Engineering
PHD, Florida State University, 2008

Rasmussen, Bryan P, Professor
Mechanical Engineering
PHD, University of Illinois, 2005

Rathinam, Sivakumar, Professor
Mechanical Engineering
PHD, University of California at Berkeley, 2007

Reddy, J.N., Distinguished Professor
Mechanical Engineering
PHD, University of Alabama at Huntsville, 1974

Restrepo Perez, Vanessa, Assistant Professor
Mechanical Engineering
PHD, Purdue University, 2021

Sadr, Reza, Professor
Mechanical Engineering-Qatar Campus
PHD, University of Utah, 2002

Saripalli, Srikanth, Professor
Mechanical Engineering
PHD, University of Southern California, 2007

Schoenung, Julie M, Professor
Mechanical Engineering
PHD, Massachusetts Institute of Technology, 1987

Srinivasa, Arun R, Professor
Mechanical Engineering
PHD, University of California at Berkeley, 1991

Staack, David A, Associate Professor
Mechanical Engineering
PHD, Drexel University, 2008

Subramaniam, Velumani, Instructional Associate Professor
Mechanical Engineering
PHD, Bharathiar University, 1998

Suh, C. Steve, Associate Professor
Mechanical Engineering
PHD, Texas A&M University, 1997

Tafreshi, Reza, Professor
Mechanical Engineering-Qatar Campus
PHD, University of British Columbia, Canada, 2005

Taheri Andani, Mohsen, Assistant Professor
Mechanical Engineering
PHD, University of Michigan, 2022

Tai, Bruce L., Associate Professor
Mechanical Engineering
PHD, University of Michigan Ann Arbor, 2011

Tarazaga, Pablo A, Professor
Mechanical Engineering
PHD, Virginia Polytechnic Institute and State University, 2009

Thomas, Gray Cortright, Assistant Professor
Mechanical Engineering
PHD, University of Texas at Austin, 2019

Thomas, Naveen, Instructional Assistant Professor
Mechanical Engineering
PHD, Texas A&M University, 2021

Thyagarajan, Ravi Shanker, Professor of the Practice
Mechanical Engineering
PHD, California Institute of Technology, 1989

Tsenn, Joanna N, Instructional Associate Professor
Mechanical Engineering
PHD, Texas A&M University, 2016

Tseregounis, Spyros I, Professor of the Practice
Mechanical Engineering
PHD, University of California at Los Angeles, 1984

Walsh, Michael M, Associate Professor of the Practice
Mechanical Engineering
MFA, University of Southern California, 2001

Wang, Ni, Instructional Associate Professor
Mechanical Engineering
PHD, University of Louisville, 2012

Wang, Ya, Associate Professor
Mechanical Engineering
PHD, Virginia Tech, 2012

Weaver-Rosen, Jonathan M, Instructional Assistant Professor
Mechanical Engineering
PHD, Texas A&M, 2021

Wen, Sy-Bor, Associate Professor
Mechanical Engineering
PHD, University of California at Berkeley, 2006

Wilkerson, Justin W, Associate Professor
Mechanical Engineering
PHD, Johns Hopkins University, 2014

Wright, Lesley M, Professor
Mechanical Engineering
PHD, Texas A&M University, 2006

Zheng, Minghui, Associate Professor
Mechanical Engineering
PHD, University of California, Berkeley, 2017

Zhou, Yuxiao, Assistant Professor
Mechanical Engineering
PHD, Pennsylvania State University, 2020

Majors

- Bachelor of Science in Mechanical Engineering (p. 686)

Mechanical Engineering - BS

This program trains versatile engineers in mechanical systems, design and manufacturing, equipping them with analytical and practical skills for multiple industries and advanced roles.

What is Mechanical Engineering?

Mechanical engineering is a highly diversified profession. The mechanical engineer designs machines, devices, various products

and control systems, and works with the generation, conversion, transmission, and utilization of mechanical and thermal power. Assignments often include analysis and synthesis of mechanical, thermal, and fluid systems. Mechanical engineers are also responsible for characterization, specification, and analysis of materials used in design and manufacturing. Manufacturing systems, robotics, electromechanical devices, and control systems are also the purview of the mechanical engineer. Graduates in mechanical engineering are among the most versatile engineers and enjoy professional employment in industry, government, consulting, and research organizations. The undergraduate program in Mechanical Engineering at Texas A&M University is accredited by the Engineering Accreditation Commission of ABET, www.abet.org.

Where do Mechanical Engineers Work?

The work of mechanical engineers varies from general engineering to numerous, narrow specialties, as required by the wide variety of employers. A general list, though not in any way exhaustive, of the areas of professional employment opportunities available to mechanical engineers includes: design, construction, controls, materials specification and evaluation, analysis of thermal systems, fluid and solid mechanics, manufacturing, plant engineering, research and development, and technical sales. Many mechanical engineers are promoted to management and administrative positions as well.

Mechanical Engineering at Texas A&M

Mechanical engineers should possess a thorough understanding of engineering science as well as analytical and practical skills in one of many basic mechanical engineering specialties. The mechanical engineering curriculum at Texas A&M requires students to develop and apply logical thinking, innovative approaches, and ethical standards as a prerequisite for professional competence. The curriculum consists of basic theory courses complemented by laboratory experiences in dynamic systems and controls, design, experimentation, fluid mechanics, heat transfer, manufacturing, and materials. Elective courses are offered in numerous areas including air conditioning, automotive engineering, computer-aided design, control systems, corrosion, energy conversion, internal combustion engines, manufacturing, materials, mechanical design, polymers, mechatronics, metallurgy, power generation, robotics, stress analysis, fluid mechanics, turbomachinery, and others. The selection of elective courses is dictated by the interests and goals of the student, working with departmental advisors and within the curriculum guidelines.

Experiential Education in Mechanical Engineering

Many students enhance their education by participating in cooperative education and/or professional internships, which offer opportunities for employment in engineering positions while working toward a degree. Numerous study abroad programs are also available for gaining experience and perspectives in the international arena. Participation in student chapters of professional and honor societies provides leadership opportunities, collegial activities, and learning experiences outside the classroom. Many students also participate in research projects through individual directed studies courses with a professor. The mechanical engineering program culminates with a senior capstone design course sequence highlighted by real-life projects sponsored by various industries. Students benefit from the challenges and gratification that come through direct interaction with practicing engineers.

Before commencing course work in the major, students must be admitted to the major or have the approval of the department.

Program Requirements

The freshman year is identical for degrees in aerospace engineering, architectural engineering, civil engineering, computer engineering, computer science, data engineering, electrical engineering, electronic systems engineering technology, environmental engineering, industrial distribution, industrial engineering, interdisciplinary engineering, manufacturing and mechanical engineering technology, mechanical engineering, multidisciplinary engineering technology, nuclear engineering, ocean engineering, and petroleum engineering. The freshman year is slightly different for chemical engineering, biomedical engineering and materials science and engineering degrees in that students take CHEM 119 or CHEM 107/CHEM 117 and CHEM 120. Students pursuing degrees in biological and agricultural engineering should refer to the specific curriculum for this major. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year

Fall		Semester Credit Hours
CHEM 107	General Chemistry for Engineering Students ^{1,4}	3
CHEM 117	General Chemistry for Engineering Students Laboratory ^{1,4}	1
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	3
ENGR 102	Engineering Lab I - Computation ¹	2
MATH 151	Engineering Mathematics I ^{1,2}	4
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16
Spring		
ENGR 216/ PHYS 216	Experimental Physics and Engineering Lab II - Mechanics ¹	2
MATH 152	Engineering Mathematics II ¹	4
PHYS 206	Newtonian Mechanics for Engineering and Science ¹	3
University Core Curriculum (p. 26) ³		3
Select one of the following:		3-4
CHEM 120	Fundamentals of Chemistry II ^{1,4}	
University Core Curriculum (p. 26) ^{3,5}		
Semester Credit Hours		15-16
Total Semester Credit Hours		31-32

¹ A grade of C or better is required.

² Entering students will be given a math placement exam. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.

³ Of the 21 hours shown as University Core Curriculum electives, 3 must be from creative arts (see AREN curriculum for more information), 3 from social and behavioral sciences (see DAEN and IDIS curriculum for more information), 3 from language, philosophy and culture (see CVEN, EVEN and PETE curriculum for more information), 6 from

American history and 6 from government/political science. The required 3 hours of international and cultural diversity and 3 hours of cultural discourse may be met by courses satisfying the creative arts, social and behavioral sciences, language, philosophy and culture, and American history requirements if they are also on the approved list of international and cultural diversity (p. 49) courses and cultural discourse (p. 48) courses.

⁴ BMEN, CHEN and MSEN require 8 hours of fundamentals of chemistry which are satisfied with CHEM 119 or CHEM 107/CHEM 117 and CHEM 120; Students with an interest in BMEN, CHEN and MSEN can take CHEM 120 second semester freshman year. CHEM 120 will substitute for CHEM 107/CHEM 117.

⁵ For BS-PETE, allocate 3 hours to core communications course (ENGL 210, COMM 203, COMM 205, or COMM 243) and/or 3 hours to UCC elective. For BS-MEEN, allocate 3 hours to core communications course (ENGL 203, ENGL 210, COMM 203 or COMM 205) and/or 3 hours to UCC elective.

Second Year

Fall		Semester Credit Hours
ENGR 217/ PHYS 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism ¹	2
MATH 251	Engineering Mathematics III ¹	3
MEEN 210	Geometric Modeling for Mechanical Design ¹	2
MEEN 225	Engineering Mechanics ¹	3
PHYS 207	Electricity and Magnetism for Engineering and Science ¹	3
STAT 211	Principles of Statistics I ¹	3
Semester Credit Hours		16
Spring		
ECEN 215	Principles of Electrical Engineering ¹	3
MATH 308	Differential Equations ¹	3
MEEN 223	Principles of Materials and Manufacturing ¹	2
MEEN 315	Principles of Thermodynamics ¹	3
MEEN 260	Mechanical Measurements ¹	3
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		17
Summer		
High Impact Experience ⁶		0
MEEN 399	High Impact Experience for Mechanical Engineers	
Semester Credit Hours		0

Third Year

Fall		
MEEN 305	Solid Mechanics ¹	3
MEEN 344	Fluid Mechanics ¹	3
MEEN 345	Fluid Mechanics Laboratory ¹	1
MEEN 357	Engineering Analysis for Mechanical Engineers ¹	3
MEEN 363	Dynamics and Vibrations ¹	3
MEEN 381	Seminar	1
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		17

Spring

MEEN 360	Materials and Manufacturing Selection in Design ¹	3
MEEN 361	Materials and Manufacturing in Design Laboratory ¹	1
MEEN 364	Dynamic Systems and Controls ¹	3
MEEN 365	Dynamic Systems and Controls Lab ¹	1
MEEN 368	Solid Mechanics in Mechanical Design ¹	3
MEEN 461	Heat Transfer ¹	3
MEEN 464	Heat Transfer Laboratory ¹	1
Semester Credit Hours		15

Fourth Year

Fall		
ISEN 302	Economic Analysis of Engineering Projects	2
MEEN 401	Introduction to Mechanical Engineering Design ¹	3
University Core Curriculum (p. 26) ³		3
Technical elective ⁷		9
Semester Credit Hours		17
Spring		
MEEN 402	Intermediate Design	3
University Core Curriculum (p. 26) ³		6
Technical elective ⁷		3
General elective ⁸		3
Semester Credit Hours		15
Total Semester Credit Hours		97

⁶ All students are required to complete a high-impact experience in order to graduate. The list of possible high-impact experiences is available in the MEEN advising office.

⁷ Technical electives: See the Mechanical Engineering Academic Advisor's Office for lists of approved courses. Students must take at least three MEEN technical electives of which at least one course is from the Thermo-fluids Systems area; at least one from Data Science & Experimentation area; and at least one course is from Mechanical & Manufacturing Systems area.

⁸ Select from any 300-499 course.

This curriculum lists the minimum number of classes required for graduation. Additional courses may be taken.

Total Program Hours 128

Department of Multidisciplinary Engineering

The Department of Multidisciplinary Engineering provides opportunities for engineering study outside the constraints of traditional engineering curricula. Students may engage with the department in a variety of ways including four-year engineering degrees, combination degree programs that award baccalaureate and graduate/professional degrees in a shortened timeframe, minors, certificates, courses, and a range of engaging programs such as Engineering Entrepreneurship (<https://engineering.tamu.edu/student-life/eep/>) and Subsea Engineering (<https://engineering.tamu.edu/mtde/academics/degrees/graduate/mse-subsea/about-the-subsea-engineering-program.html>).

The mission of the Department of Multidisciplinary Engineering is to:

1. Utilize the strength of the College of Engineering's core discipline departments to ensure graduates have strong technical skills appropriate to engineering practice,
2. Provide a vehicle for innovation in both engineering curriculum design and pedagogy, including active classroom techniques, laboratories, and other experiential learning activities such as fabrication, research, internship, and co-op,
3. Offer customizable opportunities for regional and/or underserved populations,
4. Enable means for students to have unique interdisciplinary/multidisciplinary educational experiences, which may include non-engineering disciplines,
5. Support access for students to develop knowledge and skills in emerging and even not-yet-existing fields, and
6. Prepare leaders and engineers who exhibit a dedication to life-long learning, professional and ethical behaviors, sensitivity to global and cultural awareness and impact, and being agents of positive change.

In addition to activities at the College Station campus, the department maintains strong presences at the Galveston and McAllen campuses and through distance education worldwide. The department is an active innovator in engineering education through the creation and delivery of programs as well as granting students the ability to create new fields of study through the interdisciplinary engineering degree programs.

Faculty

Anwar, Saira, Assistant Professor
Multidisciplinary Engineering
PHD, Purdue University, 2020

Brumbelow, Kelly, Associate Professor
Multidisciplinary Engineering
PHD, Georgia Institute of Technology, 2001

Chen, Wei-An, Instructional Assistant Professor
Multidisciplinary Engineering
PHD, The University of Tokyo, 2020

Conkey, Andrew Paul, Instructional Professor
Multidisciplinary Engineering
PHD, Texas A&M University, 2007

Curran, Chris, Associate Professor of the Practice
Multidisciplinary Engineering
BS, Texas A&M University, 1987

Deere, Paul P, Associate Professor of the Practice
Multidisciplinary Engineering
BS, Texas A&M University, 1992

Diaz Rodriguez, Ivan De Jesus, Instructional Associate Professor
Multidisciplinary Engineering
PHD, Texas A&M University, 2017

Donnell, James M, Professor of the Practice
Multidisciplinary Engineering
BS, Texas A&M University, 1982

Finberg, Christopher Jason, Associate Professor of the Practice
Multidisciplinary Engineering
BS, University of Minnesota - Twin Cities, 1994

Fox, Rafael O, Associate Professor of the Practice
Multidisciplinary Engineering
MS, Texas A&M University Kingsville, 1996

Guo, Guodong, Instructional Assistant Professor
Multidisciplinary Engineering
PHD, North Carolina State University, 2019

Jacobs, Timothy J, Professor
Multidisciplinary Engineering
PHD, University of Michigan, 2005

Ledbetter, William Ronald, Professor of the Practice
Multidisciplinary Engineering
BS, Texas A&M University, 1975

Ligler, George Todd, Professor
Multidisciplinary Engineering
PHD, University of Oxford, 1975

Lopez, Oscar, Professor of the Practice
Multidisciplinary Engineering
MS, University of California at Berkeley, 1988

Medina, Mario A, Professor
Multidisciplinary Engineering
PHD, Texas A&M University, 1992

Morganti, Dianna E. B., Instructional Associate Professor
Multidisciplinary Engineering
MLS, University of North Texas, 2003

Munoz Vazquez, Aldo Jonathan, Instructional Associate Professor
Multidisciplinary Engineering
PHD, Centro de Investigacion y de Estudios Avanzados, 2017

Murzi, Homero, Associate Professor
Multidisciplinary Engineering
PHD, Virginia Tech, 2016

Olarte, Walter E, Professor of the Practice
Multidisciplinary Engineering
PHD, Texas A&M University, 2021
MEN, Texas A&M University, 2005

Osborne, Lisa Anne, Associate Professor of the Practice
Multidisciplinary Engineering
BS, University of Texas at Austin, 1984

Porter, Jay R, Professor
Multidisciplinary Engineering
PHD, Texas A&M University, 1993

Rich, Sharon Kay, Professor of the Practice
Multidisciplinary Engineering
BS, Texas A&M University - Galveston, 1992

Sears, Nicholas Allen, Instructional Associate Professor
Multidisciplinary Engineering
PHD, Texas A&M University, 2017

Shaw, Surupa, Instructional Assistant Professor
Multidisciplinary Engineering
PHD, University of New Hampshire, 2015

Shryock, Kristi J, Associate Professor
Multidisciplinary Engineering
PHD, Texas A&M University, 2011

Shukla, Keshawa, Professor of the Practice
Multidisciplinary Engineering
PHD, Banaras Hindu University, 1979

Sorensen, Andrew D, Associate Professor
Multidisciplinary Engineering
PHD, University of Nebraska-Lincoln, 2009

Stanev, Lyubo, Associate Professor of the Practice
Multidisciplinary Engineering
MEN, Texas A&M University, 2018

Walters, Filza H., Professor of the Practice
Multidisciplinary Engineering
MBA, Lawrence Technological University, 1997

Majors

- Bachelor of Science in Architectural Engineering, Mechanical Systems for Buildings Track (p. 690)
- Bachelor of Science in Architectural Engineering, Structural Systems for Buildings Track (p. 692)
- Bachelor of Science in Interdisciplinary Engineering (p. 693)
- Bachelor of Science in Interdisciplinary Engineering and Master of Public Health in Occupational Safety and Health, 5-Year Degree Program (p. 695)
- Bachelor of Science in Interdisciplinary Engineering and Juris Doctor, 6-Year Degree Program (p. 697)

Minors

- Engineering Entrepreneurship Minor (p. 699)
- Engineering Project Management Minor (p. 700)

Architectural Engineering - BS, Mechanical Systems for Buildings Track

This program prepares engineers for the architectural, engineering and construction industry, focusing on mechanical building systems like HVAC and energy efficiency.

The BS in Architectural Engineering degree prepares graduates for professional engineering careers within the architectural, engineering and construction industry. Specifically, it prepares them to become licensed professional engineers, achieve leadership positions in consulting firms, suppliers or government agencies, as well as successfully complete graduate studies in engineering or other areas. The Mechanical Building Systems Track to fulfill the BS in Architectural Engineering degree prepares students for careers with more emphasis on energy efficiency, HVAC (Heating, Ventilation, and Air-Conditioning), building environmental controls, and building environment. The focused electives prepare students to design and analyze mechanical systems for buildings.

Program Requirements

The freshman year is identical for degrees in aerospace engineering, architectural engineering, civil engineering, computer engineering, computer science, data engineering, electrical engineering, electronic systems engineering technology, environmental engineering, industrial distribution, industrial engineering, interdisciplinary engineering, manufacturing and mechanical engineering technology, mechanical engineering, multidisciplinary engineering technology, nuclear engineering, ocean engineering, and petroleum engineering. The freshman year is slightly different for chemical engineering, biomedical engineering and materials science and engineering degrees in that students take CHEM 119 or CHEM 107/CHEM 117 and CHEM 120. Students pursuing degrees in biological and agricultural engineering should refer to the specific curriculum for this major. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year

Fall		Semester Credit Hours
CHEM 107	General Chemistry for Engineering Students ^{1,4}	3
CHEM 117	General Chemistry for Engineering Students Laboratory ^{1,4}	1
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	3
ENGR 102	Engineering Lab I - Computation ¹	2
MATH 151	Engineering Mathematics I ^{1,2}	4
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16
Spring		
ENGR 216/ PHYS 216	Experimental Physics and Engineering Lab II - Mechanics ¹	2
MATH 152	Engineering Mathematics II ¹	4
PHYS 206	Newtonian Mechanics for Engineering and Science ¹	3
University Core Curriculum (p. 26) ³		3
Select one of the following:		3-4
CHEM 120	Fundamentals of Chemistry II ^{1,4}	
University Core Curriculum (p. 26) ^{3,5}		
Semester Credit Hours		15-16
Total Semester Credit Hours		31-32

¹ A grade of C or better is required.

² Entering students will be given a math placement exam. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.

³ Of the 21 hours shown as University Core Curriculum electives, 3 must be from creative arts (see AREN curriculum for more information), 3 from social and behavioral sciences (see DAEN and IDIS curriculum for more information), 3 from language, philosophy and culture (see CVEN, EVEN and PETE curriculum for more information), 6 from American history and 6 from government/political science. The required 3 hours of international and cultural diversity and 3 hours of cultural discourse may be met by courses satisfying the creative

arts, social and behavioral sciences, language, philosophy and culture, and American history requirements if they are also on the approved list of international and cultural diversity (p. 49) courses and cultural discourse (p. 48) courses.

⁴ BMEN, CHEN and MSEN require 8 hours of fundamentals of chemistry which are satisfied with CHEM 119 or CHEM 107/CHEM 117 and CHEM 120; Students with an interest in BMEN, CHEN and MSEN can take CHEM 120 second semester freshman year. CHEM 120 will substitute for CHEM 107/CHEM 117.

⁵ For BS-PETE, allocate 3 hours to core communications course (ENGL 210, COMM 203, COMM 205, or COMM 243) and/or 3 hours to UCC elective. For BS-MEEN, allocate 3 hours to core communications course (ENGL 203, ENGL 210, COMM 203 or COMM 205) and/or 3 hours to UCC elective.

Second Year

Fall		Semester Credit Hours
AREN 200	Architectural Engineering Foundations ^{1,6}	2
AREN 210	Fundamentals of Building Information Modeling for Architectural Engineering ¹	3
AREN 221	Engineering Mechanics - Statics and Dynamics for Architectural Engineers ¹	4
AREN 281	Architectural Engineering Seminar ¹	1
ENGR 217/ PHYS 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism ¹	2
MATH 251 or MATH 253	Engineering Mathematics III ¹ or Engineering Mathematics III	3
PHYS 207	Electricity and Magnetism for Engineering and Science ¹	3
Semester Credit Hours		18
Spring		
AREN 300	Architectural Engineering Systems ¹	3
AREN 310	Thermal-Fluid Sciences for Architectural Engineers ¹	4
CVEN 305	Mechanics of Materials ¹	3
MATH 308	Differential Equations ¹	3
Select one of the following: ⁷		3
ARCH 249	Survey of World Architecture History I	
ARCH 250	Survey of World Architecture History II	
ARCH 350	History and Theory of Modern and Contemporary Architecture	
Semester Credit Hours		16

Summer

High Impact Experience ⁸		
AREN 399	High Impact Experience for Architectural Engineers	
Semester Credit Hours		0

Third Year

Fall		
AREN 311	Thermal-Fluid Sciences II for Architectural Engineers ¹	3
AREN 320	Lighting Engineering for Buildings ¹	3
CVEN 302	Computer Applications in Engineering and Construction ¹	3

ECEN 215	Principles of Electrical Engineering ¹	3
ISEN 302	Economic Analysis of Engineering Projects ¹	2
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	

Semester Credit Hours 17

Spring

AREN 330	Mechanical Systems for Buildings ¹	3
AREN 430	Hygrothermal Analysis of Building Envelopes ¹	3
CVEN 345	Theory of Structures ¹	3
MSEN 222/ MEEN 222	Materials Science ¹	3
University Core Curriculum (p. 26) ³		3

Semester Credit Hours 15

Fourth Year

Fall		
AREN 401	Architectural Engineering Design I ^{1,6}	4
AREN 440	Architectural Engineering Heating, Ventilating and Air Conditioning Design ¹	3
CVEN 446	Structural Steel Design ¹	3
University Core Curriculum (p. 26) ³		3
Technical Elective I ^{1,9}		3

Semester Credit Hours 16

Spring

AREN 402	Architectural Engineering Design II ¹	3
COSC 333	Project Management for Facility Managers ¹	3
PHIL 482	Ethics and Engineering ¹⁰	3
Math/Science elective ^{1,11}		3
Technical Elective II ^{1,9}		3

Semester Credit Hours 15

Total Semester Credit Hours 97

⁶ All students must take at least two courses in their major that are designated as writing intensive (W) or one writing intensive and one communications intensive (C) course. AREN 200 and AREN 401 taken at Texas A&M University satisfy this requirement. A grade of C or better is required in these courses.

⁷ The three architectural (ARCH) history electives all satisfy the University Core Curriculum requirements for Creative Arts and International and Cultural Diversity (ICD).

⁸ All students are required to complete a high-impact experience in order to graduate. The list of possible high-impact experiences is available in the AREN advising office.

⁹ Select from ARCH 328, ARCH 335, ARCH 421, COSC 253, COSC 325, COSC 326, COSC 461; BAEN 477/MEEN 477, CVEN 306, CVEN 363, CVEN 365, CVEN 444, CVEN 445, MEEN 439, MEEN 469, MEEN 477/BAEN 477, SENG 422.

¹⁰ PHIL 482 - Engineering Ethics satisfies the University Core Curriculum requirements for Language/Philosophy/Culture and Cultural Discourse (CD).

¹¹ Select from ATMO 363, ECCB 205, GEOG 205, GEOL 101, GEOL 104, MATH 304, MATH 311, MATH 401, PHYS 222, RWFM 375, STAT 211, STAT 414.

A grade of C or better is required in all science, mathematics, and engineering courses taken to satisfy degree requirements.

This curriculum lists the minimum number of classes required for graduation. Additional courses may be taken.

Total Program Hours 128

Architectural Engineering - BS, Structural Systems for Buildings Track

This program prepares engineers for the architectural, engineering and construction industry, emphasizing structural building systems design and safety, leading to professional licensure and advanced career opportunities.

The BS in Architectural Engineering degree prepares graduates for professional engineering careers within the architectural, engineering and construction industry. Specifically, it prepares graduates to become licensed professional engineers, achieve leadership positions in consulting firms, suppliers or government agencies, as well as successfully complete graduate studies in engineering or other areas. The Structural Building Systems Track to fulfill the BS in Architectural Engineering degree prepares students for careers with more emphasis on the structural design and safety of buildings. The focused electives prepare students to design and analyze structural systems for buildings.

Program Requirements

The freshman year is identical for degrees in aerospace engineering, architectural engineering, civil engineering, computer engineering, computer science, data engineering, electrical engineering, electronic systems engineering technology, environmental engineering, industrial distribution, industrial engineering, interdisciplinary engineering, manufacturing and mechanical engineering technology, mechanical engineering, multidisciplinary engineering technology, nuclear engineering, ocean engineering, and petroleum engineering. The freshman year is slightly different for chemical engineering, biomedical engineering and materials science and engineering degrees in that students take CHEM 119 or CHEM 107/CHEM 117 and CHEM 120. Students pursuing degrees in biological and agricultural engineering should refer to the specific curriculum for this major. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year

Fall		Semester Credit Hours
CHEM 107	General Chemistry for Engineering Students ^{1,4}	3
CHEM 117	General Chemistry for Engineering Students Laboratory ^{1,4}	1

ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	3
ENGR 102	Engineering Lab I - Computation ¹	2
MATH 151	Engineering Mathematics I ^{1,2}	4
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16
Spring		
ENGR 216/ PHYS 216	Experimental Physics and Engineering Lab II - Mechanics ¹	2
MATH 152	Engineering Mathematics II ¹	4
PHYS 206	Newtonian Mechanics for Engineering and Science ¹	3
University Core Curriculum (p. 26) ³		3
Select one of the following:		3-4
CHEM 120	Fundamentals of Chemistry II ^{1,4}	
University Core Curriculum (p. 26) ^{3,5}		
Semester Credit Hours		15-16
Total Semester Credit Hours		31-32

¹ A grade of C or better is required.

² Entering students will be given a math placement exam. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.

³ Of the 21 hours shown as University Core Curriculum electives, 3 must be from creative arts (see AREN curriculum for more information), 3 from social and behavioral sciences (see DAEN and IDIS curriculum for more information), 3 from language, philosophy and culture (see CVEN, EVEN and PETE curriculum for more information), 6 from American history and 6 from government/political science. The required 3 hours of international and cultural diversity and 3 hours of cultural discourse may be met by courses satisfying the creative arts, social and behavioral sciences, language, philosophy and culture, and American history requirements if they are also on the approved list of international and cultural diversity (p. 49) courses and cultural discourse (p. 48) courses.

⁴ BMEN, CHEN and MSEN require 8 hours of fundamentals of chemistry which are satisfied with CHEM 119 or CHEM 107/CHEM 117 and CHEM 120; Students with an interest in BMEN, CHEN and MSEN can take CHEM 120 second semester freshman year. CHEM 120 will substitute for CHEM 107/CHEM 117.

⁵ For BS-PETE, allocate 3 hours to core communications course (ENGL 210, COMM 203, COMM 205, or COMM 243) and/or 3 hours to UCC elective. For BS-MEEN, allocate 3 hours to core communications course (ENGL 203, ENGL 210, COMM 203 or COMM 205) and/or 3 hours to UCC elective.

Second Year

Fall		Semester Credit Hours
AREN 200	Architectural Engineering Foundations ^{1,6}	2
AREN 210	Fundamentals of Building Information Modeling for Architectural Engineering ¹	3
AREN 221	Engineering Mechanics - Statics and Dynamics for Architectural Engineers ¹	4
AREN 281	Architectural Engineering Seminar ¹	1

ENGR 217/ PHYS 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism ¹	2
MATH 251 or MATH 253	Engineering Mathematics III ¹ or Engineering Mathematics III	3
PHYS 207	Electricity and Magnetism for Engineering and Science ¹	3
Semester Credit Hours		18
Spring		
AREN 300	Architectural Engineering Systems ¹	3
AREN 310	Thermal-Fluid Sciences for Architectural Engineers ¹	4
CVEN 305	Mechanics of Materials ¹	3
MATH 308	Differential Equations ¹	3
Select one of the following: ⁷		3
ARCH 249	Survey of World Architecture History I	
ARCH 250	Survey of World Architecture History II	
ARCH 350	History and Theory of Modern and Contemporary Architecture	
Semester Credit Hours		16
Summer		
High Impact Experience ⁸		
AREN 399	High Impact Experience for Architectural Engineers	
Semester Credit Hours		0
Third Year		
Fall		
AREN 311	Thermal-Fluid Sciences II for Architectural Engineers ¹	3
AREN 320	Lighting Engineering for Buildings ¹	3
CVEN 302	Computer Applications in Engineering and Construction ¹	3
CVEN 306	Materials Engineering for Civil Engineers ¹	3
ECEN 215	Principles of Electrical Engineering ¹	3
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
Semester Credit Hours		18
Spring		
AREN 330	Mechanical Systems for Buildings ¹	3
AREN 430	Hygrothermal Analysis of Building Envelopes ¹	3
CVEN 342 or CVEN 343	Materials of Construction ¹ or Portland Cement Concrete Materials for Civil Engineers	3
CVEN 345	Theory of Structures ¹	3
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		15
Fourth Year		
Fall		
AREN 401	Architectural Engineering Design I ^{1,6}	4
CVEN 444	Structural Concrete Design ¹	3

CVEN 446	Structural Steel Design ¹	3
ISEN 302	Economic Analysis of Engineering Projects ¹	2
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		15
Spring		
AREN 402	Architectural Engineering Design II ¹	3
COSC 333	Project Management for Facility Managers ¹	3
PHIL 482	Ethics and Engineering ⁹	3
Technical Elective ^{1,10}		3
Math/Science elective ^{1,11}		3
Semester Credit Hours		15
Total Semester Credit Hours		97

⁶ All students must take at least two courses in their major that are designated as writing intensive (W) or one writing intensive and one communications intensive (C) course. AREN 200 and AREN 401 taken at Texas A&M University satisfy this requirement. A grade of C or better is required in these courses.

⁷ The three architectural (ARCH) history electives all satisfy the University Core Curriculum requirements for Creative Arts and International and Cultural Diversity (ICD).

⁸ All students are required to complete a high-impact experience in order to graduate. The list of possible high-impact experiences is available in the AREN advising office.

⁹ PHIL 482 - Engineering Ethics satisfies the University Core Curriculum requirements for language/philosophy/culture and cultural discourse (CD).

¹⁰ Select from ARCH 327, ARCH 328, ARCH 335, ARCH 421, COSC 253, COSC 321, COSC 325, COSC 326, COSC 461; AREN 440, BAEN 477/MEEN 477, CVEN 363, CVEN 365, CVEN 445, MEEN 439, MEEN 477/BAEN 477, SENG 422.

¹¹ Select from ATMO 363, ECCB 205, GEOG 205, GEOL 101, GEOL 104, MATH 304, MATH 311, MATH 401, PHYS 222, RWFM 375, STAT 211, STAT 414

A grade of C or better is required in all science, mathematics, and engineering courses taken to satisfy degree requirements.

This curriculum lists the minimum number of classes required for graduation. Additional courses may be taken.

Total Program Hours 128

Interdisciplinary Engineering - BS

This program offers a tailored engineering education, allowing students to specialize in emerging fields or unique interdisciplinary studies, leading to distinct skill sets.

Earning a Bachelor of Science (BS) degree in interdisciplinary engineering (ITDE) allows students to develop unique skill sets and specialize in areas that may not be provided in a traditional department degree program. Such specializations may be driven by emerging technical fields or by a student's desire to have an immersive interdisciplinary experience. ITDE students graduate with a specific set of skills resulting from a unique program of study.

In addition to the coursework students must take, remaining credits of specialization may either be determined through a pre-approved program of study or through a student-led design with approval from the ITDE Advisory Committee.

Many students enhance their education by participating in cooperative education and/or professional internships, which offer opportunities for employment in engineering positions while working toward a degree. Numerous study abroad programs are also available for gaining experience and perspectives in the international arena. Participation in student chapters of professional and honor societies provides leadership opportunities, collegial activities, and learning experiences outside the classroom. Many students also participate in research projects through individual directed studies courses with a professor.

Before commencing course work in the major, students must be admitted to the major or have the approval of the degree program.

The BS in ITDE degree is approved to be offered at the Texas A&M Higher Education Center in McAllen, Texas, and the Texas A&M University at Galveston campus. The program has not undergone ABET accreditation review at the Galveston campus.

Program Requirements

The freshman year is identical for degrees in aerospace engineering, architectural engineering, civil engineering, computer engineering, computer science, data engineering, electrical engineering, electronic systems engineering technology, environmental engineering, industrial distribution, industrial engineering, interdisciplinary engineering, manufacturing and mechanical engineering technology, mechanical engineering, multidisciplinary engineering technology, nuclear engineering, ocean engineering, and petroleum engineering. The freshman year is slightly different for chemical engineering, biomedical engineering and materials science and engineering degrees in that students take CHEM 119 or CHEM 107/CHEM 117 and CHEM 120. Students pursuing degrees in biological and agricultural engineering should refer to the specific curriculum for this major. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year

Fall		Semester Credit Hours
CHEM 107	General Chemistry for Engineering Students ^{1,4}	3
CHEM 117	General Chemistry for Engineering Students Laboratory ^{1,4}	1
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	3
ENGR 102	Engineering Lab I - Computation ¹	2
MATH 151	Engineering Mathematics I ^{1,2}	4
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16

Spring

ENGR 216/ PHYS 216	Experimental Physics and Engineering Lab II - Mechanics ¹	2
MATH 152	Engineering Mathematics II ¹	4

PHYS 206	Newtonian Mechanics for Engineering and Science ¹	3
University Core Curriculum (p. 26) ³		3
Select one of the following:		3-4
CHEM 120	Fundamentals of Chemistry II ^{1,4}	
University Core Curriculum (p. 26) ^{3,5}		
Semester Credit Hours		15-16
Total Semester Credit Hours		31-32

¹ A grade of C or better is required.

² Entering students will be given a math placement exam. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.

³ Of the 21 hours shown as University Core Curriculum electives, 3 must be from creative arts (see AREN curriculum for more information), 3 from social and behavioral sciences (see DAEN and IDIS curriculum for more information), 3 from language, philosophy and culture (see CVEN, EVEN and PETE curriculum for more information), 6 from American history and 6 from government/political science. The required 3 hours of international and cultural diversity and 3 hours of cultural discourse may be met by courses satisfying the creative arts, social and behavioral sciences, language, philosophy and culture, and American history requirements if they are also on the approved list of international and cultural diversity (p. 49) courses and cultural discourse (p. 48) courses.

⁴ BMEN, CHEN and MSEN require 8 hours of fundamentals of chemistry which are satisfied with CHEM 119 or CHEM 107/CHEM 117 and CHEM 120; Students with an interest in BMEN, CHEN and MSEN can take CHEM 120 second semester freshman year. CHEM 120 will substitute for CHEM 107/CHEM 117.

⁵ For BS-PETE, allocate 3 hours to core communications course (ENGL 210, COMM 203, COMM 205, or COMM 243) and/or 3 hours to UCC elective. For BS-MEEN, allocate 3 hours to core communications course (ENGL 203, ENGL 210, COMM 203 or COMM 205) and/or 3 hours to UCC elective.

Second Year

Fall		Semester Credit Hours
ENGR 217/ PHYS 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism ¹	2
ITDE 201	Foundations of Interdisciplinary Engineering ¹	1
MATH 251 or MATH 253	Engineering Mathematics III ¹ or Engineering Mathematics III	3
PHYS 207	Electricity and Magnetism for Engineering and Science ¹	3
Technical elective ^{1,6}		3
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
Semester Credit Hours		15

Spring

MATH 308	Differential Equations ¹	3
University Core Curriculum (p. 26) ³		6
Technical electives ^{1, 6}		9
Semester Credit Hours		18

Summer

ITDE 399	High Impact Experience for Interdisciplinary Engineers	0
Semester Credit Hours		0

Third Year**Fall**

ITDE 301	Interdisciplinary Engineering Experimentation ¹	1
Select one of the following:		3
MATH 304	Linear Algebra ¹	
MATH 311	Topics in Applied Mathematics I ¹	
MATH 323	Linear Algebra ¹	
MATH 401	Advanced Engineering Mathematics ¹	
University Core Curriculum (p. 26) ³		3
Technical electives ^{1, 6}		9
Semester Credit Hours		16

Spring

Math/Science elective ^{1, 7}		3
Technical electives ^{1, 6}		15
Semester Credit Hours		18

Fourth Year**Fall**

ITDE 401	Interdisciplinary Engineering Capstone Design I ¹	3
University Core Curriculum (p. 26) ³		3
Technical electives ^{1, 6}		9
Semester Credit Hours		15

Spring

ITDE 402	Interdisciplinary Engineering Capstone Design II ¹	2
ITDE 499	Degree Plan Approval for ITDE	0
Technical electives ^{1, 6}		13
Semester Credit Hours		15
Total Semester Credit Hours		97

⁶ A total of 58 semester credit hours of technical electives are required. Courses to be selected with consultation with ITDE advisor.

⁷ Select from the following courses: ASTR 314; ATMO 363; BIOL 111, BIOL 113; CHEM 222, CHEM 227, CHEM 310, CHEM 311, CHEM 315, CHEM 316, CHEM 318, CHEM 322; ECCB 205, GEOG 205, GEOL 101, GEOL 104; MARS 408, MARS 410; MATH 304, MATH 311, MATH 323, MATH 401; OCNG 310; PHYS 222; RWF 375; STAT 211, STAT 414.

Interdisciplinary Engineering - 5-Year Bachelor of Science and Master of Public Health in Occupational Safety and Health

This program combines engineering and public health, training students to create safer work environments by integrating biomedical technology and public health interventions.

The College of Engineering and School of Public Health offer a combination degree program leading to the BS in Interdisciplinary Engineering (ITDE) and Master of Public Health (MPH) in Occupational Safety and Health degrees. This program is structured to allow students to complete it in five academic years, reducing the typical time to completion for sequential degrees by one year.

This combined degree program will educate students in biomedical technology and public health aspects of occupational environments. It utilizes an interdisciplinary approach to integrate relevant aspects of human health monitoring, ergonomics and workplace design, and public education and intervention for the purpose of creating healthier and safer working environments. This program has developed from university interdisciplinary research initiatives that are addressing the grand challenge of overcoming the human and economic burden of diabetes, heart disease, and other chronic conditions in underserved communities.

Students who enroll in the combined program complete their first three academic years in the College of Engineering. Upon the conclusion of the spring semester of the third year, students begin concurrent coursework in the School of Public Health and College of Engineering for the fourth and fifth academic years. Students must complete all curriculum requirements and all additional graduation requirements published in the applicable undergraduate and graduate catalogs for the BS-ITDE degree and the MPH degree.

Students interested in this combined program are strongly advised to meet with an academic advisor in the BS in Interdisciplinary Engineering program as early as possible to understand issues related to admission to both the BS and MPH programs, course scheduling, minimum academic performance standards, and others. Admission to the BS degree program does not guarantee admission to the MPH portion, and students must apply to the School of Public Health in the third academic year in order to begin public health studies in the fourth academic year.

Program Requirements

The freshman year is identical for degrees in aerospace engineering, architectural engineering, civil engineering, computer engineering, computer science, data engineering, electrical engineering, electronic systems engineering technology, environmental engineering, industrial distribution, industrial engineering, interdisciplinary engineering, manufacturing and mechanical engineering technology, mechanical engineering, multidisciplinary engineering technology, nuclear engineering, ocean engineering, and petroleum engineering. The freshman year is slightly different for chemical engineering, biomedical engineering and materials science and engineering degrees in that students take CHEM 119 or CHEM 107/CHEM 117 and CHEM 120. Students pursuing degrees in biological and agricultural engineering should refer to the specific curriculum for this major. It is recognized that many students will change the sequence and number of courses taken in

Total Program Hours 128

any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year

Fall		Semester Credit Hours
CHEM 107	General Chemistry for Engineering Students ^{1,4}	3
CHEM 117	General Chemistry for Engineering Students Laboratory ^{1,4}	1
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	3
ENGR 102	Engineering Lab I - Computation ¹	2
MATH 151	Engineering Mathematics I ^{1,2}	4
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16
Spring		
ENGR 216/ PHYS 216	Experimental Physics and Engineering Lab II - Mechanics ¹	2
MATH 152	Engineering Mathematics II ¹	4
PHYS 206	Newtonian Mechanics for Engineering and Science ¹	3
University Core Curriculum (p. 26) ³		3
Select one of the following:		3-4
CHEM 120	Fundamentals of Chemistry II ^{1,4}	
University Core Curriculum (p. 26) ^{3,5}		
Semester Credit Hours		15-16
Total Semester Credit Hours		31-32

¹ A grade of C or better is required.

² Entering students will be given a math placement exam. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.

³ Of the 21 hours shown as University Core Curriculum electives, 3 must be from creative arts (see AREN curriculum for more information), 3 from social and behavioral sciences (see DAEN and IDIS curriculum for more information), 3 from language, philosophy and culture (see CVEN, EVEN and PETE curriculum for more information), 6 from American history and 6 from government/political science. The required 3 hours of international and cultural diversity and 3 hours of cultural discourse may be met by courses satisfying the creative arts, social and behavioral sciences, language, philosophy and culture, and American history requirements if they are also on the approved list of international and cultural diversity (p. 49) courses and cultural discourse (p. 48) courses.

⁴ BMEN, CHEN and MSEN require 8 hours of fundamentals of chemistry which are satisfied with CHEM 119 or CHEM 107/CHEM 117 and CHEM 120; Students with an interest in BMEN, CHEN and MSEN can take CHEM 120 second semester freshman year. CHEM 120 will substitute for CHEM 107/CHEM 117.

⁵ For BS-PETE, allocate 3 hours to core communications course (ENGL 210, COMM 203, COMM 205, or COMM 243) and/or 3 hours to UCC elective. For BS-MEEN, allocate 3 hours to core communications course (ENGL 203, ENGL 210, COMM 203 or COMM 205) and/or 3 hours to UCC elective.

Second Year

Fall		Semester Credit Hours
ENGR 217/ PHYS 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism ¹	2
ITDE 201	Foundations of Interdisciplinary Engineering ¹	1
MATH 251 or MATH 253	Engineering Mathematics III ¹ or Engineering Mathematics III	3
PHYS 207	Electricity and Magnetism for Engineering and Science ¹	3
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
Technical electives ^{1,6}		3
Semester Credit Hours		15
Spring		
MATH 308	Differential Equations ¹	3
University Core Curriculum (p. 26) ³		6
Technical electives ^{1,6}		9
Semester Credit Hours		18
Summer		
ITDE 399	High Impact Experience for Interdisciplinary Engineers	0
Semester Credit Hours		0

Third Year

Fall		
ITDE 301	Interdisciplinary Engineering Experimentation ¹	1
Select one of the following:		3
MATH 304	Linear Algebra ¹	
MATH 311	Topics in Applied Mathematics I ¹	
MATH 323	Linear Algebra ¹	
MATH 401	Advanced Engineering Mathematics ¹	
University Core Curriculum (p. 26) ³		3
Technical electives ^{1,6}		9
Semester Credit Hours		16
Spring		
Math/Science elective ^{1,7}		3
Technical electives ^{1,6}		15
Semester Credit Hours		18

Fourth Year

Fall		
ITDE 401	Interdisciplinary Engineering Capstone Design I ¹	3
SOPH 601	Health Behavior	3
SOPH 602	Health Policy and Management	3
SOPH 603	Epidemiology	3
PHEO 618	Occupational Safety ⁸	3

University Core Curriculum (p. 26) ³		3
Semester Credit Hours		18
Spring		
ITDE 402	Interdisciplinary Engineering Capstone Design II ¹	2
PHEO 640	Industrial Hygiene ⁸	3
Technical electives ^{1, 6}		10
Semester Credit Hours		15
Summer		
PHEO 684	Practicum	3
Semester Credit Hours		3
Fifth Year		
Fall		
PHEO 630	Environmental/Occupational Diseases	3
PHEO 678	Occupational Biomechanics ⁸	3
PHEO 682	Industrial and System Safety	3
PHEO Electives ⁹		6
Semester Credit Hours		15
Spring		
ITDE 499	Degree Plan Approval for ITDE	0
PHEO 645	Health and Safety at Hazardous Waste Sites	3
PHEO 655	Human Factors	3
PHEO 679	Ergonomics of the Upper Extremities ⁸	3
SOPH 680	Public Health Capstone	3
Semester Credit Hours		12
Total Semester Credit Hours		130

⁶ A total of 46 semester credit hours of technical electives are required. To be selected in consultation with ITDE advisor.

⁷ Select from ASTR 314; ATMO 363; BIOL 111, BIOL 113; CHEM 222, CHEM 227, CHEM 310, CHEM 311, CHEM 315, CHEM 316, CHEM 318, CHEM 322; ECCB 205; GEOG 205; GEOL 101, GEOL 104; MARS 408, MARS 410; MATH 304, MATH 311, MATH 323, MATH 401; PHYS 222; RWFM 375; STAT 211, STAT 414.

⁸ Courses taken for credit for both the undergraduate and graduate degree for a combined total of 12 semester credit hours: PHEO 618, PHEO 640, PHEO 678, PHEO 679.

⁹ A total of 6 semester credit hours of PHEO electives are required. To be selected in consultation with PHEO advisor.

The combined program includes a total of 161 semester credit hours, which includes 12 semester credit hours applied both to the Bachelor of Science in Interdisciplinary Engineering and Master of Public Health in Occupational Safety and Health.

Total Program Hours 161

Interdisciplinary Engineering - 6-Year Bachelor of Science and Juris Doctor

This program merges engineering and law, preparing students for legal careers requiring technical expertise, like patent or environmental law, through a streamlined six-year curriculum.

The College of Engineering and School of Law offer a combination degree program leading to the BS in Interdisciplinary Engineering (ITDE) and Juris Doctor (JD) degrees. This program is structured to allow students to complete it in six academic years, reducing the typical time to completion for sequential degrees by one year.

This combined degree program educates students in engineering and technology as a precursor to studies and practice in the law. Areas of legal practice that require advanced understanding of the engineering and technology development process include patents and intellectual property law, environmental law, and workplace health and safety law, among others. This program allows a streamlining of studies with mutual reinforcement of the respective degree disciplines.

Students who enroll in the combined program complete their first three academic years at the College of Engineering on the College Station campus. Upon the conclusion of the spring semester of the third year, students begin coursework in the School of Law for the fourth and fifth academic years in Fort Worth. For the sixth and final year, students have their primary curricula with the School of Law with coursework taken from both the School of Law and the College of Engineering, and they have the option to reside on either the Fort Worth or College Station campus to facilitate choices of specific courses. Students must complete all curriculum requirements and all additional graduation requirements published in the applicable undergraduate and graduate catalogs for the BS-ITDE degree and the JD degree.

Students interested in this combined program are strongly advised to meet with an academic advisor in the BS in Interdisciplinary Engineering program as early as possible to understand issues related to admission to both the BS and JD programs, course scheduling, minimum academic performance standards, and others. Admission to the BS degree program does not guarantee admission to the JD portion, and students must apply to the School of Law in the third academic year in order to begin law studies in the fourth academic year.

Program Requirements

The freshman year is identical for degrees in aerospace engineering, architectural engineering, civil engineering, computer engineering, computer science, data engineering, electrical engineering, electronic systems engineering technology, environmental engineering, industrial distribution, industrial engineering, interdisciplinary engineering, manufacturing and mechanical engineering technology, mechanical engineering, multidisciplinary engineering technology, nuclear engineering, ocean engineering, and petroleum engineering. The freshman year is slightly different for chemical engineering, biomedical engineering and materials science and engineering degrees in that students take CHEM 119 or CHEM 107/CHEM 117 and CHEM 120. Students pursuing degrees in biological and agricultural engineering should refer to the specific curriculum for this major. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year Fall

		Semester Credit Hours
CHEM 107	General Chemistry for Engineering Students ^{1,4}	3

CHEM 117	General Chemistry for Engineering Students Laboratory ^{1,4}	1
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	3
ENGR 102	Engineering Lab I - Computation ¹	2
MATH 151	Engineering Mathematics I ^{1,2}	4
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16
Spring		
ENGR 216/ PHYS 216	Experimental Physics and Engineering Lab II - Mechanics ¹	2
MATH 152	Engineering Mathematics II ¹	4
PHYS 206	Newtonian Mechanics for Engineering and Science ¹	3
University Core Curriculum (p. 26) ³		3
Select one of the following:		3-4
CHEM 120	Fundamentals of Chemistry II ^{1,4}	
University Core Curriculum (p. 26) ^{3,5}		
Semester Credit Hours		15-16
Total Semester Credit Hours		31-32

¹ A grade of C or better is required.

² Entering students will be given a math placement exam. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.

³ Of the 21 hours shown as University Core Curriculum electives, 3 must be from creative arts (see AREN curriculum for more information), 3 from social and behavioral sciences (see DAEN and IDIS curriculum for more information), 3 from language, philosophy and culture (see CVEN, EVEN and PETE curriculum for more information), 6 from American history and 6 from government/political science. The required 3 hours of international and cultural diversity and 3 hours of cultural discourse may be met by courses satisfying the creative arts, social and behavioral sciences, language, philosophy and culture, and American history requirements if they are also on the approved list of international and cultural diversity (p. 49) courses and cultural discourse (p. 48) courses.

⁴ BMEN, CHEN and MSEN require 8 hours of fundamentals of chemistry which are satisfied with CHEM 119 or CHEM 107/CHEM 117 and CHEM 120; Students with an interest in BMEN, CHEN and MSEN can take CHEM 120 second semester freshman year. CHEM 120 will substitute for CHEM 107/CHEM 117.

⁵ For BS-PETE, allocate 3 hours to core communications course (ENGL 210, COMM 203, COMM 205, or COMM 243) and/or 3 hours to UCC elective. For BS-MEEN, allocate 3 hours to core communications course (ENGL 203, ENGL 210, COMM 203 or COMM 205) and/or 3 hours to UCC elective.

Second Year

Fall		Semester Credit Hours
ENGR 217/ PHYS 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism ¹	2
ITDE 201	Foundations of Interdisciplinary Engineering ¹	1

MATH 251 or MATH 253	Engineering Mathematics III ¹ or Engineering Mathematics III	3
PHYS 207	Electricity and Magnetism for Engineering and Science ¹	3
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
Math/Science elective ^{1,7}		3
Technical electives ^{1,6}		3
Semester Credit Hours		18
Spring		
MATH 308	Differential Equations ¹	3
University Core Curriculum (p. 26) ³		6
Technical electives ^{1,6}		9
Semester Credit Hours		18
Summer		
ITDE 399	High Impact Experience for Interdisciplinary Engineers	0
Semester Credit Hours		0

Third Year

Fall		
ITDE 301	Interdisciplinary Engineering Experimentation ¹	1
Select one of the following:		3
MATH 304	Linear Algebra ¹	
MATH 311	Topics in Applied Mathematics I ¹	
MATH 323	Linear Algebra ¹	
MATH 401	Advanced Engineering Mathematics ¹	
University Core Curriculum (p. 26) ³		3
Technical electives ^{1,6}		9
Semester Credit Hours		16
Spring		
University Core Curriculum (p. 26) ³		3
Technical electives ^{1,6}		13
Semester Credit Hours		16

Fourth Year

Fall		
LAW 7001	Analysis, Research, and Writing I	3
LAW 7005	Civil Procedure	4
LAW 7042	Torts	4
LAW 7110	Professional Identity	0.5
LAW 7418	Legislation and Regulation	3
Semester Credit Hours		14.5
Spring		
LAW 7002	Analysis, Research, and Writing II	3
LAW 7007	Alternative Dispute Resolution Survey	1
LAW 7017	Contracts	4
LAW 7021	Criminal Law	3
LAW 7032	Property	4

LAW 7110	Professional Identity	0.5
Semester Credit Hours		15.5
Fifth Year		
Fall		
LAW 7010	Constitutional Law	4
LAW 7091	Professional Responsibility	3
Upper level LAW electives ^{8, 9}		8
Semester Credit Hours		15
Spring		
Upper level LAW electives ^{8, 9}		15
Semester Credit Hours		15
Sixth Year		
Fall		
ITDE 401	Interdisciplinary Engineering Capstone Design I ^{1, 10}	3
Technical Electives ^{1, 6, 10}		3
Upper level LAW electives ^{8, 9, 10}		9
Semester Credit Hours		15
Spring		
ITDE 402	Interdisciplinary Engineering Capstone Design II ^{1, 10}	2
ITDE 499	Degree Plan Approval for ITDE	0
Technical Electives ^{1, 6, 10}		3
Upper level LAW electives ^{8, 9, 10}		9
Semester Credit Hours		14
Total Semester Credit Hours		157

⁶ A total of 40 semester credit hours of technical electives are required. To be selected in consultation with ITDE advisor.

⁷ Select from the following courses: ASTR 314; ATMO 363; BIOL 111, BIOL 113; CHEM 222, CHEM 227, CHEM 310, CHEM 311, CHEM 315, CHEM 316, CHEM 318, CHEM 322; ECCB 205; GEOG 205; GEOL 101, GEOL 104; MARS 408, MARS 410; MATH 304, MATH 311, MATH 323, MATH 401; PHYS 222; RWF 375; STAT 211, STAT 414.

⁸ Students must successfully complete a minimum of six credit hours in one or more upper-level experiential courses. As part of the six credit hours, the student must successfully complete an approved externship or a clinic that involves advising or representing one or more actual clients or serving as a third-party neutral. An experiential course must be a simulation course, a law clinic, or a field placement.

⁹ One LARW III course is required.

¹⁰ Courses taken for credit for both the undergraduate and professional degree for a combined total of 30 semester credit hours: ITDE 301, ITDE 401, ITDE 402, 6 semester credit hours of technical electives, and 18 semester credit hours of upper level LAW electives. All double-counted elective courses are to be selected in consultation with both ITDE and LAW advisors.

The combined program includes a total of 188 semester credit hours, which includes 30 semester credit hours applied both to the Bachelor of Science in Interdisciplinary Engineering and Juris Doctor degrees.

The JD degree is conferred on students who satisfactorily complete the program with a cumulative grade point average of 2.33 or better in LAW classes. In addition, each student must complete an upper-level rigorous writing requirement, a six-hour experiential requirement, and a 30-hour *pro bono* requirement. Students must complete their degree requirements

within 72 months of starting law school, which occurs at the start of the fourth year of this combined program.

Total Semester Credit Hours for Combination Program 188

Engineering Entrepreneurship - Minor

The College of Engineering offers a minor in Engineering Entrepreneurship, designed to equip engineering students with the essential skills and knowledge to understand the role of entrepreneurs and innovators in businesses.

This minor emphasizes the intersection of engineering expertise with business acumen, preparing students to transform technical ideas into viable business opportunities. It provides a comprehensive understanding of the entrepreneurial process, from ideation to market realization, and the unique challenges of entrepreneurial ventures in engineering and technology domains.

Students completing the minor will gain proficiency in recognizing and evaluating technological opportunities, understanding customer and market dynamics, developing lean business strategies, and leading entrepreneurial initiatives. They will gain awareness of the dynamic landscape of technology startups and the innovation point of view within established engineering companies.

Areas of focus for the Engineering Entrepreneurship Minor are

- Innovation and Idea Generation: techniques for identifying and evaluating engineering-based entrepreneurial opportunities
- Business Strategy and Models: developing effective strategies and business models for technology-driven ventures
- Financial Acumen and Funding: understanding financial principles, venture capital, and funding strategies for startups
- Entrepreneurial Leadership: leadership skills and team management relevant in enterprise and startup environments
- Practical Entrepreneurship: hands-on experience through projects, incubator programs, or collaboration with startups

This minor aligns with the growing need for engineers who are not only technically proficient but also capable of leading innovative business ventures, making it an ideal choice for engineering students aiming to become leaders in the innovation-driven tech entrepreneurial world.

Program Requirements

Code	Title	Semester Credit Hours
ENGR 311		3
MTDE 252	Engineering Entrepreneurship Hour	1
or ENGR 46	or Engineering Entrepreneurship Hour	
MTDE 461	Product Lean Launch for Engineers	3
Select three of the following:		9
ENGR 312		
ENGR 421		
MEEN 497	Innovation Mindset for Design and Research	
MTDE 313	Engineer to Chief Executive Officer	
MTDE 314	Skills for Technology Leadership	

PETE 453 Petroleum Entrepreneurship

Total Semester Credit Hours 16

Students must earn a C or better in all minor coursework.

Engineering Project Management - Minor

The Engineering Project Management minor is intended to help meet the requirements of industry by educating undergraduate engineering students to understand complex engineering projects, project organizations, and project management methods.

Students completing this minor will be able to work effectively in multidisciplinary engineering projects immediately after completion and to advance more rapidly within the project management organization and profession. The management of projects entails technical knowledge, engineering skills, and management skills.

To earn the minor, a student must complete credit hours that include prerequisite introductory core courses and courses selected from the following 3 categories:

1. *Business management and leadership.* The courses listed under this category provide required skills to understand the key management principles and provide leadership in project planning and execution.
2. *Economics, systems, and decisions.* The courses listed under this category provide advanced understanding of the analytical tools required to support project planning and execution.
3. *Project management applications.* The courses listed under this category provide examples of the application of project management principles.

Program Requirements

Code	Title	Semester Credit Hours
MTDE 333	Project Management for Engineers	3
MTDE 380	Seminar Series in Engineering Project Management	1
Business Management and Leadership		
Select from the following:		2-4
ENGR 251	Creating a Self-Aware Leader	
ENGR 350	Leading for Impact in Engineering, Business and Society	
ENGR 351	The Role of Engineering and Business in Society	
ENGR 450	Finding Your Leadership Qualities	
ENGR 451	Leading for a Lifetime: Continual Learning and Influence	
ESET 319	Engineering Leadership	
MGMT 309	Survey of Management	
MTDE 314	Skills for Technology Leadership	
MTDE 334	Agile Project Management	
SOMS 380	Workshop in Leadership Education	
SOMS 381	Workshop in Leadership Education II	
SOMS 481	Seminar in Executive Leadership	

SOMS 482 Seminar in Executive Leadership II

Economics, Systems, and Decisions

Select from the following: 2-9

CHEN 430/ Risk Engineering
SENG 430CHEN 460/ Quantitative Risk Analysis in Safety
SENG 460 Engineering

CVEN 322 Civil Engineering Systems

ESET 329 Six Sigma and Applied Statistics

ISEN 302 Economic Analysis of Engineering Projects

ISEN 330 Human Systems Interaction

ISEN 350 Quality Engineering

ISEN 440 Systems Thinking

ISEN 442 Organizational Systems

MMET 320 Quality Assurance

PETE 353 Petroleum Project Evaluation

SENG 312 System Safety Engineering

SENG 321 Safety Management Systems

Project Management Applications

Select from the following: 3-9

AERO 401 Aerospace Design Principles

AERO 402 Aerospace Systems Design

AREN 401 Architectural Engineering Design I

AREN 402 Architectural Engineering Design II

BMEN 453 Analysis and Design Project I

BMEN 454 Analysis and Design Project II

BMEN 469 Entrepreneurial Pathways in Medical Devices

CSCE 482 Senior Capstone Design

CSCE 483 Computer Systems Design

CVEN 349 Civil Engineering Project Management

CVEN 400 Design Problems in Civil Engineering

CVEN 405 Construction Management of Field Operations

CVEN 473 Engineering Project Estimating and Planning

ECEN 403 Electrical Design Laboratory I

ECEN 404 Electrical Design Laboratory II

ENGR 401 Interdisciplinary Design

ENGR 402 Interdisciplinary Design II

ESET 419 Engineering Technology Capstone I

ESET 420 Engineering Technology Capstone II

ISEN 460 Capstone Senior Design

ITDE 401 Interdisciplinary Engineering Capstone Design I

ITDE 402 Interdisciplinary Engineering Capstone Design II

MEEN 401 Introduction to Mechanical Engineering Design

MEEN 402 Intermediate Design

MMET 429 Managing People and Projects in a Technological Society

MSEN 401 Materials Design I

MSEN 402 Materials Design II

MTDE 461 Product Lean Launch for Engineers

OCEN 406 Capstone Design I

OCEN 407 Design of Ocean Engineering Facilities II

PETE 402 Integrated Asset Development

Total Semester Credit Hours

16

Minimum required GPA to declare minor is a 2.5.

Must earn a grade of C or better in each course used towards minor.

Must achieve an overall GPA of 2.5 in approved minor coursework.

Department of Nuclear Engineering

Nuclear Engineering

Nuclear engineering deals with the application and utilization of nuclear processes and radiation. The use of nuclear energy for the production of electrical power is a mature industry. Nuclear engineers work on all aspects of the nuclear fuel cycle and for many different types of employers such as government and private labs, regulatory agencies, reactor vendors, utilities and architect engineers. In addition, nuclear energy for space applications is a rapidly expanding field. Radionuclide technology in industry and medicine requires a large number of well-trained radiological health engineers. To supply qualified engineers, the Department of Nuclear Engineering offers curricula leading to the Bachelor of Science degree in Nuclear Engineering and is accredited by the Engineering Accreditation Commission of ABET, www.abet.org.

The missions of the Department of Nuclear Engineering are:

- to produce high-quality graduates from the undergraduate through the doctoral levels to help meet the technical manpower needs of our state, region, nation, and the international community;
- to conduct research, including collaboration with research in related fields, to advance the state of knowledge in these disciplines in support of the needs of society; and
- to perform service in these disciplines for many constituencies including our College and University, industry, government and national laboratories, professional organizations, and the public.

In fulfilling these missions, the objective of the undergraduate program is to prepare students for success in their professional endeavors following the baccalaureate degree. These endeavors may include direct employment in the private or public sectors, graduate studies in engineering or science, professional studies in medicine, business, law or public administration, service in the military, or entrepreneurial activities. To achieve this purpose, four principal educational objectives are identified. Graduates of our Bachelor of Science program in Nuclear Engineering:

1. will work on the challenges of maintenance, improvement, innovation, education, and research in nuclear power and industrial utilization of nuclear radiation and radionuclides. In this work, they will fulfill independent assignments, engage in collaborations, and manage the work of others with effective communications characterizing all phases of their responsibilities;

2. will conduct their professional activities with full recognition of the choices and challenges implicit to their work, to its ethical dimensions, and to their implications for matters beyond their immediate tasks;
3. will take the local, global, historical, social, economic, and political settings into account in both their domestic and international endeavors; and
4. will recognize and utilize both the accumulated body of results from prior work and the continuing evolution of science and technology as essential resources for the effective conduct of their work.

The nuclear engineering baccalaureate degree programs stress engineering science fundamentals and mathematics. However, considerable numbers of elective hours are available in the curriculum to permit students to broaden their educations as desired.

Most of the facilities used in the MS and PhD programs are also used in the undergraduate degree programs. These facilities make the Department of Nuclear Engineering one of the best equipped in the United States. Texas A&M is now the only University in the United States with two nuclear reactors on its campus.

Before commencing course work in the major, students must be admitted to the major or have the approval of the department.

Faculty

Ahmed, Karim E, Associate Professor
Nuclear Engineering
PHD, Purdue University, 2015

Fiorina, Carlo, Associate Professor
Nuclear Engineering
PHD, Politecnico di Milano, 2013

Ford, John R, Associate Professor
Nuclear Engineering
PHD, University of Tennessee, 1992

Hassan, Yassin A, Professor
Nuclear Engineering
PHD, University of Illinois, 1980

Hecker, Siegfried S, Professor of the Practice
Nuclear Engineering
PHD, Case Western Reserve University, 1968

Kimber, Mark L, Associate Professor
Nuclear Engineering
PHD, Purdue University, 2008

Kirkland, Karen V, Professor
Nuclear Engineering
PHD, The University of Tokyo, 1999

Kurwitz, Richard C, Instructional Professor
Nuclear Engineering
PHD, Texas A&M University, 2009

Liu, Yang, Assistant Professor
Nuclear Engineering
PHD, North Carolina State University, 2018

Marianno, Craig M, Associate Professor
Nuclear Engineering
PHD, Oregon State University, 2000

Miller, Warren Fletcher, Professor of the Practice
Nuclear Engineering
PHD, Northwestern University, 1973

Morel, Jim E, Professor
Nuclear Engineering
PHD, The University of New Mexico, 1979

Naqvi, Farheen, Research Assistant Professor
Nuclear Engineering
PHD, Institut für Kernphysik, 2011

Nastasi, Michael A, Professor
Nuclear Engineering
PHD, Cornell University, 1986

Peddicord, Kenneth L, Senior Professor
Nuclear Engineering
PHD, University of Illinois, 1972

Ragusa, Jean C, Professor
Nuclear Engineering
PHD, Institut National Polytechnique de Grenoble, France, 2002

Shao, Lin, Professor
Nuclear Engineering
PHD, University of Houston, 2001

Tsvetkov, Pavel, Professor
Nuclear Engineering
PHD, Texas A&M University, 2002

Tsvetkova, Galina V, Senior Lecturer
Nuclear Engineering
PHD, Texas A&M University, 2003

Waer, Richard M., Professor of the Practice
Nuclear Engineering
BS, University of Arizona, 1989

Yim, Mansung, Professor
Nuclear Engineering
PHD, Harvard University, 1994
PHD, University of Cincinnati, 1987

Majors

- Bachelor of Science in Nuclear Engineering (p. 702)

Minors

- Nuclear Engineering Minor (p. 703)
- Radiological Health Engineering Minor (p. 704)

Nuclear Engineering - BS

This program prepares future nuclear engineers for a range of fields, from reactor operations to radiation technologies, for careers across research and industry.

The Bachelor of Science in Nuclear Engineering degree program aims to educate and prepare future nuclear engineering professionals,

researchers and leaders in the fields of nuclear science and nuclear technologies, including nuclear reactor design/operation/simulation/maintenance, nuclear energy production, radiation detection, radiological health technologies, computational method developments, nuclear materials, nuclear security and nuclear policies. The program is built upon a solid foundation and training from physics, mathematics and mechanical engineering. The program integrates fundamentals, applications and hands-on practices in nuclear-specific topics. Upon graduation, students are ready for jobs in academic fields, national laboratories, industry and professional schools. Students can expect to be instilled with the highest standards of professional and ethical behavior and prepared to meet the complex challenges associated with nuclear science and engineering.

Program Requirements

The freshman year is identical for degrees in aerospace engineering, architectural engineering, civil engineering, computer engineering, computer science, data engineering, electrical engineering, electronic systems engineering technology, environmental engineering, industrial distribution, industrial engineering, interdisciplinary engineering, manufacturing and mechanical engineering technology, mechanical engineering, multidisciplinary engineering technology, nuclear engineering, ocean engineering, and petroleum engineering. The freshman year is slightly different for chemical engineering, biomedical engineering and materials science and engineering degrees in that students take CHEM 119 or CHEM 107/CHEM 117 and CHEM 120. Students pursuing degrees in biological and agricultural engineering should refer to the specific curriculum for this major. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year

Fall		Semester Credit Hours
CHEM 107	General Chemistry for Engineering Students ^{1,4}	3
CHEM 117	General Chemistry for Engineering Students Laboratory ^{1,4}	1
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	3
ENGR 102	Engineering Lab I - Computation ¹	2
MATH 151	Engineering Mathematics I ^{1,2}	4
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16

Spring

ENGR 216/ PHYS 216	Experimental Physics and Engineering Lab II - Mechanics ¹	2
MATH 152	Engineering Mathematics II ¹	4
PHYS 206	Newtonian Mechanics for Engineering and Science ¹	3
University Core Curriculum (p. 26) ³		3
Select one of the following:		3-4
CHEM 120	Fundamentals of Chemistry II ^{1,4}	

introduce them to concepts of nuclear reactor theory, isotope detection, reactor analysis, and an approach to nuclear engineering experiments. The minor is ideal for those wanting to further expand their knowledge in a complex discipline, or for those that seek a basic understanding of nuclear engineering principles for work within industry.

Program Requirements

Code	Title	Semester Credit Hours
NUEN 301	Nuclear Reactor Theory	3
NUEN 302	Introduction to Nuclear Engineering II ¹	3
NUEN 303	Radiation Detection and Isotope Technology Laboratory ²	3
	or NUEN 405 or Nuclear Engineering Experiments	
NUEN 300-499 ³		6
Total Semester Credit Hours		15

¹ NUEN 201 is not needed as a prerequisite. Waiver requires instructor approval

² Taking NUEN 405 without NUEN 304 as the prerequisite is allowed for this minor program. Waiver requires instructor approval

³ Selects from approved departmental list.

Students must make a grade of C or better in all courses.

Radiological Health Engineering - Minor

This program provides a broad radiological health engineering foundation, preparing specialists for multiple roles in nuclear industries, government, hospitals and research.

The Department of Nuclear Engineering offers a minor in Radiological Health Engineering. Expanding and emerging nuclear applications have created a strong demand for specialists in radiological health engineering. Well-educated individuals are, and will be, required in all aspects of the nuclear power industry from mining all the way to disposal of wastes from spent fuel. There are needs for radiological health specialists in government, hospitals, educational institutions and private industry. This program at Texas A&M is designed to give students a broad background so they will be able to assume positions in any area of the nuclear industry.

Program Requirements

Code	Title	Semester Credit Hours
NUEN 302	Introduction to Nuclear Engineering II ¹	3
NUEN 303	Radiation Detection and Isotope Technology Laboratory	3
NUEN 309	Radiological Safety	3
NUEN 475	Environmental Nuclear Engineering	3
	or NUEN 47 or Radiation Protection Engineering	

NUEN 300-499 ²	3
Total Semester Credit Hours	15

¹ NUEN 201 is not needed as a prerequisite. Waiver requires instructor approval

² Select from approved departmental list.

Students must make a grade of C or better in all courses.

Department of Ocean Engineering Ocean Engineering

Ocean engineering is the application of basic engineering principles to the analysis, design, construction, and management of systems that operate in the ocean environment or near shore. Typical ocean engineering application areas include: beach protection and nourishment, coastal structures and erosion, wave and current structure interaction, development of ocean energy resources, instrumentation for coastal and offshore measurements, marine dredging and dredged material placement, ocean mining, offshore petroleum recovery, offshore structures and vessels, marine hydrodynamics, marine risers, moored and towed systems, numerical and physical modeling, ports and harbors, remotely operated and autonomous underwater vehicles, renewable ocean energy systems, search and salvage, suspended and dissolved constituent transport, subsea pipelines and cables, seafloor pipeline and umbilical layouts, flow assurance, submersible vehicles, sustainable and resilient ocean systems, and underwater acoustics. Employment opportunities exist with private industry, defense contractors, consulting firms, and government agencies. Ocean engineering students are encouraged to pursue summer internships and study abroad program and may participate in the University cooperative education program. The undergraduate program in ocean engineering in the Department of Ocean Engineering at Texas A&M University is accredited by the Engineering Accreditation Commission of ABET, www.abet.org.

The mission of the Ocean Engineering Program is to conduct research, serve the public, and educate students in a broad program of instruction encompassing traditional and emerging areas of ocean engineering. Graduates are prepared for entering engineering practice, continuing onto graduate study, life-long learning and professional development. Students develop a sense of professionalism and an appreciation for the obligations of a professional engineer. The Program offers ocean engineering continuing education activities for the people and marine industry of the state, nation and international community. The Program serves the public and engineering profession in Texas and the nation through participation of faculty and students in public and professional activities. Applied and fundamental research is conducted that contributes to the better understanding of ocean engineering and supports student educational development.

The undergraduate ocean engineering program within the Department of Ocean Engineering at Texas A&M University will produce graduates who will:

- Work in ocean engineering and related engineering fields with private and government organizations;
- Advance to positions of increased responsibility and develop professionally through training, technical conferences, and continuing education activities; and adapt to emerging technologies and issues;
- Become professional engineers and members of ocean engineering related professional societies; and

- Pursue graduate studies in ocean engineering and related fields and receive post-baccalaureate degrees.

The Department of Ocean Engineering is a two-campus department with campuses located in College Station and Galveston, Texas. The laboratory facilities accessible to the Department of Ocean Engineering are among the most comprehensive in the nation for testing offshore, underwater, and coastal systems. The College Station facilities are located in the Offshore Technology Research Center, Zachry Engineering Education Complex, and the Haynes Engineering Building. These facilities include a large deep water wave basin, a wave channel, fluid dynamics laboratory equipment, and data acquisition systems. The facilities in Galveston include naval architecture, fluid dynamics, and geotechnical experimental equipment, and two wave channels. The Galveston campus also provides access to the Gulf of America through the use of small boats and research vessels that are available for education and research. Additional information is available on the Department of Ocean Engineering website.

Before commencing course work in the major, students must be admitted to the major or have the approval of the department head.

Faculty

Allen, David Henry, Professor
Ocean Engineering
PHD, Texas A&M University, 1980

Cobb, David E, Associate Professor of the Practice
Ocean Engineering
MS, Texas A&M University, 1999

Cordes, Laurie Wittig, Instructional Assistant Professor
Ocean Engineering
MS, Texas A&M University, 1993

Cordes, Roger D, Professor of the Practice
Ocean Engineering
BDS, University of Clemson, 1992
PHD, Northwestern University, 1996

Duran Vinent, Orencio, Associate Professor
Ocean Engineering
PHD, University of Stuttgart, 2007

Elshorbagy, Walid E A, Instructional Professor
Ocean Engineering
PHD, University of Arizona, 1995

Falzarano, Jeffrey M, Professor
Ocean Engineering
PHD, University of Michigan, Ann Arbor, 1990

Figlus, Jens, Associate Professor
Ocean Engineering
PHD, University of Delaware, 2010

Furth, Mirjam, Assistant Professor
Ocean Engineering
PHD, University of Southampton, Southampton, UK, 2014

Girimaji, Sharath S, Professor
Ocean Engineering
PHD, Cornell University, 1990

Kang, Heonyong, Assistant Professor
Ocean Engineering
PHD, Texas A&M University, 2014

Kim, Moohyun, Professor
Ocean Engineering
PHD, Massachusetts Institute of Technology, 1988

Koola, Paul M, Professor of the Practice
Ocean Engineering
PHD, Indian Institute of Technology, Madras, 1991

Panchang, Vijaykumar G, Professor
Ocean Engineering
PHD, University of Maine, 1985

Paredes Tobar, Lenin Marcelo, Associate Professor
Ocean Engineering
PHD, University of Sao Paulo, Sao Paulo, Brazil, 2012

Parihar, Arun, Lecturer
Ocean Engineering
MEN, University of Houston, 2008

Schuller, Michael J, Visiting Instructional Professor
Ocean Engineering
DEN, Texas A&M University, 1985

Winden, Bjorn, Research Assistant Professor
Ocean Engineering
PHD, University of Southampton, Southampton, UK, 2014

Witherden, Freddie David, Associate Professor
Ocean Engineering
PHD, Imperial College London, United Kingdom, 2015

Wood, Amanda L, Instructional Associate Professor
Ocean Engineering
PHD, University of Houston, 2010

Xu, Chang, Instructional Assistant Professor
Ocean Engineering
PHD, Texas A&M University, 2022
PHD, Harbin Institute of Technology, China, 2017

Majors

- Bachelor of Science in Ocean Engineering (p. 705)

Ocean Engineering - BS

The BS in Ocean Engineering degree emphasizes breadth across the various fields of ocean engineering.

Students take courses in all major sub-disciplines of ocean engineering with advanced electives allowing for deeper learning in focus areas. The degree is appropriate for any discipline of ocean engineering, with particular relevance for those interested in coastal works, off-shore energy (oil and gas and renewables), naval architecture, underwater robotics, and for those planning on further specialization in graduate studies.

This program is approved to be offered at the Texas A&M University at Galveston campus.

For more information please see <https://engineering.tamu.edu/ocean/index.html> (<https://engineering.tamu.edu/ocean/>)

Program Requirements

The freshman year is identical for degrees in aerospace engineering, architectural engineering, civil engineering, computer engineering, computer science, data engineering, electrical engineering, electronic systems engineering technology, environmental engineering, industrial distribution, industrial engineering, interdisciplinary engineering, manufacturing and mechanical engineering technology, mechanical engineering, multidisciplinary engineering technology, nuclear engineering, ocean engineering, and petroleum engineering. The freshman year is slightly different for chemical engineering, biomedical engineering and materials science and engineering degrees in that students take CHEM 119 or CHEM 107/CHEM 117 and CHEM 120. Students pursuing degrees in biological and agricultural engineering should refer to the specific curriculum for this major. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year

Fall		Semester Credit Hours
CHEM 107	General Chemistry for Engineering Students ^{1,4}	3
CHEM 117	General Chemistry for Engineering Students Laboratory ^{1,4}	1
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	3
ENGR 102	Engineering Lab I - Computation ¹	2
MATH 151	Engineering Mathematics I ^{1,2}	4
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16
Spring		
ENGR 216/ PHYS 216	Experimental Physics and Engineering Lab II - Mechanics ¹	2
MATH 152	Engineering Mathematics II ¹	4
PHYS 206	Newtonian Mechanics for Engineering and Science ¹	3
University Core Curriculum (p. 26) ³		3
Select one of the following:		3-4
CHEM 120	Fundamentals of Chemistry II ^{1,4}	
University Core Curriculum (p. 26) ^{3,5}		
Semester Credit Hours		15-16
Total Semester Credit Hours		31-32

¹ A grade of C or better is required.

² Entering students will be given a math placement exam. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.

³ Of the 21 hours shown as University Core Curriculum electives, 3 must be from creative arts (see AREN curriculum for more information), 3 from social and behavioral sciences (see DAEN and IDIS curriculum for more information), 3 from language, philosophy and culture (see CVEN, EVEN and PETE curriculum for more information), 6 from

American history and 6 from government/political science. The required 3 hours of international and cultural diversity and 3 hours of cultural discourse may be met by courses satisfying the creative arts, social and behavioral sciences, language, philosophy and culture, and American history requirements if they are also on the approved list of international and cultural diversity (p. 49) courses and cultural discourse (p. 48) courses.

⁴ BMEN, CHEN and MSEN require 8 hours of fundamentals of chemistry which are satisfied with CHEM 119 or CHEM 107/CHEM 117 and CHEM 120; Students with an interest in BMEN, CHEN and MSEN can take CHEM 120 second semester freshman year. CHEM 120 will substitute for CHEM 107/CHEM 117.

⁵ For BS-PETE, allocate 3 hours to core communications course (ENGL 210, COMM 203, COMM 205, or COMM 243) and/or 3 hours to UCC elective. For BS-MEEN, allocate 3 hours to core communications course (ENGL 203, ENGL 210, COMM 203 or COMM 205) and/or 3 hours to UCC elective.

Second Year

Fall		Semester Credit Hours
ENGR 217/ PHYS 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism	2
MATH 251	Engineering Mathematics III	3
PHYS 207	Electricity and Magnetism for Engineering and Science	3
OCEN 201	Introduction to Ocean Engineering	3
OCEN 221	Engineering Mechanics - Statics	3
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		17
Spring		
ENGL 210	Technical and Professional Writing	3
MATH 308	Differential Equations	3
MEEN 315 or ECEN 215	Principles of Thermodynamics or Principles of Electrical Engineering	3
OCEN 213	Principles of Materials Engineering	3
OCEN 214	Mechanics of Deformable Bodies	3
STAT 211	Principles of Statistics I	3
Semester Credit Hours		18

Third Year

Fall		
OCEN 311	Fluid Statics and Dynamics	3
OCEN 336	Fluid Dynamics Laboratory	1
OCEN 351	Rigid Body Dynamics For Ocean Engineers	3
OCEN 361	Applied Numerical Methods	3
OCNG 310 or MARS 410	Physical Oceanography or Physical Oceanography	3
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16

Spring

OCEN 265	Introduction to Geotechnical Engineering	3
OCEN 300	Ocean Engineering Wave Mechanics	3
OCEN 345	Theory of Ocean Engineering Structures	3
OCEN 352	Vibrations and Control for Ocean Engineers	3

OCEN 362	Hydromechanics	3
High Impact Experience ⁶		0
OCEN 399	Leadership and Experience	
Semester Credit Hours		15
Fourth Year		
Fall		
OCEN 400	Basic Coastal Engineering	3
OCEN 402	Principles of Naval Architecture	3
OCEN 403	Dynamics of Offshore Structures	3
OCEN 406	Capstone Design I	1
University Core Curriculum (p. 26) ³		3
Technical Elective I ⁷		3
Semester Credit Hours		16
Spring		
OCEN 407	Design of Ocean Engineering Facilities II ⁸	3
OCEN 410	Ocean Engineering Laboratory ⁸	2
OCEN 451	Robotic Marine Vehicles for Ocean Engineers	3
OCEN 481	Seminar	1
University Core Curriculum (p. 26) ³		3
Technical elective II ⁷		3
Semester Credit Hours		15
Total Semester Credit Hours		97

⁶ All students are required to complete a high-impact experience in order to graduate. The list of possible high-impact experiences is available in the OCEN advising office.

⁷ This technical elective must be approved by the department head or the undergraduate advisor. Technical electives are chosen from the approved technical elective list.

⁸ All students must take at least two courses in their major that are designated as writing intensive (W). OCEN 407 and OCEN 410 taken at Texas A&M satisfy this requirement.

A grade of C or better is required in all required mathematics (MATH) and ocean engineering (OCEN) courses taken to satisfy degree requirements.

Total Program Hours 128

Harold Vance Department of Petroleum Engineering

Petroleum Engineers provide the world with energy while safeguarding the environment. Petroleum Engineering is concerned primarily with the safe and economic extraction of oil, gas, and other natural resources from the earth. Oil and gas is produced through the design, drilling and operation of wells and well systems, and the integrated management of the underground reservoirs in which the resources are found.

The mission of the Petroleum Engineering Department is to create, preserve, integrate, transfer and apply petroleum engineering knowledge and to enhance the human capability of its practitioners. The Petroleum Engineering Program has two educational objectives:

- graduates will have the technical depth and breadth to be successful professionals early in their careers; and

- graduates will have the broad technical knowledge and soft skills needed to rise to positions of professional leadership.

In essence, the goal of the Petroleum Engineering curriculum is to provide a modern engineering education with proper balance between fundamentals and practice, and to graduate engineers capable of being productive contributors immediately who are also prepared for life-long learning. The curriculum includes study of:

- design and analysis of well systems and procedures for drilling and completing wells;
- characterization and evaluation of subsurface geological formations and their resources;
- design and analysis of systems for producing, injecting and handling fluids;
- application of reservoir engineering principles and practices for optimizing resource development and management; and
- use of project economics and resource valuation methods for design and decision making under conditions of risk and uncertainty.

There is a heavy emphasis on mathematics, computer applications, communication skills and interdisciplinary problem solving. As a result, Aggie petroleum engineers are in high demand in the industry, and their starting salaries are consistently among the top in the University and the nation.

The department is well known for its curriculum, facilities and faculty, and its undergraduate program is recognized as one of the top petroleum engineering programs in the United States. The faculty comprises more than 36 professors and lecturers, many of them widely known and globally involved in the petroleum industry. Three (3) of the faculty are members of the prestigious National Academy of Engineering, and 20 are Distinguished Members of the Society of Petroleum Engineers. The Bachelor of Science program is accredited by the Engineering Accreditation Commission of ABET, www.abet.org.

Students must work as interns within the Energy Industry. A minimum of one internship, six weeks of approved experience, is required for graduation. The department also participates in the Cooperative Education Program.

In addition to the Bachelor of Science degree in Petroleum Engineering, the department also offers both masters and doctoral degrees, including Master of Science, Master of Engineering, and Doctor of Philosophy (see the *Texas A&M University Graduate and Professional Catalog*).

The department offers a combined program designed to help students complete both a Bachelor's degree and a Master's degree within 5 years. For more information, please contact the advising office.

Before commencing course work in the major, students must be admitted to the major or have the approval of the department.

Faculty

Abedi, Sara, Associate Professor
Petroleum Engineering
PHD, University of Southern California, 2012

Akkutlu, I. Yucel, Professor
Petroleum Engineering
PHD, University of Southern California, 2002

Al-Mohannadi, Nasser Saqer L H, Professor of the Practice
Petroleum Engineering-Qatar Campus
PHD, Colorado School of Mines, 2004

AlMujalhem, Manayer, Assistant Professor
Petroleum Engineering-Qatar Campus
PHD, Texas A&M University, 2021

Alexander, Gia O, Lecturer
Petroleum Engineering
MA, Texas A&M University, 1991

Amani, Mahmood, Professor
Petroleum Engineering-Qatar Campus
PHD, Texas A&M University, 1997

Barrufet, Maria A, Professor
Petroleum Engineering
PHD, Texas A&M University, 1987

Bastian, Peter A, Professor of the Practice
Petroleum Engineering
MS, Texas A&M University, 1983

Blasingame, Thomas A, Professor
Petroleum Engineering
PHD, Texas A&M University, 1989

Dattagupta, Akhil, Professor
Petroleum Engineering
PHD, The University of Texas at Austin, 1992

Diyashev, Iskander Rasimovich, Professor of the Practice
Petroleum Engineering
PHD, Texas A&M University, 1998

Fadlelmula, Mohamed, Instructional Associate Professor
Petroleum Engineering-Qatar Campus
PHD, Middle East Technical University, 2012

Gildin, Eduardo, Professor
Petroleum Engineering
PHD, The University of Texas at Austin, 2006

Hascakir, Berna, Professor
Petroleum Engineering
PHD, Middle East Technical University, 2008

Hill, Alfred D, Professor
Petroleum Engineering
PHD, The University of Texas at Austin, 1978

Jin, Wencheng, Assistant Professor
Petroleum Engineering
PHD, Georgia Institute of Technology, 2018

Jochen, Valerie Ann, Professor of the Practice
Petroleum Engineering
PHD, Texas A&M University, 1994

Kim, Jihoon, Associate Professor
Petroleum Engineering
PHD, Stanford University, 2010

Kim, Kiseok, Assistant Professor
Petroleum Engineering
PHD, University of Illinois at Urbana Champaign, 2017

King, Michael J, Professor
Petroleum Engineering
PHD, Syracuse University, 1980

Laprea Bigott, Marcelo, Professor of the Practice
Petroleum Engineering
PHD, Texas A&M University, 1979

Lee, W. John, Professor
Petroleum Engineering
PHD, Georgia Institute of Technology, 1963

Maggard, Bryan, Senior Lecturer
Petroleum Engineering
PHD, Texas A&M University, 2000

McVay, Duane A, Professor
Petroleum Engineering
PHD, Texas A&M University, 1994

Meehan, D. Nathan, Professor
Petroleum Engineering
PHD, Stanford University, 1989

Mishra, Srikanta, Research Professor
Petroleum Engineering
PHD, Stanford University, 1987

Misra, Siddharth, Professor
Petroleum Engineering
PHD, The University of Texas at Austin, 2015

Moridis, George J, Professor
Petroleum Engineering
PHD, Texas A&M University, 1987

Nascentes Alves, Ibere, Professor of the Practice
Petroleum Engineering
PHD, University of Tulsa, 1991

Nasrabadi, Hadi, Associate Professor
Petroleum Engineering
PHD, Imperial College London, United Kingdom, 2006

Noynaert, Samuel F, Associate Professor of the Practice
Petroleum Engineering
PHD, Texas A&M University, 2013

Okoroafor, Rita, Assistant Professor
Petroleum Engineering
PHD, Stanford University, 2021

Retnanto, Albertus, Professor of the Practice
Petroleum Engineering-Qatar Campus
PHD, Texas A&M University, 1998

Rodrigues De Paula Lima, Heitor, Professor of the Practice
Petroleum Engineering
PHD, Texas A&M University, 1998

Samouei, Hamidreza, Research Assistant Professor
Petroleum Engineering
PHD, Shiraz Univeristy, 2011

Seers, Thomas D, Associate Professor
Petroleum Engineering-Qatar Campus
PHD, University of Manchester, 2016

Shor, Roman J, Associate Professor
Petroleum Engineering
PHD, University of Texas, 2016

Sliva, Catherine A, Associate Professor of the Practice
Petroleum Engineering
BS, Texas A&M University, 1980

Sliva, Glenn M, Associate Professor of the Practice
Petroleum Engineering
BS, Texas A&M University, 1981

Spath, Jeffrey B, Professor
Petroleum Engineering
PHD, Mining University of Leoben, Austria, 1996

Voneiff, George W, Professor of the Practice
Petroleum Engineering
MS, Texas A&M University, 1992

Wu, Kan, Professor
Petroleum Engineering
PHD, The University of Texas at Austin, 2014

Younis, Rami M, Associate Professor
Petroleum Engineering
PHD, Stanford University, 2011

Zhu, Ding, Professor
Petroleum Engineering
PHD, The University of Texas at Austin, 1992

Majors

- Bachelor of Science in Petroleum Engineering (p. 709)

Certificates

- Data Analytics for Petroleum Industry Certificate (p. 711)
- Petroleum Ventures Certificate (p. 711)

Petroleum Engineering - BS

This program trains engineers in safe and economic resource extraction for high-demand careers in the energy sector.

Petroleum Engineers provide the world with energy while safeguarding the environment. Petroleum Engineering is concerned primarily with the safe and economic extraction of oil, gas, and other natural resources from the earth. Oil and gas is produced through the design, drilling and operation of wells and well systems, and the integrated management of the underground reservoirs in which the resources are found.

The mission of the Petroleum Engineering Department is to create, preserve, integrate, transfer and apply petroleum engineering knowledge and to enhance the human capability of its practitioners. The Petroleum Engineering Program has two educational objectives:

- graduates will have the technical depth and breadth to be successful professionals early in their careers; and
- graduates will have the broad technical knowledge and soft skills needed to rise to positions of professional leadership.

In essence, the goal of the Petroleum Engineering curriculum is to provide a modern engineering education with proper balance between fundamentals and practice, and to graduate engineers capable of being productive contributors immediately who are also prepared for life-long learning. The curriculum includes study of:

- design and analysis of well systems and procedures for drilling and completing wells;
- characterization and evaluation of subsurface geological formations and their resources;
- design and analysis of systems for producing, injecting and handling fluids;
- application of reservoir engineering principles and practices for optimizing resource development and management; and
- use of project economics and resource valuation methods for design and decision making under conditions of risk and uncertainty.

There is a heavy emphasis on mathematics, computer applications, communication skills and interdisciplinary problem solving. As a result, Aggie petroleum engineers are in high demand in the industry, and their starting salaries are consistently among the top in the University and the nation.

The department is well known for its curriculum, facilities and faculty, and its undergraduate program is recognized as one of the top petroleum engineering programs in the United States. The Bachelor of Science program is accredited by the Engineering Accreditation Commission of ABET, www.abet.org (<http://www.abet.org/>).

Program Requirements

The freshman year is identical for degrees in aerospace engineering, architectural engineering, civil engineering, computer engineering, computer science, data engineering, electrical engineering, electronic systems engineering technology, environmental engineering, industrial distribution, industrial engineering, interdisciplinary engineering, manufacturing and mechanical engineering technology, mechanical engineering, multidisciplinary engineering technology, nuclear engineering, ocean engineering, and petroleum engineering. The freshman year is slightly different for chemical engineering, biomedical engineering and materials science and engineering degrees in that students take CHEM 119 or CHEM 107/CHEM 117 and CHEM 120. Students pursuing degrees in biological and agricultural engineering should refer to the specific curriculum for this major. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year

Fall		Semester
		Credit Hours
CHEM 107	General Chemistry for Engineering Students ^{1,4}	3
CHEM 117	General Chemistry for Engineering Students Laboratory ^{1,4}	1

ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	3
ENGR 102	Engineering Lab I - Computation ¹	2
MATH 151	Engineering Mathematics I ^{1,2}	4
University Core Curriculum (p. 26) ³		3
Semester Credit Hours		16
Spring		
ENGR 216/ PHYS 216	Experimental Physics and Engineering Lab II - Mechanics ¹	2
MATH 152	Engineering Mathematics II ¹	4
PHYS 206	Newtonian Mechanics for Engineering and Science ¹	3
University Core Curriculum (p. 26) ³		3
Select one of the following:		3-4
CHEM 120	Fundamentals of Chemistry II ^{1,4}	
University Core Curriculum (p. 26) ^{3,5}		
Semester Credit Hours		15-16
Total Semester Credit Hours		31-32

¹ A grade of C or better is required.

² Entering students will be given a math placement exam. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.

³ Of the 21 hours shown as University Core Curriculum electives, 3 must be from creative arts (see AREN curriculum for more information), 3 from social and behavioral sciences (see DAEN and IDIS curriculum for more information), 3 from language, philosophy and culture (see CVEN, EVEN and PETE curriculum for more information), 6 from American history and 6 from government/political science. The required 3 hours of international and cultural diversity and 3 hours of cultural discourse may be met by courses satisfying the creative arts, social and behavioral sciences, language, philosophy and culture, and American history requirements if they are also on the approved list of international and cultural diversity (p. 49) courses and cultural discourse (p. 48) courses.

⁴ BMEN, CHEN and MSEN require 8 hours of fundamentals of chemistry which are satisfied with CHEM 119 or CHEM 107/CHEM 117 and CHEM 120; Students with an interest in BMEN, CHEN and MSEN can take CHEM 120 second semester freshman year. CHEM 120 will substitute for CHEM 107/CHEM 117.

⁵ For BS-PETE, allocate 3 hours to core communications course (ENGL 210, COMM 203, COMM 205, or COMM 243) and/or 3 hours to UCC elective. For BS-MEEN, allocate 3 hours to core communications course (ENGL 203, ENGL 210, COMM 203 or COMM 205) and/or 3 hours to UCC elective.

Second Year

Fall		Semester Credit Hours
ENGR 217/ PHYS 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism	2
GEOL 104	Physical Geology	4
MATH 251	Engineering Mathematics III	3
MEEN 221	Statics and Particle Dynamics	3

PHYS 207	Electricity and Magnetism for Engineering and Science	3
Semester Credit Hours		15

Spring

CVEN 305	Mechanics of Materials	3
MATH 308	Differential Equations	3
PETE 225	Introduction to Drilling Systems	3
PETE 311	Reservoir Petrophysics	3
PETE 315	Petroleum Engineering Thermodynamics	3
Semester Credit Hours		15

Third Year

Fall

GEOL 404	Geology of Petroleum	3
PETE 219	Foundations of Petroleum Data Analytics	2
PETE 301	Petroleum Engineering Numerical Methods	3
PETE 310	Reservoir Fluids	3
PETE 314	Transport Processes in Petroleum Production	3
PETE 335	Technical Presentations I	1
Semester Credit Hours		15

Spring

PETE 321	Formation Evaluation	4
PETE 323	Fundamentals of Reservoir Engineering	3
PETE 324	Well Testing	3
PETE 325	Petroleum Production Systems	3
PETE 337	Junior Student Paper Contest	0
PETE 353	Petroleum Project Evaluation	3
Semester Credit Hours		16

Fourth Year

Fall

PETE 300	Summer Practice	0
PETE 355	Drilling Engineering	3
PETE 401	Reservoir Simulation	2
PETE 404	Integrated Reservoir Modeling	3
PETE 410	Production Engineering	3
PETE 435	Technical Presentations II	1
University Core Curriculum (p. 26) ³		6
Semester Credit Hours		18

Spring

PETE 402	Integrated Asset Development	3
PETE 437	Senior Student Paper Contest	0
PHIL 482	Ethics and Engineering	3
University Core Curriculum (p. 26) ³		6
Technical elective ⁶		6
Semester Credit Hours		18
Total Semester Credit Hours		97

⁶ See the Petroleum Engineering Academic Advising Office for lists of approved technical elective courses.

A grade of C or better is required in all courses.

Total Program Hours 128

Data Analytics for Petroleum Industry - Certificate

This program equips students from diverse fields with data analytics skills for the oil and gas industry, addressing the growing need for data-driven expertise in exploration and operations.

There is a growing trend towards the use of data analytics in the upstream and downstream oil and gas industry. With the large-scale deployment of sensors in exploration, drilling, production, asset management, supply chain, and various commercial operations, oil and gas industry has become a massive data intensive industry. Analyzing seismic and micro-seismic data, improving reservoir characterization and simulation, reducing drilling time and increasing drilling safety, optimization of the performance of production pumps, improved petrochemical asset management, improved shipping and transportation, and improved occupational safety are among some of the applications of data analytics in oil and gas industry. Oil and gas industry needs petroleum engineers, geophysicists, geoscientists, and managers to be better equipped with data analytics skills.

This certificate program will appeal to students majoring in geology, geophysics, petroleum engineering, statistics, computer science, and business. With the data analytics skills, students will become more competitive in the job market of the oil and gas industry. Students in statistics or business will acquire domain knowledge in the oil and gas industry and will obtain experience working with real world data. This certificate will equip these students with the skills and experiences for employment in the oil and gas industry.

Program Requirements

Code	Title	Semester Credit Hours
PETE 201	Introduction to Petroleum Engineering	1
STAT 483	Interdisciplinary Data Analytics Practicum	3
Computation and Programming		3
Select one of the following:		
CSCE 310	Database Systems	
CSCE 314	Programming Languages	
GEOP 361	Geophysical Signal Processing	
ISTM 313	Foundations of Data Analytics for Non-MIS Majors	
ISTM 315	Database Programming	
PETE 404	Integrated Reservoir Modeling	
STAT 404	Statistical Computing	
Statistics and Data		3
Select one of the following:		
CSCE 305/ ECEN 360/ STAT 315	Computational Data Science	
CSCE 320/ STAT 335	Principles of Data Science	
GEOL 360	Analyzing Data in Geology	
SCMT 305	Forecasting and the Statistical Foundation of Business Analytics	

STAT 408	Introduction to Linear Models	
Machine Learning		3
Select one of the following:		
CSCE 421	Machine Learning	
ISTM 360	Applied Predictive Analytics	
PETE 419	Petroleum Data Analytics and Machine Learning	
STAT 436	Multivariate Analysis and Statistical Learning	
Total Semester Credit Hours		13

Petroleum Ventures - Certificate

This program blends engineering and finance, preparing petroleum engineers for leadership and expanded technical roles in the energy sector through business concepts and industry collaboration.

The Petroleum Ventures Certificate Program (PVP) sets Aggie petroleum engineers apart by giving them unparalleled exposure to business concepts, entrepreneurship, industry leaders and case-based learning opportunities where they work together with business students to solve problems and study real world energy companies. This interdisciplinary environment prepares them for leadership and expanded technical roles within the industry. The program is set up in collaboration with the Finance Department of the Mays Business School. PVP certificate holders are viewed as students who are committed to working hard to further their education and to better prepare themselves for integrated roles in the industry. With the engineering, finance and leadership skills combined, students become more competitive in the energy job market.

The Petroleum Ventures Certificate Program (PVP) impacts the following student groups:

- Undergraduate petroleum engineering and finance students who have a desire to work in Energy Finance, Petroleum Investment Management, or have a goal of senior management of an oil and gas company and/or a goal of one day creating and managing their own energy company.
- Petroleum engineers and finance undergraduate students who are seeking specialized training.

Program Requirements

Code	Title	Semester Credit Hours
PETE 201	Introduction to Petroleum Engineering	1
FINC 409	Survey of Finance Principles	3
or FINC 341 or Business Finance		
FINC 351	Investment Analysis	3
FINC 361	Managerial Finance I	3
PETE 353	Petroleum Project Evaluation	3
PETE 418	Deterministic Reserves Evaluation	3
PETE 453	Petroleum Entrepreneurship	3
Prescribed electives		
Select from the following:		6
FINC 423	Options and Financial Futures	
FINC 424	Trading Risk Management	
FINC 443	Valuation	

FINC 449	Financial Modeling	
PETE 402	Integrated Asset Development	
PETE 408	Probabilistic Reserves Evaluation	
PETE 419	Petroleum Data Analytics and Machine Learning	
Total Semester Credit Hours		25

Must make a grade of C or better in all courses.

BUSH SCHOOL OF GOVERNMENT AND PUBLIC SERVICE

bush.tamu.edu (<http://bush.tamu.edu>)

Administrative Officers

- Dean – Hon. John B. Sherman '92
- Executive Associate Dean – Maria C. Escobar-Lemmon, PhD
- Senior Associate Dean for Faculty Affairs – Leroy G. Dorsey, PhD
- Associate Dean for Research and Graduate Education – Michelle M. Taylor-Robinson, PhD
- Associate Dean for Undergraduate Programs – Robert R. Shandley, PhD
- Assistant Dean for Graduate Career and Student Services – Matthew Upton, PhD
- Assistant Dean for Finance and Administration – Joe Dillard
- Assistant Dean for Development, Alumni Relations, and Strategic Initiatives – Joy Monroe

About the Bush School of Government and Public Service

The Bush School of Government and Public Service offers degree programs at all levels of study: Bachelor's degrees and Master's degrees in International Affairs, Political Science, and Public Service and Administration, a Doctor of Philosophy in Political Science, and diverse certificate programs.

Master degrees are offered in five areas: Master of Public Service and Administration (MPSA), Master of International Affairs (MIA), Master of International Policy (MIP), Master of National Security and Intelligence (MNSI), and Master of Science (MS) in Political Science. These degree programs prepare students for careers in public service spanning the public and nonprofit sectors, in the United States and in the international arena. The MPSA and MIA degrees are offered at the College Station campus, the MIP degree is offered both in College Station and at the Bush School's Washington, D.C. teaching site, and the MNSI is offered at the Washington D.C. teaching site. Admission into the MIP degree program requires six years of international experience, broadly understood. For students with five or more years of professional experience, we also offer the Executive Master of Public Service and Administration (EMPSA), which is an online degree program with two required one-week sessions in residence.

Students in the International Affairs and Political Science undergraduate programs—as well as students from Economics, Agricultural Economics, Sociology, and Rangeland, Wildlife and Fisheries Management—can also apply for the Bachelor's and Master's combination program. Students begin their studies in the relevant undergraduate major and then apply to the MPSA or MIA program in the fall semester of their junior year.

A Doctor of Philosophy (PhD) in Political Science is offered through the Department of Political Science. The PhD program emphasizes theoretical and methodological rigor and is designed to train applied

social scientists for careers in research. All PhD students complete a common core of formal theory, statistical modeling, and general substantive requirements, in addition to developing expertise in a major and two minor fields selected from: American Politics, Comparative Politics, International Relations, Political Theory, Public Administration/ Public Policy, Advanced Research Methodology, and Race, Ethnic, and Gender Politics. In all of these fields of study the program emphasizes the role of incentives, institutions, and strategies in the aggregation of preferences and ultimately the allocation of resources.

The Bush School also offers certificate programs on diverse topics. For those seeking to strengthen their skills in international affairs or homeland security, the graduate certificate in Advanced International Affairs, or the graduate certificate in Homeland Security are offered. For those who seek to enhance their understanding of nonprofit organizations and management practices appropriate to the nonprofit sector we have the graduate certificate in Nonprofit Management and the graduate certificate in Public Management. The certificate in Geospatial Intelligence is for those seeking the combination of a technical skill set, knowledge of intelligence processes and critical thinking ability required of practitioners. The graduate certificate in National Security Affairs is an executive-level program tailored to the needs of the Department of Energy National Security Laboratories and Facilities. Certificates vary in residence requirements and some certificates have remote learning or combined format options.

General Degree Requirements

Degree requirements for Bush School of Government and Public Service majors are organized into:

1. General Requirements, including University Core Curriculum requirements and Bush School of Government and Public Service requirements
2. Requirements of the Major Field of Study
3. Requirements of the Minor Field of Study (if appropriate)
4. Electives

A minimum of 120 acceptable hours of coursework is required for the baccalaureate degree. A minimum of 36 hours of 300- or 400-level coursework must be completed at Texas A&M University.

General Requirements

The areas listed below include University Core Curriculum requirements and Bush School requirements. The completion of requisite hours in these areas will thus satisfy both University Core Curriculum and Bush School requirements.

Bachelor of Arts Requirements

Code	Title	Semester Credit Hours
Communication ¹		
ENGL 104	Composition and Rhetoric	3
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
Humanities Directed Elective ²		

Select three of the following: 9

AFST 325 Africana Humanities
 AFST 326 Africana Popular Culture
 AFST 327/ MUSC 327 Popular Musics in the African Diaspora
 AFST 362/ HIST 302 Women and War in the African Diaspora
 AFST 377 Africana Women's History
 AFST 391 Africana Feminisms
 AFST 398/ FILM 398 Africana Cinema
 AFST 401 Slavery in World History
 ANTH 340/ RELS 340 Folklore and the Supernatural
 ANTH 353/ CLAS 353 Archaeology of Ancient Greece
 ANTH 354/ CLAS 354 Archaeology of Ancient Italy
 ANTH 404/ WGST 404 Women and Culture
 ANTH 436/ RELS 436 Ancient Egypt I
 ASIA 401 Slavery in World History
 CHIN 405 Modern Chinese Fiction
 CHIN 465/ FILM 465 Chinese Film
 CLAS 220 History of Christianity: Origins to the Reformation
 CLAS 236/ HIST 236 War and Violence in the Ancient World
 CLAS 250 Greek and Roman Civilization
 CLAS 251/ RELS 251 Classical Mythology
 CLAS 261 Great Books of the Classical Tradition
 CLAS 262 Great Books of Christian Antiquity and the Latin Middle Ages
 CLAS 330 Women in Ancient Greece and Rome
 CLAS 352 Greek and Roman Drama
 CLAS 371 In Search of Homer and the Trojan War
 CLAS 372 Greek and Roman Epic
 CLAS 415/ FILM 415 The Ancient World in Film
 CLAS 418 Intellectual History from the Ancient Near East to the Early Middle Ages
 CLAS 426/ HIST 426 The Ancient Greeks
 CLAS 427/ HIST 427 The Roman Republic
 CLAS 428/ HIST 428 The Roman Empire: Principate
 CLAS 429/ HIST 429 The Roman Empire: Transformations

COMM 257/Communication, Religion and the Arts
 RELS 257 Arts
 COMM 301 Rhetoric in Western Thought
 COMM 305 Theories of Communication
 COMM 310 Communication Intervention
 COMM 320 Organizational Communication
 COMM 322 Communication Tactics
 COMM 323 Strategic Communication
 COMM 324 Communication Leadership and Conflict Management
 COMM 325 Persuasion
 COMM 335 Intercultural Communication
 COMM 338/Critical Race Discourse
 AFST 338
 COMM 340 Communication and Popular Culture
 COMM 343 Communication in a Diverse World
 COMM 345 Media Industries
 COMM 346/Media, Culture and Identity
 JOUR 346
 COMM 350 Theories of Mediated Communication
 COMM 354 Money, Power and Communication
 COMM 360 Cultural History of the Media
 COMM 375 Media Audiences
 COMM 407/Gender, Race and Media
 WGST 407
 COMM 410 Radio, Records, and Popular Music
 COMM 415 New Media and Civil Society
 COMM 420/Gender and Communication
 WGST 420
 COMM 425/Communication and Black Freedom
 AFST 425 Dreams
 COMM 428/Women's Rhetoric
 WGST 428
 COMM 431 Rhetoric of Social Movements
 COMM 434 Topics in Rhetorical Theory
 COMM 435/Rhetoric of Television and Film
 FILM 445
 COMM 437 Visual Communication
 COMM 438 Propaganda
 COMM 440 Political Communication
 COMM 443 Communication and Conflict
 COMM 446 Communication, Organizations and Society
 COMM 452 Cultural Studies of Communication Technology
 COMM 453 Communication and Video Games
 COMM 458/Global Media
 JOUR 458
 COMM 471 Media, Health and Medicine
 COMM 476 Advanced Social Media
 COMM 480/Religious Communication
 RELS 480

ENGL 221/ World Literature MODL 221	ENGL 357 Native American Rhetorics and Literatures
ENGL 222/ World Literature MODL 222	ENGL 360 Literature for Children
ENGL 241 Advanced Composition	ENGL 361 Young Adult Literature
ENGL 251/ Introduction to Film Analysis FILM 251	ENGL 365/ The Bible as Literature RELS 360
ENGL 305 Texas Literature	ENGL 366/ Horror Studies FILM 366
ENGL 306 Transnational Literature and Culture	ENGL 369/ Lesbian, Gay, Bisexual, Transgender, WGST 369 and Queer Authorship
ENGL 308 History of Literary Criticism	ENGL 372 American Poetry
ENGL 310/ History of the English Language LING 310	ENGL 373 American Realism and Naturalism
ENGL 313 Medieval English Literature	ENGL 374/ Women Writers WGST 374
ENGL 314 The English Renaissance	ENGL 375 Nineteenth-Century American Novel
ENGL 315 Seventeenth-Century Literature	ENGL 376 The American Novel Since 1900
ENGL 316 Eighteenth-Century Literature and Culture	ENGL 377 The British Novel to 1870.
ENGL 317 Early British Drama	ENGL 378 The British Novel, 1870 to Present.
ENGL 318 Utopian Literature in the English Tradition	ENGL 379/ Postcolonial Literatures AFST 379
ENGL 321 Nineteenth-Century Literature (Romantic)	ENGL 386 Creative Nonfiction
ENGL 322 Nineteenth-Century Literature (Victorian)	ENGL 390 Studies in British Literature
ENGL 323 The American Renaissance	ENGL 391 Folklore, Literature, and World Cultures
ENGL 324/ Science Fiction and Film FILM 324	ENGL 393/ Studies in Africana Literature and AFST 393 Culture
ENGL 329/ African-American Literature AFST 329 Pre-1930	ENGL 394 Studies in Genre
ENGL 330 Arthurian Literature	ENGL 395 Topics in Literature and Medicine
ENGL 331 Fantasy Literature	ENGL 396 Studies in American Literature
ENGL 333/ Lesbian, Gay, Bisexual, Transgender WGST 333 and Queer Literatures	ENGL 401 Contemporary Literary Theory
ENGL 334 Science Fiction Present and Past	ENGL 403 Language and Gender
ENGL 335 Literature of the Sea	ENGL 412 Studies in Shakespeare
ENGL 336 Life and Literature of the Southwest	ENGL 414 Milton
ENGL 337 Life and Literature of the American South	ENGL 415 Studies in a Major Author
ENGL 338 American Ethnic Literature	ENGL 431 Chaucer
ENGL 339/ African-American Literature AFST 339 Post-1930	ENGL 433 Digital Humanities Theory and Practice
ENGL 340 Modern and Contemporary Drama	ENGL 434 Advanced Studies in Science Fiction and Fantasy
ENGL 342 The Rhetoric of Gender and Health	ENGL 461 Advanced Syntax and Rhetoric
ENGL 343 Fairy Tales in the English Tradition	ENGL 462 Rhetoric in Cultural Context
ENGL 350 Twentieth-Century Literature to World War II	ENGL 474/ Studies in Women Writers WGST 474
ENGL 351/ Advanced Film FILM 351	FILM 299 History of Film
ENGL 352 Literature, World War II to Present.	FILM 349 Documentary Cinema
ENGL 353 History of Rhetoric	FILM 366/ Horror Studies ENGL 366
ENGL 354 Modern Rhetorical Theory	FILM 394 Studies in Film Genre
ENGL 355 The Rhetoric of Style	FILM 401 National Cinema History
ENGL 356/ Literature and Film FILM 356	FILM 405/ European Cinema EURO 405
	FILM 406 Propaganda and Dissidence
	FILM 417 Film Authorship
	FILM 469 Cult Cinema

FILM 470	Lesbian, Gay, Bisexual, Transgender, and Queer Cinemas	HIST 337	War and Society in Europe Since 1900
FILM 481	Seminar in Film Studies	HIST 338	The Rise of the European Middle Class
FREN 422	Studies in Gender and French Literature	HIST 339	Eastern Europe
FREN 425/ FILM 425	French Film	HIST 340	Global Communism - Its Rise, Fall and Legacies
GERM 435/ FILM 435	German Film	HIST 341	Latin America to 1810
GERM 437	German Romanticism: Literature, Theory, Philosophy	HIST 342	Latin America Since 1810
GERM 440	Global Germany	HIST 343	Inter-American Relations
GERM 441	Representations of the Holocaust	HIST 344/ AFST 344	History of Africa to 1800
GLST 215/ FILM 215	Global Cinema	HIST 345/ AFST 345	Modern Africa
HISP 362/ ENGL 362	Latino/a Literature	HIST 346/ AFST 346	History of South Africa
HISP 474/ RELS 474	Diversity Lessons from Medieval Spain	HIST 347/ RELS 347	Rise of Islam, 600-1258
HIST 212/ RELS 212	Holy War	HIST 348	Modern Middle East
HIST 221/ RELS 221	History of Islam	HIST 349/ ASIA 349	The Vietnam War/The American War
HIST 222/ RELS 222	History of Christianity, Reformation to Present	HIST 350/ ASIA 350	World War II in Asia and the Pacific
HIST 300/ AFST 300	Blacks in the United States, 1607-1877	HIST 352/ ASIA 352	Modern East Asia
HIST 301/ AFST 301	Blacks in the United States Since 1877	HIST 353	Modern South Asia
HIST 303	History and Memory	HIST 356/ ASIA 356	Twentieth Century Japan
HIST 304	Southwest Borderlands	HIST 357/ AFST 357	Out of Africa: The Black Diaspora and the Modern World
HIST 305	Chicana/o History since 1848	HIST 359	American Environmental History
HIST 307	Latinx History	HIST 360	History of Energy in America
HIST 308	History of American Indians in the U.S. South	HIST 361	From Gutenberg to Google - International History of Technology and Innovation
HIST 316	Latino/a Labor in the United States	HIST 362	History of Science
HIST 317	Born Country - American Agricultural History	HIST 363	History of Science in America
HIST 319	U.S. Immigration and Ethnicity	HIST 364	From Axes to iPads - History of Innovation and Technology in America
HIST 320	History of the Atlantic World	HIST 365/ RELS 365	Religion in Early America
HIST 321	The Age of Revolution in the Atlantic World	HIST 366/ RELS 366	Religion in Modern America
HIST 322	History of the Iberian World	HIST 367	American Colonies
HIST 323	Asian American History	HIST 368	The Birth of the Republic, 1763-1820
HIST 326	History of the Caribbean	HIST 369	The United States, 1820-1860
HIST 330	Women in Ancient Greece and Rome	HIST 370	Civil War and Reconstruction
HIST 331	Medieval Mediterranean, 300-1453	HIST 371	America in the Gilded Age, 1877-1901
HIST 333	Europe in the Age of Absolutism, 1660-1815	HIST 372	Reform, War and Normalcy: The United States, 1901-1929
HIST 334	History of Europe in the Nineteenth Century	HIST 373	The Great Depression and World War II
HIST 335	Europe, 1890-1932	HIST 374	The United States After World War II
HIST 336	Europe Since 1919		

HIST 376	Great Scientists in History	HIST 458	The History of Childhood and Family in America
HIST 377	Africana Women's History	HIST 459	American Society and Culture to 1877
HIST 401	Slavery in World History	HIST 460	American Society and Culture Since 1877
HIST 402	History of Modern Germany	HIST 461/ WGST 461	History of American Women
HIST 404	Post 1945 Germanies	HIST 462	American Foreign Relations to 1913
HIST 405	History of the Holocaust	HIST 463	American Foreign Relations Since 1913
HIST 406	The Era of the French Revolution and Napoleon, 1715-1815	HIST 464	International Developments Since 1918
HIST 407	History of France Since 1815	HIST 468/ LMAS 468	Latinx Civil Rights Movements
HIST 409	Youth in Modern Asia: Rebellions and Conformities	HIST 469	History of Collective Protest and Violence
HIST 410	Russian History to 1801	HIST 470	American Business History
HIST 411	Imperial Russia 1801-1917	HIST 473/ WGST 473	Women's History in the Modern U.S.
HIST 412	Russia's Long Twentieth Century - The Soviet Experiment and Beyond	HIST 474	Topics in Historical Ethnical Conflict
HIST 416	Texas as Border Region	HIST 475	Empires in History
HIST 418	Intellectual History from the Ancient Near East to the Early Middle Ages	HIST 476/ WGST 476	Sex and Sexuality in History
HIST 419/ RELS 419	Intellectual History, 500 to 1600	HIST 477/ WGST 477	Women and Gender in Modern European History
HIST 420	European Intellectual History from the Enlightenment to 1900	ITAL 452	Topics in Italian Women and Gender Studies
HIST 421	European Intellectual History in the Twentieth Century	ITAL 453	Literatures of Italy
HIST 425/ RELS 425	The Sacred and Profane in History	ITAL 455/ FILM 455	Italian Cinema
HIST 431	The Kingdom of Ireland, 1541-1800	ITAL 456	Contemporary Italian Cultures
HIST 432	The Nation of Ireland, 1800 to the Present	PERF 455	Seminar in Gender, Sexuality, and Performance
HIST 433	Digital Humanities Theory and Practice	PHIL 305	Philosophy of the Natural Sciences
HIST 435	Sixteenth-Century Britain	PHIL 307	Philosophy of the Social Sciences
HIST 436	Seventeenth-Century Britain	PHIL 314	Environmental Ethics
HIST 437	Eighteenth Century Britain	PHIL 315	Military Ethics
HIST 438	Nineteenth Century Britain	PHIL 320	Philosophy of Mind
HIST 439	Twentieth Century Britain	PHIL 330	Philosophy of Art
HIST 441	History of Mexico, 1821 to the Present	PHIL 331/ RELS 331	Philosophy of Religion
HIST 442	World War II	PHIL 332	Social and Political Philosophy
HIST 443	American Military History to 1901	PHIL 334	Philosophy of Law
HIST 444	American Military History Since 1901	PHIL 336	Advanced Topics in Philosophy of Law
HIST 445	History of Military Strategy	PHIL 351	Theory of Knowledge
HIST 447	Law and Society in the United States through Reconstruction	PHIL 352/ AFST 352	Africana Philosophy
HIST 448	American Law Since 1865	PHIL 353/ AFST 353	Radical Black Philosophies of Race and Racism
HIST 449	History of Brazil, 1822 to the Present	PHIL 361	Metaphysics
HIST 450	Southern Identities and Cultures through Reconstruction	PHIL 371	Philosophy of Literature
HIST 451	Southern Identities and Cultures Since Reconstruction	PHIL 376/ FILM 376	Philosophy, Film and Evil
HIST 452	The American Revolution		
HIST 453	The American West		
HIST 455	History of the American City		

PHIL 381	Ethical Theory
PHIL 409	Studies in Gender and Philosophy
PHIL 410	Classical Philosophy
PHIL 411	Medieval Philosophy
PHIL 412	Seventeenth-Century Philosophy
PHIL 413	Eighteenth-Century Philosophy
PHIL 414	Nineteenth Century Philosophy
PHIL 415	American Philosophy
PHIL 416	Recent British and American Philosophy
PHIL 417	Phenomenology
PHIL 418	Existentialism
PHIL 419	Current Continental Philosophy
PHIL 424	Philosophy of Language
PHIL 464/ RELS 464	Modern Jewish Thought and Philosophy
PHIL 465/ RELS 465	Ethics After the Holocaust
PHIL 470	Animal Welfare, Ethics and Law
PHIL 480	Medical Ethics
PHIL 482	Ethics and Engineering
RELS 200	Religions of the World
RELS 202	Religion in America
RELS 209	Religions of the Ancient World
RELS 220	History of Christianity: Origins to the Reformation
RELS 304/ HUMA 304	Asian Religions
RELS 312	Contemplation in the Modern World
RELS 356	Ritual and Expression in Ancient Religions
RELS 367	Christianity and American Identity
RELS 392/ ENGL 392	Studies in Literature, Religion and Culture
RELS 418	Intellectual History from the Ancient Near East to the Early Middle Ages
RELS 420	Nature, Sustainability and Religion
RELS 465/ PHIL 465	Ethics After the Holocaust
RELS 471/ HISP 471	Hispanic Religions
RUSS 441/ EURO 441	The Russian Novel I - Tolstoy and Dostoevsky
RUSS 442/ EURO 442	The Russian Novel II - The Twentieth Century
RUSS 443/ EURO 443	Contemporary Russian Prose
RUSS 444/ EURO 444	Russian Drama
RUSS 446/ EURO 446	Russian Artistic Culture I - Beginnings to 1900
RUSS 447/ EURO 447	Russian Artistic Culture II - 1890 to Present
WGST 330	Women in Ancient Greece and Rome

WGST 343/ Sex, Gender and Cinema FILM 343
WGST 369/ Lesbian, Gay, Bisexual, Transgender, ENGL 369 and Queer Authorship
WGST 377 Africana Women's History
WGST 394 Gender and Genre
WGST 401 Feminist Theory
WGST 411/ Representations of Motherhood COMM 411
WGST 445/ Queer Theory SOCI 455
WGST 463 Gender in Asia
WGST 470 Lesbian, Gay, Bisexual, Transgender, and Queer Cinemas
Foreign Language ^{2,3}
Option 1 14
Select one of the following:
ARAB 101 Beginning Arabic I & ARAB 102and Beginning Arabic II
CHIN 101 Beginning Chinese I & CHIN 102 and Beginning Chinese II
CLAS 101 Beginning Classical Greek I & CLAS 102and Beginning Classical Greek II
CLAS 121 Beginning Latin I & CLAS 122and Beginning Latin II
FREN 101 Beginning French I & FREN 102and Beginning French II
GERM 101 Beginning German I & GERM 102and Beginning German II
ITAL 101 Beginning Italian I & ITAL 102 and Beginning Italian II
JAPN 101 Beginning Japanese I & JAPN 102and Beginning Japanese II
RUSS 101 Beginning Russian I & RUSS 102and Beginning Russian II
SPAN 101 Beginning Spanish I & SPAN 102and Beginning Spanish II
Select one of the following:
ARAB 201 Intermediate Arabic I & ARAB 202and Intermediate Arabic II
CHIN 201 Intermediate Chinese I & CHIN 202 and Intermediate Chinese II
CLAS 211 Intermediate Greek or CLAS : or Advanced Greek: New Testament or CLAS : or Advanced Classical Greek Poetry or CLAS : or Advanced Classical Greek Prose
CLAS 221 Intermediate Latin I & CLAS 222and Intermediate Latin II
FREN 201 Intermediate French I & FREN 202and Intermediate French II or FREN or Field Studies I and Field Studies II & FREN 2

GERM 201 Intermediate German I & GERM 202 and Intermediate German II or GERM 201 Field Studies I and Field Studies II & GERM 222	
ITAL 201 Intermediate Italian I & ITAL 202 and Intermediate Italian II	
JAPN 201 Intermediate Japanese I & JAPN 202 and Intermediate Japanese II	
RUSS 201 Intermediate Russian I & RUSS 202 and Intermediate Russian II or RUSS 201 Field Studies I and Field Studies II & RUSS 222	
SPAN 201 Intermediate Spanish I & SPAN 202 and Intermediate Spanish II or SPAN 201 Field Studies Abroad I and Field Studies Abroad II & SPAN 222	
Option 2	
Foreign language placement test results determine foreign language course levels required	
Option 3	
Advanced Placement or Reading Achievement foreign language test results determine foreign language course levels required	
Mathematics ²	
Mathematics (3 hours must be in MATH) (p. 27)	6
Life and Physical Sciences ²	
Life and physical sciences (p. 27)	9
Creative Arts ²	
Creative arts (p. 30)	3
Language, Philosophy and Culture ²	
Language, philosophy and culture (p. 28)	3
Social and Behavioral Sciences ²	
Social and behavioral sciences (p. 31)	6
American History ^{2,4}	
American history (p. 30)	6
Government/Political Science ²	
Government/Political science (p. 31)	6
International Cultures and Diversity ⁵	
Cultural discourse (p. 48)	3
International and cultural diversity (p. 49)	3
Total Semester Credit Hours	74

¹ Students must demonstrate the ability to express themselves in acceptable written English. The school requirement is satisfied if a student earns a grade of C or better in ENGL 104. Students who do not meet this standard must repeat the course prior to completing 60 hours and earn a grade of C or better.

² No course used to fulfill this requirement may fulfill any other school or University requirement except in the minor field of study.

³ Students must take a foreign language placement test if they:

- intend to enroll for the first time in a college Spanish, French, German, Russian, Arabic, Chinese, Japanese, Classical Greek, Italian, or Latin course and
- have knowledge of the language acquired in any way

The placement test serves as a basis for credit by examination. Placement tests are offered throughout the calendar year by the Department of Global Languages and Cultures.

Students who have taken the Advanced Placement (AP) test or the Reading Achievement test in their foreign language of choice may substitute the test results for the placement exam.

⁴ Courses in military, air or naval science may not be substituted for required courses.

⁵ The list of approved courses is available in the degree audit for each major.

Bachelor of Science Requirements

Code	Title	Semester Credit Hours
Communication ¹		
ENGL 104	Composition and Rhetoric	3
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
Humanities Directed Elective ²		
Select three of the following:		9
AFST 325	Africana Humanities	
AFST 326	Africana Popular Culture	
AFST 327/	Popular Musics in the African	
MUSC 327	Diaspora	
AFST 362/	Women and War in the African	
HIST 302	Diaspora	
AFST 377	Africana Women's History	
AFST 391	Africana Feminisms	
AFST 398/	Africana Cinema	
FILM 398		
AFST 401	Slavery in World History	
ANTH 340/	Folklore and the Supernatural	
RELS 340		
ANTH 353/	Archaeology of Ancient Greece	
CLAS 353		
ANTH 354/	Archaeology of Ancient Italy	
CLAS 354		
ANTH 404/	Women and Culture	
WGST 404		
ANTH 436/	Ancient Egypt I	
RELS 436		
ASIA 401	Slavery in World History	
CHIN 405	Modern Chinese Fiction	
CHIN 465/	Chinese Film	
FILM 465		

CLAS 220	History of Christianity: Origins to the Reformation	COMM 410	Radio, Records, and Popular Music
CLAS 236/ HIST 236	War and Violence in the Ancient World	COMM 415	New Media and Civil Society
CLAS 250	Greek and Roman Civilization	COMM 420/Gender and Communication	
CLAS 251/ RELS 251	Classical Mythology	WGST 420	
CLAS 261	Great Books of the Classical Tradition	COMM 425/Communication and Black Freedom	
CLAS 262	Great Books of Christian Antiquity and the Latin Middle Ages	AFST 425	Dreams
CLAS 330	Women in Ancient Greece and Rome	COMM 428/Women's Rhetoric	
CLAS 352	Greek and Roman Drama	WGST 428	
CLAS 371	In Search of Homer and the Trojan War	COMM 431	Rhetoric of Social Movements
CLAS 372	Greek and Roman Epic	COMM 434	Topics in Rhetorical Theory
CLAS 415/ FILM 415	The Ancient World in Film	COMM 435/Rhetoric of Television and Film	
CLAS 418	Intellectual History from the Ancient Near East to the Early Middle Ages	FILM 445	
CLAS 426/ HIST 426	The Ancient Greeks	COMM 437	Visual Communication
CLAS 427/ HIST 427	The Roman Republic	COMM 438	Propaganda
CLAS 428/ HIST 428	The Roman Empire: Principate	COMM 440	Political Communication
CLAS 429/ HIST 429	The Roman Empire: Transformations	COMM 443	Communication and Conflict
COMM 257/Communication, Religion and the		COMM 446	Communication, Organizations and Society
RELS 257	Arts	COMM 452	Cultural Studies of Communication Technology
COMM 301	Rhetoric in Western Thought	COMM 453	Communication and Video Games
COMM 305	Theories of Communication	COMM 458/Global Media	
COMM 310	Communication Intervention	JOUR 458	
COMM 320	Organizational Communication	COMM 471	Media, Health and Medicine
COMM 322	Communication Tactics	COMM 476	Advanced Social Media
COMM 323	Strategic Communication	COMM 480/Religious Communication	
COMM 324	Communication Leadership and Conflict Management	RELS 480	
COMM 325	Persuasion	ENGL 221/	World Literature
COMM 335	Intercultural Communication	MODL 221	
COMM 338/Critical Race Discourse		ENGL 222/	World Literature
AFST 338		MODL 222	
COMM 340	Communication and Popular Culture	ENGL 241	Advanced Composition
COMM 343	Communication in a Diverse World	ENGL 251/	Introduction to Film Analysis
COMM 345	Media Industries	FILM 251	
COMM 346/Media, Culture and Identity		ENGL 305	Texas Literature
JOUR 346		ENGL 306	Transnational Literature and Culture
COMM 350	Theories of Mediated Communication	ENGL 308	History of Literary Criticism
COMM 354	Money, Power and Communication	ENGL 310/	History of the English Language
COMM 360	Cultural History of the Media	LING 310	
COMM 375	Media Audiences	ENGL 313	Medieval English Literature
COMM 407/Gender, Race and Media		ENGL 314	The English Renaissance
WGST 407		ENGL 315	Seventeenth-Century Literature
		ENGL 316	Eighteenth-Century Literature and Culture
		ENGL 317	Early British Drama
		ENGL 318	Utopian Literature in the English Tradition
		ENGL 321	Nineteenth-Century Literature (Romantic)
		ENGL 322	Nineteenth-Century Literature (Victorian)
		ENGL 323	The American Renaissance
		ENGL 324/	Science Fiction and Film
		FILM 324	

ENGL 329/ African-American Literature	ENGL 396 Studies in American Literature
AFST 329 Pre-1930	ENGL 401 Contemporary Literary Theory
ENGL 330 Arthurian Literature	ENGL 403 Language and Gender
ENGL 331 Fantasy Literature	ENGL 412 Studies in Shakespeare
ENGL 333/ Lesbian, Gay, Bisexual, Transgender	ENGL 414 Milton
WGST 333 and Queer Literatures	ENGL 415 Studies in a Major Author
ENGL 334 Science Fiction Present and Past	ENGL 431 Chaucer
ENGL 335 Literature of the Sea	ENGL 433 Digital Humanities Theory and Practice
ENGL 336 Life and Literature of the Southwest	ENGL 434 Advanced Studies in Science Fiction and Fantasy
ENGL 337 Life and Literature of the American South	ENGL 461 Advanced Syntax and Rhetoric
ENGL 338 American Ethnic Literature	ENGL 462 Rhetoric in Cultural Context
ENGL 339/ African-American Literature	ENGL 474/ Studies in Women Writers
AFST 339 Post-1930	WGST 474
ENGL 340 Modern and Contemporary Drama	FILM 299 History of Film
ENGL 342 The Rhetoric of Gender and Health	FILM 349 Documentary Cinema
ENGL 343 Fairy Tales in the English Tradition	FILM 366/ Horror Studies
ENGL 350 Twentieth-Century Literature to World War II	ENGL 366
ENGL 351/ Advanced Film	FILM 394 Studies in Film Genre
FILM 351	FILM 401 National Cinema History
ENGL 352 Literature, World War II to Present.	FILM 405/ European Cinema
ENGL 353 History of Rhetoric	EURO 405
ENGL 354 Modern Rhetorical Theory	FILM 406 Propaganda and Dissidence
ENGL 355 The Rhetoric of Style	FILM 417 Film Authorship
ENGL 356/ Literature and Film	FILM 469 Cult Cinema
FILM 356	FILM 470 Lesbian, Gay, Bisexual, Transgender, and Queer Cinemas
ENGL 357 Native American Rhetorics and Literatures	FILM 481 Seminar in Film Studies
ENGL 360 Literature for Children	FREN 422 Studies in Gender and French Literature
ENGL 361 Young Adult Literature	FREN 425/ French Film
ENGL 365/ The Bible as Literature	FILM 425
RELS 360	GERM 435/ German Film
ENGL 366/ Horror Studies	FILM 435
FILM 366	GERM 437 German Romanticism: Literature, Theory, Philosophy
ENGL 369/ Lesbian, Gay, Bisexual, Transgender, and Queer Authorship	GERM 440 Global Germany
ENGL 372 American Poetry	GERM 441 Representations of the Holocaust
ENGL 373 American Realism and Naturalism	GLST 215/ Global Cinema
ENGL 374/ Women Writers	FILM 215
WGST 374	HISP 362/ Latino/a Literature
ENGL 375 Nineteenth-Century American Novel	ENGL 362
ENGL 376 The American Novel Since 1900	HISP 474/ Diversity Lessons from Medieval Spain
ENGL 377 The British Novel to 1870.	RELS 474
ENGL 378 The British Novel, 1870 to Present.	HIST 212/ Holy War
ENGL 379/ Postcolonial Literatures	RELS 212
AFST 379	HIST 221/ History of Islam
ENGL 390 Studies in British Literature	RELS 221
ENGL 391 Folklore, Literature, and World Cultures	HIST 222/ History of Christianity, Reformation to Present
ENGL 393/ Studies in Africana Literature and Culture	AFST 300/ Blacks in the United States, 1607-1877
AFST 393	AFST 300
ENGL 394 Studies in Genre	HIST 301/ Blacks in the United States Since 1877
ENGL 395 Topics in Literature and Medicine	AFST 301

HIST 303	History and Memory	HIST 359	American Environmental History
HIST 304	Southwest Borderlands	HIST 360	History of Energy in America
HIST 305	Chicana/o History since 1848	HIST 361	From Gutenberg to Google - International History of Technology and Innovation
HIST 307	Latinx History	HIST 362	History of Science
HIST 308	History of American Indians in the U.S. South	HIST 363	History of Science in America
HIST 316	Latino/a Labor in the United States	HIST 364	From Axes to iPads - History of Innovation and Technology in America
HIST 317	Born Country - American Agricultural History	HIST 365/ RELS 365	Religion in Early America
HIST 319	U.S. Immigration and Ethnicity	HIST 366/ RELS 366	Religion in Modern America
HIST 320	History of the Atlantic World	HIST 367	American Colonies
HIST 321	The Age of Revolution in the Atlantic World	HIST 368	The Birth of the Republic, 1763-1820
HIST 322	History of the Iberian World	HIST 369	The United States, 1820-1860
HIST 323	Asian American History	HIST 370	Civil War and Reconstruction
HIST 326	History of the Caribbean	HIST 371	America in the Gilded Age, 1877-1901
HIST 330	Women in Ancient Greece and Rome	HIST 372	Reform, War and Normalcy: The United States, 1901-1929
HIST 331	Medieval Mediterranean, 300-1453	HIST 373	The Great Depression and World War II
HIST 333	Europe in the Age of Absolutism, 1660-1815	HIST 374	The United States After World War II
HIST 334	History of Europe in the Nineteenth Century	HIST 376	Great Scientists in History
HIST 335	Europe, 1890-1932	HIST 377	Africana Women's History
HIST 336	Europe Since 1919	HIST 401	Slavery in World History
HIST 337	War and Society in Europe Since 1900	HIST 402	History of Modern Germany
HIST 338	The Rise of the European Middle Class	HIST 404	Post 1945 Germanies
HIST 339	Eastern Europe	HIST 405	History of the Holocaust
HIST 340	Global Communism - Its Rise, Fall and Legacies	HIST 406	The Era of the French Revolution and Napoleon, 1715-1815
HIST 341	Latin America to 1810	HIST 407	History of France Since 1815
HIST 342	Latin America Since 1810	HIST 409	Youth in Modern Asia: Rebellions and Conformities
HIST 343	Inter-American Relations	HIST 410	Russian History to 1801
HIST 344/ AFST 344	History of Africa to 1800	HIST 411	Imperial Russia 1801-1917
HIST 345/ AFST 345	Modern Africa	HIST 412	Russia's Long Twentieth Century - The Soviet Experiment and Beyond
HIST 346/ AFST 346	History of South Africa	HIST 416	Texas as Border Region
HIST 347/ RELS 347	Rise of Islam, 600-1258	HIST 418	Intellectual History from the Ancient Near East to the Early Middle Ages
HIST 348	Modern Middle East	HIST 419/ RELS 419	Intellectual History, 500 to 1600
HIST 349/ ASIA 349	The Vietnam War/The American War	HIST 420	European Intellectual History from the Enlightenment to 1900
HIST 350/ ASIA 350	World War II in Asia and the Pacific	HIST 421	European Intellectual History in the Twentieth Century
HIST 352/ ASIA 352	Modern East Asia	HIST 425/ RELS 425	The Sacred and Profane in History
HIST 353	Modern South Asia	HIST 431	The Kingdom of Ireland, 1541-1800
HIST 356/ ASIA 356	Twentieth Century Japan	HIST 432	The Nation of Ireland, 1800 to the Present
HIST 357/ AFST 357	Out of Africa: The Black Diaspora and the Modern World		

HIST 433	Digital Humanities Theory and Practice	ITAL 455/ FILM 455	Italian Cinema
HIST 435	Sixteenth-Century Britain	ITAL 456	Contemporary Italian Cultures
HIST 436	Seventeenth-Century Britain	PERF 455	Seminar in Gender, Sexuality, and Performance
HIST 437	Eighteenth Century Britain	PHIL 305	Philosophy of the Natural Sciences
HIST 438	Nineteenth Century Britain	PHIL 307	Philosophy of the Social Sciences
HIST 439	Twentieth Century Britain	PHIL 314	Environmental Ethics
HIST 441	History of Mexico, 1821 to the Present	PHIL 315	Military Ethics
HIST 442	World War II	PHIL 320	Philosophy of Mind
HIST 443	American Military History to 1901	PHIL 330	Philosophy of Art
HIST 444	American Military History Since 1901	PHIL 331/ RELS 331	Philosophy of Religion
HIST 445	History of Military Strategy	PHIL 332	Social and Political Philosophy
HIST 447	Law and Society in the United States through Reconstruction	PHIL 334	Philosophy of Law
HIST 448	American Law Since 1865	PHIL 336	Advanced Topics in Philosophy of Law
HIST 449	History of Brazil, 1822 to the Present	PHIL 351	Theory of Knowledge
HIST 450	Southern Identities and Cultures through Reconstruction	PHIL 352/ AFST 352	Africana Philosophy
HIST 451	Southern Identities and Cultures Since Reconstruction	PHIL 353/ AFST 353	Radical Black Philosophies of Race and Racism
HIST 452	The American Revolution	PHIL 361	Metaphysics
HIST 453	The American West	PHIL 371	Philosophy of Literature
HIST 455	History of the American City	PHIL 376/ FILM 376	Philosophy, Film and Evil
HIST 458	The History of Childhood and Family in America	PHIL 381	Ethical Theory
HIST 459	American Society and Culture to 1877	PHIL 409	Studies in Gender and Philosophy
HIST 460	American Society and Culture Since 1877	PHIL 410	Classical Philosophy
HIST 461/ WGST 461	History of American Women	PHIL 411	Medieval Philosophy
HIST 462	American Foreign Relations to 1913	PHIL 412	Seventeenth-Century Philosophy
HIST 463	American Foreign Relations Since 1913	PHIL 413	Eighteenth-Century Philosophy
HIST 464	International Developments Since 1918	PHIL 414	Nineteenth Century Philosophy
HIST 468/ LMAS 468	Latinx Civil Rights Movements	PHIL 415	American Philosophy
HIST 469	History of Collective Protest and Violence	PHIL 416	Recent British and American Philosophy
HIST 470	American Business History	PHIL 417	Phenomenology
HIST 473/ WGST 473	Women's History in the Modern U.S.	PHIL 418	Existentialism
HIST 474	Topics in Historical Ethnical Conflict	PHIL 419	Current Continental Philosophy
HIST 475	Empires in History	PHIL 424	Philosophy of Language
HIST 476/ WGST 476	Sex and Sexuality in History	PHIL 464/ RELS 464	Modern Jewish Thought and Philosophy
HIST 477/ WGST 477	Women and Gender in Modern European History	PHIL 465/ RELS 465	Ethics After the Holocaust
ITAL 452	Topics in Italian Women and Gender Studies	PHIL 470	Animal Welfare, Ethics and Law
ITAL 453	Literatures of Italy	PHIL 480	Medical Ethics
		PHIL 482	Ethics and Engineering
		RELS 200	Religions of the World
		RELS 202	Religion in America
		RELS 209	Religions of the Ancient World
		RELS 220	History of Christianity: Origins to the Reformation
		RELS 304/ HUMA 304	Asian Religions

RELS 312	Contemplation in the Modern World
RELS 356	Ritual and Expression in Ancient Religions
RELS 367	Christianity and American Identity
RELS 392/ ENGL 392	Studies in Literature, Religion and Culture
RELS 418	Intellectual History from the Ancient Near East to the Early Middle Ages
RELS 420	Nature, Sustainability and Religion
RELS 465/ PHIL 465	Ethics After the Holocaust
RELS 471/ HISP 471	Hispanic Religions
RUSS 441/ EURO 441	The Russian Novel I - Tolstoy and Dostoevsky
RUSS 442/ EURO 442	The Russian Novel II - The Twentieth Century
RUSS 443/ EURO 443	Contemporary Russian Prose
RUSS 444/ EURO 444	Russian Drama
RUSS 446/ EURO 446	Russian Artistic Culture I - Beginnings to 1900
RUSS 447/ EURO 447	Russian Artistic Culture II - 1890 to Present
WGST 330	Women in Ancient Greece and Rome
WGST 343/ FILM 343	Sex, Gender and Cinema
WGST 369/ ENGL 369	Lesbian, Gay, Bisexual, Transgender, and Queer Authorship
WGST 377	Africana Women's History
WGST 394	Gender and Genre
WGST 401	Feminist Theory
WGST 411/ COMM 411	Representations of Motherhood
WGST 445/ SOCI 455	Queer Theory
WGST 463	Gender in Asia
WGST 470	Lesbian, Gay, Bisexual, Transgender, and Queer Cinemas

Foreign Language ^{2,3}

Option 1 8

Select one of the following:

ARAB 101	Beginning Arabic I & ARAB 102 and Beginning Arabic II
CHIN 101	Beginning Chinese I & CHIN 102 and Beginning Chinese II
CLAS 101	Beginning Classical Greek I & CLAS 102 and Beginning Classical Greek II
CLAS 121	Beginning Latin I & CLAS 122 and Beginning Latin II
FREN 101	Beginning French I & FREN 102 and Beginning French II
GERM 101	Beginning German I & GERM 102 and Beginning German II

ITAL 101	Beginning Italian I & ITAL 102 and Beginning Italian II
JAPN 101	Beginning Japanese I & JAPN 102 and Beginning Japanese II
RUSS 101	Beginning Russian I & RUSS 102 and Beginning Russian II
SPAN 101	Beginning Spanish I & SPAN 102 and Beginning Spanish II
Select one of the following:	
ARAB 201	Intermediate Arabic I & ARAB 202 and Intermediate Arabic II
CHIN 201	Intermediate Chinese I & CHIN 202 and Intermediate Chinese II
CLAS 211	Intermediate Greek or CLAS 310r Advanced Greek: New Testament or CLAS 310r Advanced Classical Greek Poetry or CLAS 310r Advanced Classical Greek Prose
CLAS 221	Intermediate Latin I & CLAS 222 and Intermediate Latin II
FREN 201	Intermediate French I & FREN 202 and Intermediate French II or FREN 220r Field Studies I and Field Studies II & FREN 222
GERM 201	Intermediate German I & GERM 202 and Intermediate German II or GERM 220r Field Studies I and Field Studies II & GERM 222
ITAL 201	Intermediate Italian I & ITAL 202 and Intermediate Italian II
JAPN 201	Intermediate Japanese I & JAPN 202 and Intermediate Japanese II
RUSS 201	Intermediate Russian I & RUSS 202 and Intermediate Russian II or RUSS 220r Field Studies I and Field Studies II & RUSS 222
SPAN 201	Intermediate Spanish I & SPAN 202 and Intermediate Spanish II or SPAN 220r Field Studies Abroad I and Field Studies Abroad II & SPAN 222

Option 2

Foreign language placement test results determine foreign language course levels required

Option 3

Advanced Placement or Reading Achievement foreign language test results determine foreign language course levels required

Mathematics ²

Mathematics (3 hours must be in MATH) (p. 27)

6

Life and Physical Sciences ²

Life and physical sciences (p. 27)	9
Creative Arts ²	
Creative arts (p. 30)	3
Language, Philosophy and Culture ²	
Language, philosophy and culture (p. 28)	3
Social and Behavioral Sciences ²	
Social and behavioral sciences (p. 31)	6
American History ^{2,4}	
American history (p. 30)	6
Government/Political Science ²	
Government/Political science (p. 31)	6
Computing Science, Mathematics, Science, Statistics ²	
Prescribed courses by major department	6
International Cultures and Diversity ⁵	
Cultural discourse (p. 48)	3
International and cultural diversity (p. 49)	3
Total Semester Credit Hours	74

¹ Students must demonstrate the ability to express themselves in acceptable written English. The school requirement is satisfied if a student earns a grade of C or better in ENGL 104. Students who do not meet this standard must repeat the course prior to completing 60 hours and earn a grade of C or better.

² No course used to fulfill this requirement may fulfill any other college or University requirement except in the minor field of study.

³ Students must take a foreign language placement test if they:

- intend to enroll for the first time in a college Spanish, French, German, Russian, Arabic, Chinese, Japanese, Classical Greek, Italian, or Latin course and
- have knowledge of the language acquired in any way

The placement test serves as a basis for credit by examination. Placement tests are offered throughout the calendar year by the Department of Global Languages and Cultures.

Students who have taken the Advanced Placement (AP) test or the Reading Achievement test in their foreign language of choice may substitute the test results for the placement exam.

⁴ Courses in military, air or naval science may not be substituted for required courses.

⁵ The list of approved courses is available in the degree audit for each major.

Major Field of Study

Each department sets its own requirements for the major, including no fewer than 27 hours of coursework and no more than 33 hours. At least 12 semester hours in the major must be completed in advanced courses (300- and 400-level), and at least 12 semester hours in the major field must be completed in residence at Texas A&M. A grade of C or higher is required in a course to be counted toward the major.

Minor Field of Study

Completion of a minor is not a requirement of the school; however, individual departments may require their majors to have a minor. Students should consult with an advisor in their major department to determine if a minor is required. The minor program comprises 15–18 hours with a minimum of 6 hours in residence at the 300- to 400-level. Minor programs are recognized on the official transcript after graduation,

but not on the diploma. Each student who is required to complete a minor, or who chooses to do so, should contact the department that offers the minor to determine which specific courses are mandated. No student may have more than two minors. The student's home department is responsible for advising after the student receives signed approval from the department, program, or college granting the minor program.

Electives

Elective courses may be chosen from any field within the University. (See section on "Requirements for a Baccalaureate Degree" in this catalog.) All other elective hours must be selected with the approval of the student's advisor and dean.

- ASCC 289 and ASCC 101 may only be taken on an S/U basis.
- Only 14 hours of KINE 199; AERS 100-499 (p. 900); MLSC 100-499 (p. 1151); NVSC 100-499 (p. 1178); SOMS 100-499 (p. 1237) may be used toward General Electives
- Any undergraduate student may take up to four semester credit hours of KINE 199 on an S/U basis.
- Students who have less than a 2.0 GPA and who enroll in KINE 199 must enroll in the course on an S/U basis.

Majors

Department of International Affairs

- Bachelor of Arts in International Affairs (p. 729)
- Bachelor of Arts in International Affairs and Master of International Affairs, 5-Year Degree Program (p. 730)

Department of Political Science

- Bachelor of Arts in Political Science (p. 735)
- Bachelor of Arts in Political Science and Master of Public Service and Administration, 5-Year Degree Program (p. 737)
- Bachelor of Science in Political Science (p. 738)
- Bachelor of Science in Political Science and Master of Public Service and Administration, 5-Year Degree Program (p. 739)

Department of Public Service and Administration

- Bachelor of Arts in Public Service and Administration (p. 745)
- Bachelor of Science in Public Service and Administration (p. 746)

Minors

Department of Political Science

- American Politics and Policy Minor (p. 740)
- Comparative Politics Minor (p. 741)
- International Relations Minor (p. 741)
- Legal Foundations Minor (p. 742)
- Political Data and Research Minor (p. 742)
- Political Theory Minor (p. 742)
- Race, Ethnicity, and Gender Politics Minor (p. 743)

Department of Public Service and Administration

- Homeland Security and Emergency Management Minor (p. 747)
- Nonprofit Studies Minor (p. 747)
- Public Management Minor (p. 748)
- Public Policy Analysis Minor (p. 748)

Masters

Department of International Affairs

- Master of International Affairs and Master of Public Health (HBEH) Combined Degree Program (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/government-public-service/international-affairs/combined-inta-hbeh/>)
- Master of International Affairs and Master of Public Health (PHPM) Combined Degree Program (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/government-public-service/international-affairs/combined-inta-phpm/>)
- Master of International Affairs in International Affairs (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/government-public-service/international-affairs/mia/>)
- Master of International Policy in International Policy (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/government-public-service/international-affairs/mip/>)
- Master of National Security and Intelligence in National Security and Intelligence (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/government-public-service/international-affairs/mns/>)
- Master of Science in Economics and Master of International Affairs Combined Degree Program (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/liberal-arts/economics/ms-mia/>)

Department of Political Science

- Master of Arts in Political Science (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/government-public-service/political-science/ma/>)
- Master of Science in Political Science (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/government-public-service/political-science/ms/>)

Department of Public Service and Administration

- Executive Master of Public Service and Administration in Public Service and Administration (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/government-public-service/public-service-administration/executive-mps/>)
- Master of Public Service and Administration and Doctor of Philosophy (EDAD) Combined Degree Program (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/government-public-service/public-service-administration/psaa-edad/>)
- Master of Public Service and Administration and Doctor of Philosophy (HRSA) Combined Degree Program (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/government-public-service/public-service-administration/psaa-hrsa/>)
- Master of Public Service and Administration in Public Service and Administration (<https://catalog.tamu.edu/graduate/colleges->

[schools-interdisciplinary/government-public-service/public-service-administration/mpsa/](https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/government-public-service/public-service-administration/mpsa/))

Doctoral

Department of Political Science

- Doctor of Philosophy in Political Science (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/government-public-service/political-science/phd/>)

Department of International Affairs

A pioneering, interdisciplinary and career-focused degree backed by Bush School excellence for global citizens with an interest in public service

The BA in International Affairs gives students a strong foundation in key areas such as international economics, global politics, and transnational social processes and issues. Students tailor their coursework to align with their interests, enabling a truly personalized educational experience, whether students' interests lie in East Asian political systems, European economic policies, African debt, or Middle Eastern conflicts.

Foreign language: Achieving competency in a foreign language is a fundamental part of our curriculum. This skill not only enhances students' abilities to communicate globally but also deepens cultural understanding, essential for a successful career in international fields.

International study experience: Students also participate in an immersive international study experience. This opportunity allows students to experience a different culture and gain firsthand insights into global affairs, enriching academic and personal growth.

Faculty

Bartel, Fritz, Associate Professor
International Affairs
PHD, Cornell University, 2017

Bearce, David, Professor
International Affairs
PHD, The Ohio State University, 2001

Blackwell, James A, Visiting Lecturer
International Affairs
PHD, Tufts University, 1984

Brown, Gary Duane, Professor of the Practice
International Affairs
JD, University of Nebraska-Lincoln, 1987
LLM, University of Cambridge, 1988

Brown, Jason, Visiting Associate Professor of the Practice
International Affairs
MA1, Georgetown University, 2022

Byers, Andrew, Visiting Lecturer
International Affairs
PHD, Duke University, 2012

Carley, Robert F, Associate Professor
International Affairs
PHD, Texas A&M University, 2012

Castillo, Jasen J, Associate Professor
International Affairs
PHD, University of Chicago, 2003

Cerrato, Maddalena A, Assistant Professor
International Affairs
PHD, Italian Institute for Human Sciences, 2013

Chinchilla, Alexandra, Assistant Professor
International Affairs
PHD, University of Chicago, 2021

Daly, Sara A, Visiting Lecturer
International Affairs
MA, The George Washington University, 1997

Davis, Bret W, Visiting Associate Professor of the Practice
International Affairs
JD, St. Mary's University, 1991

Denly, Michael, Assistant Professor
International Affairs
PHD, University of Texas at Austin, 2022

Espinoza Bardales, Luis, Assistant Professor
International Affairs
MA, University of Michigan, 2018
MPA, Kennedy School of Government at Harvard, 2014

Garritano, Carmela, Associate Professor
International Affairs
PHD, Michigan State University, 2001

Gentile, Philip David, Lecturer
International Affairs
MA1, John Hopkins University, 2020

Golsan, Richard J, Distinguished Professor
International Affairs
PHD, University of North Carolina at Chapel Hill, 1981

Hamie, Silva, Instructional Professor
International Affairs
PHD, University of York, 2007

Helms, Ben, Assistant Professor
International Affairs
PHD, University of Virginia, 2022

Hennessey-Niland, John, Professor of the Practice
International Affairs
MA, Tufts University, Fletcher School of Law & Diplomacy, 1987

Holmes, Amy Kristine, Instructional Associate Professor
International Affairs
PHD, The John Hopkins University, 2009

Howell, Michael W, Associate Professor of the Practice
International Affairs
MA, U.S. Naval War College, 2009

Huang, Reyko, Associate Professor
International Affairs
PHD, Columbia University, 2012

Hudson, Valerie M, Professor
International Affairs
PHD, The Ohio State University, 1983

Jackson, Michael L, Visiting Lecturer
International Affairs
MS, National Defense University, 2012

Johnson, Brian, Visiting Professor of the Practice
International Affairs
MA, King's College, London, 2007

Kanin, David, Lecturer
International Affairs
PHD, Fletcher School of Law and Diplomacy, Tufts University, 1976

Kappiaruparampil, Justin, Assistant Professor
International Affairs
PHD, University of Texas at Dallas, 2016

Karasipahi, Sena, Instructional Assistant Professor
International Affairs
PHD, Universiteit Leiden, 2006

Kaspar, Wendi A, Professor
International Affairs
MS, Texas A&M University, 2010

Kelly, Michael James, Lecturer
International Affairs
MA, University of Arizona, 1996

Kramm, Mathew, Research Assistant Professor
International Affairs
MS, Texas A&M University, 2020

Laurienti, Jerry, Lecturer
International Affairs
PHD, University of Denver, 2006

Layne, Christopher, Professor
International Affairs
PHD, University of California at Berkeley, 1981

Lee, Sumin, Assistant Professor
International Affairs
PHD, Rutgers University, 2022

Lemon, Edward, Research Assistant Professor
International Affairs
PHD, University of Exeter, 2016

Marin Thornton, Gabriela, Instructional Associate Professor
International Affairs
PHD, University of Miami, 2006

Mattis, Peter, Visiting Professor of the Practice
International Affairs
BDS, University of Washington, 2005

McLaughlin, William Preston, Lecturer
International Affairs
MA1, United States Army War College, 2003

Mu, Ren, Professor
International Affairs
PHD, Michigan State University, 2004

Natsios, Andrew S, Executive Professor
International Affairs
MPA, Harvard University, 1979

Neff, Brandon, Visiting Lecturer
International Affairs
MA1, Harvard University, 2006

Norris, William J, Associate Professor
International Affairs
PHD, Massachusetts Institute of Technology, 2010

Onder, Stefanie, Assistant Professor
International Affairs
PHD, London School of Economics and Political Science, 2011

Peterlin, Margaret Judith Ann, Lecturer
International Affairs
JD, Univ of Chicago The Law School, 2000

Pino, Alan, Lecturer
International Affairs
MA, University of Virginia, 1981

Pugel, Jim, Visiting Lecturer
International Affairs
PHD, George Mason University, 2016

Raisor, Cynthia M, Lecturer
International Affairs
MA, Texas A&M University, 1986

Robertson, Raymond E, Professor
International Affairs
PHD, The University of Texas at Austin, 1997

Ross, Gary, Associate Professor of the Practice
International Affairs
MS, National Intelligence University, 2008

Russell, Richard L, Visiting Lecturer
International Affairs
PHD, University of Virginia, 1997

Sakiev, Azamat, Visiting Lecturer
International Affairs
PHD, Syracuse University, 2011

Schuessler, John M, Associate Professor
International Affairs
PHD, University of Chicago, 2007

Shandley, Robert R, Professor
International Affairs
PHD, University of Minnesota, Twin Cities, 1996

Sherman, Elizabeth, Visiting Associate Professor of the Practice
International Affairs
MS, National War College, 2021

Shynkaruk, Kateryna, Senior Lecturer
International Affairs
PHD, National Taras Shevchenko University of Kyiv, 2011

Sievert, Ronald J, Associate Professor of the Practice
International Affairs
JD, The University of Texas at Austin, 1977

Smith, James M, Visiting Lecturer
International Affairs
PHD, The University of Alabama, 1993

Tabaar, Mohammad A, Associate Professor
International Affairs
PHD, Georgetown University, 2012

Talbot, Brent J, Lecturer
International Affairs
PHD, University of Denver, 2003

Taylor, Michelle Carron, Visiting Associate Professor of the Practice
International Affairs
BS, North Carolina State University, 2001

Teague, Aileen T., Assistant Professor
International Affairs
PHD, Vanderbilt University, 2018

Triplett, Holden, Visiting Professor of the Practice
International Affairs
JD, University of California, Berkeley, 2003

Vincent, Kenneth Rumsey, Visiting Lecturer
International Affairs
PHD, George Washington University, 2017

Vogle, Gregory, Professor of the Practice
International Affairs
BA, The Citadel, 1981

Wallace, James C, Visiting Lecturer
International Affairs
PHD, Boston University, Graduate School of Arts/Science, 2018

Weary, Katherine T, Associate Professor of the Practice
International Affairs
MA, The George Washington University, 2005

Weissgold, Linda, Visiting Professor of the Practice
International Affairs
BS, Georgetown University, 1984

White, Suzanne, Visiting Professor of the Practice
International Affairs
MA, Fletcher School of Law and Diplomacy, 1996

Wilder, Ursula M., Visiting Professor of the Practice
International Affairs
PHD, George Washington University, 1992

Yildirim, Abdulkadir, Visiting Lecturer
International Affairs
PHD, Ohio State University, 2010

Zaid, Mark S., Visiting Professor of the Practice
International Affairs
JD, Albany Law School, 1992

Zarate Barrera, Tatiana, Assistant Professor
International Affairs
PHD, University of British Columbia, 2023

Majors

- Bachelor of Arts in International Affairs (p. 729)
- Bachelor of Arts in International Affairs and Master of International Affairs, 5-Year Degree Program (p. 730)

International Affairs - BA

The Bachelor of Arts in International Affairs is an interdisciplinary program designed to foster a comprehensive understanding of international dynamics.

This program is ideal for students who are passionate about tackling the complex human, social, political, and economic challenges that define today's interconnected world. Our program offers a comprehensive international perspective on critical issues related to economics, political science, social change, and world history and provides students with the flexibility to dive deeper into specific subjects and geographical regions of their interest. The degree program allows students to develop career legible tools necessary to succeed in an increasingly globalized world. Students will be qualified to pursue a range of professions including positions in the federal government, in the private sector with firms dealing with the international economy, and in the state and local governments that interface globally.

Principle Objectives

1. Analyze international political, economic, and social issues;
2. Recognize varying approaches to argumentation, what counts as viable data, and how it is gathered and presented;
3. Write clearly and present their findings convincingly;
4. Become proficient in a language other than English;
5. Successfully navigate terrain, both literally and figuratively, that is foreign to them, through successful completion of an international experience

Curriculum

The degree plan consists of a combination of INTA core courses, directed electives tailored for each focus area, foreign language courses, and at least one long semester or 10-week summer international experience with an emphasis on cultural and linguistic immersion.

Program Requirements

First Year

Fall		Semester Credit Hours
BUSH 141	Bush Undergraduate Success Hub ¹	3
ENGL 104	Composition and Rhetoric ¹	3
INTA 211	Introduction to International Social Issues	3
STAT 201	Elementary Statistical Inference	3

Foreign language ²		4
Semester Credit Hours		16
Spring		
POLS 206	American National Government	3
American history (p. 30)		3
Foreign language ²		4
Life and physical sciences (p. 27)		3
Semester Credit Hours		13
Second Year		
Fall		
ECON 202	Principles of Economics ¹	3
INTA 221	Principles of International Affairs	3
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
Foreign language ²		3
Language, philosophy and culture (p. 28)		3
Semester Credit Hours		15
Spring		
ECON 203	Principles of Economics ¹	3
POLS 207	State and Local Government	3
American history (p. 30)		3
Creative arts (p. 30)		3
Foreign language ²		3
Life and physical sciences (p. 27)		3
Semester Credit Hours		18
Third Year		
Fall		
INTA 300	International Experience ³	0
Area studies ^{1,3,4}		3
Area studies ^{1,3,4}		3
Foreign language ²		3
Concentration area ^{1,5}		3
Semester Credit Hours		12
Spring		
INTA 231	Principles of the Global Economy	3
Concentration area ^{1,5}		3
Foreign language ²		3
Life and physical sciences (p. 27)		3
International affairs elective ^{1,6}		3
Semester Credit Hours		15
Fourth Year		
Fall		
Mathematics (p. 27)		3
Concentration area ^{1,5}		3
International affairs elective ^{1,6}		3
Humanities directed elective (p. 713) ¹		3
Humanities directed elective (p. 713) ¹		3
Semester Credit Hours		15

Spring

INTA 481	Senior Seminar in International Studies ^{1,7}	3
Concentration area ^{1,5}		3
Humanities directed elective (p. 713) ¹		3
General elective ⁸		3
General elective ⁸		4
Semester Credit Hours		16
Total Semester Credit Hours		120

¹ Must make a grade of C or better.

² Students completing a Bachelor of Arts in the Bush School are required to complete 14 hours of a foreign language through the intermediate level. Students in International Affairs are required to complete an additional 6 hours of a foreign language through the advanced level. If you choose to enroll in a language you have studied previously without receiving college credit, you must first take a placement test. See the Foreign Language paragraph.

³ The course will be used to track student's completion of the International Experience Requirement.

⁴ Select courses from an approved list on the INTA website in consultation with an advisor. Courses numbered 485 or 489 that contain significant international content can be taken in any department to meet part of the track or area requirement. Students must obtain International Affairs advisor approval before taking the 485 or 489 course.

⁵ Select 12 hours from one Concentration Area from the list below.

⁶ Select from INTA 400-499 (p. 1093)

⁷ Students can substitute INTA 497.

⁸ Select any 100-499 course not used elsewhere.

Code	Title	Semester Credit Hours
International Social Processes		
GLST 311/ ENGL 309	Cultural Politics	3
HISP 363	Borderlands: U.S. and Mexico	3
INTA 445	Women and International Affairs	3
INTA 251	Contemporary Issues in the Middle East	3
INTA 261/ AFST 261	Contemporary Issues in the Global South	3
INTA 301	Theories of Globalization	3
INTA 484	Directed Internship	0-3
POLS 328	Globalization and Democracy	3
SOCI 337	International Migration	3
International Development and Economic Policy		
AGEC 105	Introduction to Agricultural Economics	3
AGEC 408	Economics of Foreign Intervention, Conflict and Development	3
AGEC 452	International Trade and Agriculture	3
ALEC 350	Global Agricultural Issues	3
ECON 320	Economic Development of Europe	3
GEOG 304	Economic Geography	3
INTA 418	Economic Statecraft	3
INTA 301	Theories of Globalization	3

INTA 484	Directed Internship	0-3
POLS 324	Politics of Global Inequality	3
International Politics, Security and Diplomacy		
INTA 415	American Foreign Policy	3
INTA 443	International Organizations	3
INTA 452	Intelligence and National Security	3
INTA 455	European Politics	3
INTA 473	Chinese Politics	3
INTA 476	International Politics of the Middle East	3
INTA 486	Russia and the Former Soviet Union	3
INTA 494	Inter-American Affairs - U.S. Interventions in Latin America and Beyond	3
INTA 301	Theories of Globalization	3
INTA 321	Political Islam and Jihad	3
International Geographic Information Systems		
GEOG 361	Remote Sensing in Geosciences	4
GEOG 390	Principles of Geographic Information Systems	4
GEOG 475	Advanced Topics in GIS (Geographic Information Systems)	4
Quantitative Methods		
PHIL 451	Probability, Decision Theory and Game Theory - How Should I Choose	3
PHIL 452	Social Choice, Polarization and Democracy - How Should We Choose	3
STAT 211	Principles of Statistics I	3
STAT 212	Principles of Statistics II	3
STAT 303	Statistical Methods	3
STAT 307	Sample Survey Techniques	3
STAT 407	Principles of Sample Surveys	3
STAT 408	Introduction to Linear Models	3

International Affairs - 5-Year Bachelor of Arts and Master of International Affairs

This combination program enables motivated students to efficiently complete both the Bachelor of Arts in International Affairs and the Master of International Affairs in five years.

5-Year Bachelor of Arts International Affairs and Master of International Affairs

The Bush School of Government and Public Service offers a five-year combination degree program in which undergraduate students majoring in International Affairs (INTA) can apply to and enter the Master of International Affairs (MIA) program at the start of their senior year at Texas A&M University. This selective and accelerated program allows students to receive both a Bachelor of Arts in International Affairs and a Master of International Affairs graduate degree in only five years. Coupling the breadth of an interdisciplinary BA degree with the focus and career preparation of an MA professional degree, this intensive 5-

year program provides unparalleled value to students pursuing careers in international affairs and public service.

Eligibility Requirements

To apply to the combination MIA-INTA degree program, students must:

- be classified as a U3 majoring in International Affairs, and
- have a 3.5 GPA or above by the start of the fall semester in which they will enter the combination program (if admitted), and
- work with their undergrad advisor to map out courses the student must complete prior to entry into the combination program (if admitted), and
- have approximately 66-78 credit hours completed by the time they apply to the combination program in the fall of their senior year (including all required courses for INTA major, college, and Texas A&M), and
- have approximately 102 credit hours completed before entry into the combination program in the fall of their senior year (including all required courses for INTA major, college, and Texas A&M), and
- complete their study abroad prior to the start of the fall semester in which they will enter the combination program, and
- be in good academic standing with their undergrad department, and
- not be expected to graduate during the academic year in which they are applying, and
- understand that failure to satisfy ALL of these requirements will result in the combination admission (if offered) being revoked.

Advising

It is imperative for students interested in the combination MIA work with their undergrad INTA advisor as soon as possible to ensure the student is on track to complete all necessary courses (including study abroad) prior to applying for the program.

Program Requirements

First Year

Fall		Semester Credit Hours
BUSH 141	Bush Undergraduate Success Hub ¹	3
ENGL 104	Composition and Rhetoric ¹	3
INTA 211	Introduction to International Social Issues	3
STAT 201	Elementary Statistical Inference	3
Foreign language ²		4
Semester Credit Hours		16
Spring		
POLS 206	American National Government	3
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
American history (p. 30)		3
Foreign language ²		4

Humanities directed elective (p. 713) ¹		3
Semester Credit Hours		16
Second Year		
Fall		
ECON 202	Principles of Economics ¹	3
INTA 606	International Politics in Theory and Practice ^{3, 4}	3
POLS 207	State and Local Government	3
Foreign language ²		3
Life and physical sciences (p. 27)		3
Humanities directed elective (p. 713) ¹		3
Semester Credit Hours		18
Spring		
ECON 203	Principles of Economics ¹	3
American history (p. 30)		3
Creative arts (p. 30)		3
Foreign language ²		3
Language, philosophy and culture (p. 28)		3
Mathematics (KMT prefix required) (p. 27)		3
Semester Credit Hours		18
Third Year		
Fall		
INTA 300	International Experience	0
Area studies ^{1, 5, 6}		3
Area studies ^{1, 5, 6}		3
Foreign language ²		3
Life and physical sciences (p. 27)		3
Humanities directed elective (p. 713) ¹		3
General elective ⁷		3
Semester Credit Hours		18
Spring		
INTA 608	Fundamentals of the Global Economy ^{3, 4}	3
INTA graduate concentration ^{3, 4, 8}		3
Foreign language ²		3
Life and physical sciences (p. 27)		3
General elective ⁷		4
Semester Credit Hours		16
Fourth Year		
Fall		
INTA 481 or INTA 497	Senior Seminar in International Studies or Independent Honors Study	3
INTA elective ^{3, 9}		3
INTA elective ^{3, 9}		3
Concentration area ^{1, 10}		3
Semester Credit Hours		12
Spring		
BUSH 631	Quantitative Methods in Public Management I ^{3, 4}	3
INTA graduate concentration ^{3, 4, 8}		3
Graduate INTA elective ^{3, 11}		3
Graduate INTA elective ^{3, 11}		3
Semester Credit Hours		12

Fifth Year**Fall**

Graduate INTA elective ^{3, 11}	3
Graduate INTA elective ^{3, 11}	3
Graduate INTA elective ^{3, 11}	3
Graduate INTA elective ^{3, 11}	3

Semester Credit Hours **12**

Spring

INTA 670 International Affairs Capstone Seminar ^{3, 11}	3
Graduate INTA elective ^{3, 11}	3
Graduate INTA elective ^{3, 11}	3
Graduate INTA elective ^{3, 11}	3

Semester Credit Hours **12**

Total Semester Credit Hours **150**

¹ Must make a grade of C or better.

² Students completing a Bachelor of Arts in the Bush School are required to complete 14 hours of a foreign language through the intermediate level. Students in International Affairs are required to complete an additional 6 hours of a foreign language through the advanced level. If you choose to enroll in a language you have studied prior to enrollment without receiving university credit, you must first take a placement test. See the Foreign Language paragraph.

³ Must make a grade of B or better.

⁴ Course that could double count as BA International Affairs and Masters in International Affairs.

⁵ The course will be used to track student's completion of the International Experience Requirement.

⁶ Select courses from an approved list on the INTA website in consultation with an advisor. Courses numbered 485 or 489 that contain significant international content can be taken in any department to meet part of the track or area requirement. Students must obtain International Affairs advisor approval before taking the 485 or 489 course.

⁷ Select any 100-499 course not used elsewhere.

⁸ Select 6 hours from one concentration. International Social processes: BUSH 635 and INTA 484; International Development and Economic Policy: BUSH 635 and INTA 418; International Politics, Security and Diplomacy: INTA 605 and 3 hours from INTA 601-607 (<https://catalog.tamu.edu/graduate/course-descriptions/inta/>), INTA 609-613 (<https://catalog.tamu.edu/graduate/course-descriptions/inta/>), INTA 617-623 (<https://catalog.tamu.edu/graduate/course-descriptions/inta/>).

⁹ Select from INTA 400-499 (p. 1093).

¹⁰ Select 12 hours from one Concentration Area from the list below.

¹¹ Course that will only count towards the graduate level program.

Code	Title	Semester Credit Hours
International Social Processes		
GLST 311/ ENGL 309	Cultural Politics	3
HISP 363	Borderlands: U.S. and Mexico	3
INTA 445	Women and International Affairs	3
INTA 251	Contemporary Issues in the Middle East	3

INTA 261/ AFST 261	Contemporary Issues in the Global South	3
INTA 301	Theories of Globalization	3
INTA 484	Directed Internship	0-3
POLS 328	Globalization and Democracy	3
SOCI 337	International Migration	3

International Development and Economic Policy

AGEC 105	Introduction to Agricultural Economics	3
AGEC 408	Economics of Foreign Intervention, Conflict and Development	3
AGEC 452	International Trade and Agriculture	3
ALEC 350	Global Agricultural Issues	3
ECON 320	Economic Development of Europe	3
GEOG 304	Economic Geography	3
INTA 301	Theories of Globalization	3
INTA 418	Economic Statecraft	3
INTA 484	Directed Internship	0-3
POLS 324	Politics of Global Inequality	3

International Politics, Security and Diplomacy

INTA 415	American Foreign Policy	3
INTA 443	International Organizations	3
INTA 452	Intelligence and National Security	3
INTA 455	European Politics	3
INTA 473	Chinese Politics	3
INTA 476	International Politics of the Middle East	3
INTA 486	Russia and the Former Soviet Union	3
INTA 494	Inter-American Affairs - U.S. Interventions in Latin America and Beyond	3
INTA 301	Theories of Globalization	3
INTA 321	Political Islam and Jihad	3

International Geographic Information Systems

GEOG 361	Remote Sensing in Geosciences	4
GEOG 390	Principles of Geographic Information Systems	4
GEOG 475	Advanced Topics in GIS (Geographic Information Systems)	4

Quantitative Methods

PHIL 451	Probability, Decision Theory and Game Theory - How Should I Choose	3
PHIL 452	Social Choice, Polarization and Democracy - How Should We Choose	3
STAT 211	Principles of Statistics I	3
STAT 212	Principles of Statistics II	3
STAT 303	Statistical Methods	3
STAT 307	Sample Survey Techniques	3
STAT 407	Principles of Sample Surveys	3
STAT 408	Introduction to Linear Models	3

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse

(p. 48) courses. A course satisfying a core category, a college/department requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

Foreign Language

Students entering International Affairs take a placement exam to determine the level of and number of required foreign language courses. Exam results may fulfill a maximum of 14 semester credit hours.

- Students placed in 101 will take 101, 102, 201 and 202 and 6 semester credit hours at the 300- or 400-level.
- Students placed in 102 will take 102, 201 and 202 and 6 semester credit hours at the 300- or 400-level.
- Students placed in 201 will take 201 and 202 and 6 semester credit hours at the 300- or 400-level.
- Students placed in 202 will take 202 and 6 semester credit hours at the 300- or 400-level.
- Students placing out of 101, 102, 201 and 202 will take 6 semester credit hours at the 300- or 400-level.

International Experience Requirements

The International Experience must generate at least 3 hours of Texas A&M University credit. Departmental approval is required before travel. **Any international experience that does not meet these criteria will not count toward the degree.**

- Must be at least one long semester or one 10-week summer approved experience.
- Must be taken after completion of 100- and 200-level language requirement and INTA 211.
- Must be completed before student is eligible to enroll in INTA 481, INTA 491, INTA 497.
- Must be an immersion experience in the foreign culture and language, which can be satisfied by:
 - An internship at a company, government agency or non-profit operation involving significant use of the foreign language. Three hours of INTA 484 elective credit can be given.
 - Courses taken at a foreign university. Courses may count for Texas A&M University credit with approval of the advisor of the relevant department. These courses cannot apply to the International Studies core. One course must be taken in the foreign language at the 300- or 400-level.
 - Selected Texas A&M University Study Abroad programs which involve intensive cultural and language immersion.
 - A combination of the above to equal the requirement of a long semester or a 10-week summer-approved experience.
- Must be taken outside of the student's country of origin.
- Must be taken in one foreign country that matches with the foreign language and the area study requirement unless approved by the department head before travel.

Other courses may qualify for the college, university requirements categories. Students should consult the approved list of courses available in the International Affairs Degree Program Office. The list incorporates University Core Curriculum requirements. No course can be counted in more than one category, except as allowed in the International and Cultural Diversity and Cultural Discourse Graduation requirement.

Department of Political Science

What is Political science?

Political Science is a social science focused on the study of politics, government, and public policy at the local, state, national, and international levels. When we talk about politics, we're examining the dynamics of power and control, and exploring Harold Laswell's concept of "who gets what, when, and how." It helps us answer essential questions such as: How influential is citizen engagement? Do elections truly hold leaders accountable? How effective are different political institutions and systems across countries? How do states interact with each other in the international system? The study of government focuses on the different institutions that make public policies for a country, examining how these structures cooperate and conflict with each other as policies are developed. Public policy studies the decisions crafted by governing bodies—like laws, budgets, and rulings. It attempts to figure out which issues are prioritized in politics and why particular actions are taken. Through the study of politics, government mechanisms, and public policies, political science stands out in its capacity to analyze significant contemporary issues, including authority, influence, identity, ethics, law, freedom, fairness, justice, representation, wealth distribution, and conflict.

Why Study Political Science?

The field of political science offers students a diverse set of skills and experiences that are valuable for their future. This degree equips students with analytical tools to comprehend how people interact in different social settings. It involves learning about common patterns and issues in politics and how to gather and assess data and evidence. Studying political science also enhances critical thinking and communication abilities, positioning students for jobs in law, government, and industry.

Undergraduate Courses

The Department of Political Science offers courses in all facets of the discipline: American Politics, International Relations, Comparative Politics, Political Theory, Political Methodology, Public Administration and Policy, and Race and Ethnic Politics.

American Politics

American politics involves the study of the institutions of national government, law, mass political behavior, elections, political communication and media, interest groups, political parties, state and local governments, urban politics, and identity in politics in the United States.

International Relations

International relations involve the study of relations between the governments of the world. Courses are offered in world politics, American foreign relations, and national security policy.

Comparative Politics

This area of political science allows students to develop an in-depth understanding of foreign governments and politics. Courses are offered in European governments, Latin American governments, Asian governments, Russia and the former Soviet states, and in the politics of inequality and globalization.

Political Theory

The study of political theory provides students with an understanding of the fundamental relationships between governments and people. Courses range from the study of Greek antiquity to contemporary political ideologies.

Public Administration and Policy

This area of political science encompasses the study of public administration and the role of public policy in American politics. Study in this area will provide the student with the opportunity to understand the fundamentals of administration within a political environment. Courses are offered in bureaucracy and administration, state and local finance, urban administration, and government and the economy.

Political Methodology

These courses introduce students to scientific research design, statistical analysis, and game theory.

Race and Ethnic Politics

These courses provide the student with an in-depth understanding of the role of diversity in politics.

5-Year Combined Degree Programs

The Political Science Department offers a combined degree program in conjunction with the Bush School of Government and Public Service. This program enables students to receive either a BA or BS in political science and a Master of Public Service and Administration (MPSA) degree in five years.

The Political Science Department also offers a combined degree program that enables students to receive either a BA or BS in political science and a Master of Arts or a Master of Science in Political Science in four and a half years.

Honors Program

The Department of Political Science participates actively in the University honors program. Honors courses are available in all areas of political science. In addition, students may graduate with honors distinction in political science. Honor students also are offered individual instruction under POLS 497. Students interested in the Department's Honors Program should contact the Political Science Undergraduate Programs Office.

Teacher Certification

Students desiring certification to teach civics or government in secondary schools in Texas must meet special additional requirements.

More complete information on requirements for teacher certification may be found in the College of Education and Human Development section under secondary certification.

Faculty

Bond, Jon R, Professor
Political Science
PHD, University of Illinois at Urbana-Champaign, 1978

Burnham, Michael, Assistant Professor
Political Science
PHD, Pennsylvania State University, 2022

Chin, Michelle, Instructional Professor
Political Science
PHD, Texas A&M University, 2001

Chupp, Jesse A, Lecturer
Political Science
PHD, Texas A&M University, 2012

Clark, William, Professor
Political Science
PHD, Rutgers University, 1994

Clifford, Scott, Professor
Political Science
PHD, Florida State University, 2013

Cook, Scott J, Associate Professor
Political Science
PHD, University of Pittsburgh, 2014

Crisman-Cox, Casey, Assistant Professor
Political Science
PHD, University of Rochester, 2016

Dyer, Megan K, Senior Lecturer
Political Science
PHD, Texas A&M University, 2017

Escobar-Lemmon, Maria, Professor
Political Science
PHD, The University of Arizona, 2000

Flaherty, Thomas Michael, Assistant Professor
Political Science
PHD, University of California, San Diego, 2023

Fuhrmann, Matthew C, Professor
Political Science
PHD, University of Georgia, 2008

Goidel, Robert K, Professor
Political Science
PHD, University of Kentucky, 1993

Harmel, Robert, Professor
Political Science
PHD, Northwestern University, 1977

Haydon, Matthew R., Instructional Assistant Professor
Political Science
PHD, University of Utah, 2022

Jares, Jake, Assistant Professor
Political Science
PHD, Stanford University, 2024

Jo, Hyeran, Associate Professor
Political Science
PHD, University of Michigan, 2008

Jordan, Soren, Associate Professor
Political Science
PHD, Texas A&M University, 2015

Kellstedt, Paul M, Professor
Political Science
PHD, University of Minnesota, Twin Cities, 1996

Kent, Charles Todd, Instructional Professor
Political Science
PHD, Texas A&M University, 2005

Li, Quan, Professor
Political Science
PHD, Florida State University, 1998

Lim, Phaik S, Senior Lecturer
Political Science
PHD, University of Houston, 2003

Lipsmeyer, Christine S, Professor
Political Science
PHD, Vanderbilt University, 1999

Malis, Matt, Assistant Professor
Political Science
PHD, New York University, 2022

Mehlhoff, Isaac Douglas, Assistant Professor
Political Science
PHD, University of North Carolina at Chapel Hill, 2023

Nederman, Cary J, Professor
Political Science
PHD, York University, 1983

Onder, Ilayda, Assistant Professor
Political Science
PHD, Pennsylvania State University, 2024

Pacek, Alexander C, Professor
Political Science
PHD, University of Illinois at Urbana-Champaign, 1991

Pathakis, Kristy, Assistant Professor
Political Science
PHD, University of California, San Diego, 2020

Reinemeyer, Anneliese, Instructional Associate Professor
Political Science
PHD, Texas A&M University, 2001

Robertson, John D, Professor
Political Science
PHD, University of Illinois at Urbana-Champaign, 1979

Roblyer, Dwight A, Instructional Professor
Political Science
PHD, Texas A&M University, 2009

Rogers, James R, Associate Professor
Political Science
PHD, The University of Iowa, 1994

Simas, Elizabeth, Associate Professor
Political Science
PHD, University of California, Davis, 2011

Smith, Jason M, Lecturer
Political Science
PHD, Texas A&M University, 2009

Tarar, Ahmer S, Associate Professor
Political Science
PHD, University of Rochester, 2003

Taylor, Michelle M, Professor
Political Science
PHD, Rice University, 1990

Von Vacano, Diego A, Professor
Political Science
PHD, Princeton University, 2003

Whitten, Guy D, Professor
Political Science
PHD, University of Rochester, 1994

Majors

- Bachelor of Arts in Political Science (p. 735)
- Bachelor of Arts in Political Science and Master of Public Service and Administration, 5-Year Degree Program (p. 737)
- Bachelor of Science in Political Science (p. 738)
- Bachelor of Science in Political Science and Master of Public Service and Administration, 5-Year Degree Program (p. 739)

Minors

- American Politics and Policy Minor (p. 740)
- Comparative Politics Minor (p. 741)
- International Relations Minor (p. 741)
- Legal Foundations Minor (p. 742)
- Political Data and Research Minor (p. 742)
- Political Theory Minor (p. 742)
- Race, Ethnicity and Gender Politics Minor (p. 743)

Political Science - BA

The Bachelor of Arts (BA) degree program in Political Science provides a solid education in liberal arts.

This program focuses on improving students' understanding of local and global politics. This program also teaches vital skills in social science research methods, boosting critical thinking, and improving students' abilities in writing, speaking, and visual communication. At Texas A&M, students pursuing this degree need to complete four semesters of a foreign language course. Alongside this requirement, the degree covers a wide range of courses, offering flexibility in the core curriculum and electives. This flexibility helps students get a comprehensive education that supports their future academic and professional goals.

Within their major area of study, students will be able to further their education in American political institutions and political behavior; international relations; comparative politics; political theory; research

methodology; public policy and administration; and race and ethnic politics.

Students who graduate with a degree in Political Science have a wide spectrum of career fields to choose from. Many students will pursue careers such as government, law, education, business, non-profits, and journalism.

Program Requirements

First Year

		Semester Credit Hours
Fall		
BUSH 141	Bush Undergraduate Success Hub ¹	3
ENGL 104	Composition and Rhetoric ¹	3
POLS 206	American National Government ¹	3
Foreign language ²		4
Mathematics ³		3
Semester Credit Hours		16

Spring

POLS 207	State and Local Government ¹	3
American history (p. 30)		3
Foreign language ²		4
Mathematics ³		3
Humanities directed elective (p. 713)		3
Semester Credit Hours		16

Second Year

Fall		
POLS 200	Foundations of Political Science ¹	3
American history (p. 30)		3
Creative arts (p. 30)		3
Foreign language ²		3
Life and physical sciences (p. 27)		3
Semester Credit Hours		15

Spring

POLS 209	Introduction to Political Science Research ^{1,4}	3
Communication (p. 27)		3
Foreign language ²		3
Life and physical sciences (p. 27)		3
Social and behavioral sciences (p. 31) ⁵		3
Semester Credit Hours		15

Third Year

Fall		
Select two of the following: ¹		6
POLS 203	Introduction to Political Theory	
POLS 229	Introduction to Comparative Politics	
POLS 231	Introduction to World Politics	
POLS 233	Politics and Policy in the United States	
Language, philosophy and culture (p. 28)		3
Life and physical sciences (p. 27)		3
Social and behavioral sciences (p. 31) ⁵		3
Semester Credit Hours		15

Spring

Select one of the following: ¹		3
POLS 203	Introduction to Political Theory	
POLS 229	Introduction to Comparative Politics	
POLS 231	Introduction to World Politics	
POLS 233	Politics and Policy in the United States	
Political Science elective (p. 1209) ^{1,6}		3
Humanities directed elective (p. 713)		3
General elective ⁷		3
General elective ⁷		3
Semester Credit Hours		15

Fourth Year

Fall		
Political Science elective (p. 1209) ^{1,6}		3
Political Science elective (p. 1209) ^{1,6}		3
General elective ⁷		3
General elective ⁷		3
General elective ⁷		3
Semester Credit Hours		15

Spring

Political Science elective (p. 1209) ^{1,6}		3
Political Science elective (p. 1209) ^{1,6}		3
Humanities directed elective (p. 713)		3
General elective ⁷		3
General elective ⁷		1
Semester Credit Hours		13
Total Semester Credit Hours		120

¹ Must make a grade of C or better.

² Complete 14 hours of a foreign language (p. 713) through the intermediate level. If you choose to enroll in a language you have studied previously without receiving college credit, you must first take a placement test. Select in consultation with an academic advisor.

³ Select from MATH 140, MATH 142, MATH 151, MATH 152; PHIL 240.

⁴ Students must complete this course before taking more than 6 hours of 300- or 400-level courses in Political Science.

⁵ POLS 100-499 (p. 1209) cannot be used to fulfill this requirement.

⁶ Select from POLS 100-499 (p. 1209) (except POLS 206, POLS 207, POLS 209).

⁷ Select any 100-499 course not used elsewhere (except POLS 100-499 (p. 1209)).

No more than 36 credits in political science may be applied to the degree.

Other courses may qualify for the college and university requirements.

Student should consult the approved list of courses in the Undergraduate Student Services Office. No course can be counted in more than one category.

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. Select in consultation with an academic advisor.

Political Science - 5-Year Bachelor of Arts and Master of Public Service Administration

This program combines the teaching of analytical thinking skills and applications to better understand human behavior as it relates to public policy and management along with skills in leadership and research methods.

The combined degree program between the Department of Political Science and The Bush School of Government and Public Service allows undergraduate Political Science students to enter the Master of Public Service Program, with a focus in Public Policy Analysis, at the beginning of their fourth year at Texas A&M University.

Students will be required to complete the same curriculum as other students admitted to the Bush School's MPSA program. At the completion of the program, students are prepared for a wide variety of post-graduate opportunities including: employment in local, state or federal government, non-profit organizations, or government contracting.

Students interested in this program will apply during the spring semester of their junior year and, if admitted, begin taking masters-level courses in the fall semester of their senior year with an undergraduate classification. Students are reclassified as degree seeking master's students upon completing the first two semesters of the program. Prior to being reclassified, a student must have completed all requirements for their bachelor's degree in Political Science.

Program Requirements

First Year

Fall		Semester Credit Hours
BUSH 141	Bush Undergraduate Success Hub ¹	3
ENGL 104	Composition and Rhetoric ¹	3
POLS 206	American National Government ¹	3
Foreign language ²		4
Mathematics ³		3
Semester Credit Hours		16

Spring

POLS 207	State and Local Government ¹	3
American history (p. 30)		3
Foreign language ²		4
Mathematics ³		3
Humanities directed elective (p. 713)		3
Semester Credit Hours		16

Second Year

Fall		Semester Credit Hours
POLS 200	Foundations of Political Science ¹	3
American history (p. 30)		3
Creative arts (p. 30)		3
Foreign language ²		3
Life and physical sciences (p. 27)		3
Humanities directed elective (p. 713)		3
Semester Credit Hours		18

Spring

POLS 209	Introduction to Political Science Research ^{1,4}	3
Communication (p. 27)		3
Foreign language ²		3
Life and physical sciences (p. 27)		3
Social and behavioral sciences (p. 31) ⁵		3
General elective ⁶		3
Semester Credit Hours		18

Third Year

Fall

Select two of the following: ¹		6
POLS 203	Introduction to Political Theory	
POLS 229	Introduction to Comparative Politics	
POLS 231	Introduction to World Politics	
POLS 233	Politics and Policy in the United States	
Language, philosophy and culture (p. 28)		3
Life and physical sciences (p. 27)		3
Social and behavioral sciences (p. 31) ⁵		3
General elective ⁶		1
Semester Credit Hours		16

Spring

Select one of the following: ¹		3
POLS 203	Introduction to Political Theory	
POLS 229	Introduction to Comparative Politics	
POLS 231	Introduction to World Politics	
POLS 233	Politics and Policy in the United States	
Political Science elective (p. 1209) ^{1,7}		3
Political Science elective (p. 1209) ^{1,7}		3
Humanities directed elective (p. 713)		3
General elective ⁶		3
General elective ⁶		3
Semester Credit Hours		18

Fourth Year

Fall

BUSH 631	Quantitative Methods in Public Management I ⁸	3
PSAA 601	Foundations of Public Service ⁹	3
PSAA 621	Economic Analysis ⁹	3
PSAA 643	Foundations of the Nonprofit Sector ⁹	3
Semester Credit Hours		12

Spring

PSAA 611	Public Policy Formation ⁸	3
BUSH elective ⁸		3
BUSH elective ¹⁰		3
PSAA elective ¹⁰		3
Semester Credit Hours		12

Fifth Year

Fall

PSAA 675	Public Service and Administration Capstone Seminar	3
BUSH/PSAA elective ¹⁰		3

BUSH/PSAA elective ¹⁰	3
PSAA elective ¹⁰	3
Semester Credit Hours	12
Spring	
PSAA 676 Public Service and Administration Capstone Seminar II	3
PSAA elective ¹⁰	3
PSAA elective ¹⁰	3
PSAA elective ¹⁰	3
Semester Credit Hours	12
Total Semester Credit Hours	150

¹ Must make a grade of C or better.

² Complete 14 hours of a foreign language (p. 713) through the intermediate level. If you choose to enroll in a language you have studied previously without receiving college credit, you must first take a placement test. Select in consultation with an academic advisor.

³ Select from MATH 140, MATH 142, MATH 151, MATH 152; PHIL 240.

⁴ Students must complete this course before taking more than 6 hours of 300- or 400-level courses in Political Science.

⁵ POLS 100-499 (p. 1209) cannot be used to fulfill this requirement.

⁶ Select from any 100-499 course not used elsewhere including BUSH 632, BUSH 635, PSAA 630, PSAA 622, PSAA 634; 6 hours PSAA 600-699 (<https://catalog.tamu.edu/graduate/course-descriptions/psaa/>); (excluding POLS 100-499 (p. 1209)).

⁷ Select from POLS 100-499 (exclude POLS 206, POLS 207, POLS 209, POLS 308-POLS 309); BUSH 631; PSAA 601, PSAA 611, PSAA 621.

⁸ Course counted towards the general electives of the BA program.

⁹ Course counted towards the Political Science electives of the BA program.

¹⁰ BUSH school graduate advisor will assist with BUSH/PSAA course selection for chosen track in the graduate program.

No more than 36 credits in political science may be applied to the degree.

Other courses may qualify for the college and university requirements. Student should consult the approved list of courses in the Undergraduate Student Services Office. No course can be counted in more than one category.

Students are reclassified as degree seeking master's students typically in the second year of the graduate portion of this program.

The program includes a total of 168 hours which up to 18 hours may be applied toward both the Bachelor of Arts in Political Science and the Master of Public Service Administration.

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. Select in consultation with an academic advisor.

Political Science - BS

The Bachelor of Science (BS) degree program in Political Science focuses on teaching research skills and data analysis while deepening understanding of politics.

At Texas A&M, this program stands out for its unique approach within the undergraduate political science curriculum. It's intended to introduce

students to political research methods, making it a starting point for those interested in technical careers like policy analysis, data science, or graduate studies. This BS program is one of the largest and most science-oriented political science undergraduate programs in the world.

Beyond emphasizing research skills and data analysis, the BS degree plan at Texas A&M offers a wide range of courses. This flexibility in both core curriculum and elective courses allows students to gain a comprehensive education beneficial for their future academic and professional pursuits. Within their major area of study, students will be able to further their education in American political institutions and political behavior; international relations; comparative politics; political theory; research methodology; public policy and administration; and race and ethnic politics.

Students who graduate with a degree in Political Science have a wide spectrum of career fields to choose from. Many students will pursue careers such as government, law, education, business, non-profits, and journalism.

Program Requirements

First Year

Fall		Semester Credit Hours
BUSH 141	Bush Undergraduate Success Hub ¹	3
ENGL 104	Composition and Rhetoric ¹	3
POLS 206	American National Government ¹	3
American history (p. 30)		3
Mathematics ²		3
Semester Credit Hours		15
Spring		
POLS 207	State and Local Government ¹	3
American history (p. 30)		3
Mathematics ²		3
Humanities directed elective (p. 713)		3
General elective ³		3
Semester Credit Hours		15

Second Year

Fall		
POLS 200	Foundations of Political Science ¹	3
Creative arts (p. 30)		3
Language, philosophy and culture (p. 28)		3
Mathematics ²		3
Humanities directed elective (p. 713)		3
Semester Credit Hours		15
Spring		
POLS 209	Introduction to Political Science Research ^{1,4}	3
Communication (p. 27)		3
Life and physical sciences (p. 27)		3
Social and behavioral sciences (p. 31) ⁵		3
General elective ³		3
Semester Credit Hours		15

Third Year**Fall**Select two of the following: ¹ 6

POLS 203	Introduction to Political Theory	
POLS 229	Introduction to Comparative Politics	
POLS 231	Introduction to World Politics	
POLS 233	Politics and Policy in the United States	
Life and physical sciences (p. 27)		3
Social and behavioral sciences (p. 31) ⁵		3
Humanities directed elective (p. 713)		3

Semester Credit Hours 15**Spring**Select one of the following: ¹ 3

POLS 203	Introduction to Political Theory	
POLS 229	Introduction to Comparative Politics	
POLS 231	Introduction to World Politics	
POLS 233	Politics and Policy in the United States	
Life and physical sciences (p. 27)		3
Political Science elective (p. 1209) ⁶		3
General elective ³		3
General elective ³		3

Semester Credit Hours 15**Fourth Year****Fall**

POLS 308	Game Theoretic Methods in Political Science	3
Political Science elective (p. 1209) ⁶		3
Political Science elective (p. 1209) ⁶		3
General elective ³		3
General elective ³		3

Semester Credit Hours 15**Spring**

POLS 309	Polimetrics	3
Political Science elective (p. 1209) ⁶		3
Political Science elective (p. 1209) ⁶		3
General elective ³		3
General elective ³		3

Semester Credit Hours 15**Total Semester Credit Hours** 120¹ Must make a grade of C or better.² Select from MATH 140, MATH 142, MATH 151, MATH 152; PHIL 240.³ Select any 100-499 course not used elsewhere (except POLS 100-499 (p. 1209)).⁴ Students must complete this course before taking more than 6 hours of 300- or 400-level courses in Political Science.⁵ POLS 100-499 (p. 1209) cannot fulfill this requirement.⁶ Select from POLS 100-499 (p. 1209) (except POLS 200, POLS 206, POLS 207, POLS 209, POLS 308, POLS 309).

Other courses may qualify for the college and university requirements. Student should consult with academic advisor for additional options.

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. Select in consultation with an academic advisor.

Political Science - 5-Year Bachelor of Science and Master of Public Service Administration

This program combines the teaching of analytical thinking skills and applications to better understand human behavior as it relates to public policy and management along with skills in leadership and research methods.

The combined degree program between the Department of Political Science and The Bush School of Government and Public Service allows undergraduate Political Science students to enter the Master of Public Service Program, with a focus in Public Policy Analysis, at the beginning of their fourth year at Texas A&M University.

Students will be required to complete the same curriculum as other students admitted to the Bush School's MPSA program. At the completion of the program, students are prepared for a wide variety of post-graduate opportunities including: employment in local, state or federal government, non-profit organizations, or government contracting.

Students interested in this program will apply during the spring semester of their junior year and, if admitted, begin taking masters-level courses in the fall semester of their senior year with an undergraduate classification. Students are reclassified as degree seeking master's students upon completing the first two semesters of the program. Prior to being reclassified, a student must have completed all requirements for their bachelor's degree in Political Science.

Program Requirements

First Year**Fall**

		Semester Credit Hours
BUSH 141	Bush Undergraduate Success Hub ¹	3
ENGL 104	Composition and Rhetoric ¹	3
POLS 206	American National Government ¹	3
American history (p. 30)		3
Communication (p. 27)		3
Mathematics ²		3

Semester Credit Hours 18**Spring**

POLS 207	State and Local Government ¹	3
American history (p. 30)		3
Mathematics ²		3
Humanities directed elective (p. 713)		3
Humanities directed elective (p. 713)		3
General elective ³		3

Semester Credit Hours 18

Second Year**Fall**

POLS 200	Foundations of Political Science ¹	3
Creative arts (p. 30)		3
Mathematics ²		3
Language, philosophy and culture (p. 28)		3
Humanities directed elective (p. 713)		3
General elective ³		3
Semester Credit Hours		18

Spring

POLS 209	Introduction to Political Science Research ^{1,4}	3
Select one of the following: ¹		3
POLS 203	Introduction to Political Theory	
POLS 229	Introduction to Comparative Politics	
POLS 231	Introduction to World Politics	
POLS 233	Politics and Policy in the United States	
Life and physical sciences (p. 27)		3
Social and behavioral sciences (p. 31) ⁵		3
General elective ³		3
General elective ³		3
Semester Credit Hours		18

Third Year**Fall**

POLS 308	Game Theoretic Methods in Political Science	3
Select two of the following: ¹		6
POLS 203	Introduction to Political Theory	
POLS 229	Introduction to Comparative Politics	
POLS 231	Introduction to World Politics	
POLS 233	Politics and Policy in the United States	
Life and physical sciences (p. 27)		3
Social and behavioral sciences (p. 31) ⁵		3
Semester Credit Hours		15

Spring

POLS 309	Polimetrics	3
Life and physical sciences (p. 27)		3
Political Science elective (p. 1209) ^{1,6}		3
Political Science elective (p. 1209) ^{1,6}		3
General elective ³		3
Semester Credit Hours		15

Fourth Year**Fall**

BUSH 631	Quantitative Methods in Public Management I ⁷	3
PSAA 601	Foundations of Public Service ⁸	3
PSAA 621	Economic Analysis ⁸	3
PSAA 643	Foundations of the Nonprofit Sector ⁸	3
Semester Credit Hours		12

Spring

PSAA 611	Public Policy Formation ⁷	3
BUSH elective ⁷		3

BUSH elective ⁹	3
PSAA elective ⁹	3
Semester Credit Hours	12

Fifth Year**Fall**

PSAA 675	Public Service and Administration Capstone Seminar	3
BUSH/PSAA elective ⁹		3
BUSH/PSAA elective ⁹		3
PSAA elective ⁹		3
Semester Credit Hours		12

Spring

PSAA 676	Public Service and Administration Capstone Seminar II	3
PSAA elective ⁹		3
PSAA elective ⁹		3
PSAA elective ⁹		3
Semester Credit Hours		12
Total Semester Credit Hours		150

¹ Must make a grade of C or better.

² Select from MATH 140, MATH 142, MATH 151, MATH 152; PHIL 240.

³ Select from any 100-499 course not used elsewhere (except POLS 100-499 (p. 1209)); BUSH 632 or BUSH 635 or PSAA 630; PSAA 622 or PSAA 634; 6 hours PSAA 600-699 (<https://catalog.tamu.edu/graduate/course-descriptions/psaa/>).

⁴ Students must complete this course before taking more than 6 hours of POLS 100-499 (p. 1209) level courses in Political Science.

⁵ POLS 100-499 (p. 1209) cannot be used to fulfill this requirement.

⁶ Select from POLS 100-499 (p. 1209) (except POLS 206, POLS 207, POLS 209, POLS 308, POLS 309); BUSH 631; PSAA 601, PSAA 611, PSAA 621.

⁷ Course counted towards the General electives of the BS program.

⁸ Course counted towards the Political Science electives of the BS program.

⁹ BUSH school graduate advisor will assist with BUSH/PSAA course selection for chosen track in the graduate program.

Other courses may qualify for the college and university requirements. Student should consult academic advisor for additional options.

Students are reclassified as degree seeking master's students in second year of the graduate portion of this program.

The program includes a total of 168 hours which up to 18 hours may be applied toward both the Bachelor of Science in Political Science and the Master of Public Service Administration.

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. Select in consultation with an academic advisor.

American Politics and Policy - Minor

The Minor in American Policy and Politics provides students with opportunities to examine the structures, processes and institutions of the

United States government, critically assessing public policies, political behavior and the intersection of power dynamics in American society.

Program Requirements

Code	Title	Semester Credit Hours
POLS 206	American National Government	3
POLS 209	Introduction to Political Science Research ¹	3
POLS 233	Politics and Policy in the United States	3
Select two of the following:		6
COMM 302/JOUR 302	The Mass Media and Politics	
POLS 302	The Mass Media and Politics	
POLS 304	Latino Politics in the United States	
POLS 314	Interest Groups	
POLS 315	Political Parties	
POLS 316	Urban Politics	
POLS 319	The American Presidency	
POLS 320	Race and Politics in the United States	
POLS 340/PSAA 340	Public Administration	
POLS 342	Politics and Bureaucracy	
POLS 355	United States Constitutional Development	
POLS 359	American Political Thought	
POLS 375	Campaigns and Elections	
POLS 413	American Foreign Policy	
POLS 435	Voting Behavior	
POLS 447	National Security Policy	
POLS 475	Government and the Economy	
Total Semester Credit Hours		15

¹ Must be taken before or as a co-requisite with 300- or 400-level courses.

Must make a grade of C or better in all courses.

A minimum of 6 hours at 300- to 400-level.

Comparative Politics - Minor

The Minor in Comparative Politics provides students with opportunities to explore the diverse political systems worldwide, examining governance structures, political behavior and institutions across different nations to understand comparative political dynamics and their impact on global affairs.

Program Requirements

Code	Title	Semester Credit Hours
POLS 206	American National Government	3
POLS 209	Introduction to Political Science Research ¹	3
POLS 229	Introduction to Comparative Politics	3
Select two of the following:		6
POLS 312	Ethnic Conflict	
POLS 315	Political Parties	
POLS 322	Western European Government and Politics	
POLS 323	Political Systems of Latin America	
POLS 324	Politics of Global Inequality	
POLS 325	African Politics	
POLS 326	Government and Politics of Eastern Europe	
POLS 328	Globalization and Democracy	
POLS 338	Government and Politics of the Former Soviet Union	
POLS 352	Empirical Democratic Theory	
POLS 358	Comparative Judicial Politics	
POLS 365	Asian Governments and Politics	
POLS 367/ WGST 367	Women in Government in Comparative Perspective	
POLS 368	Latin American Legislatures	
POLS 424	Comparative Governmental Institutions	
POLS 432	The Politics of European Union	
POLS 475	Government and the Economy	
Total Semester Credit Hours		15

¹ Must be taken before or as a co-requisite with 300- or 400-level courses.

Must make a grade of C or better in all courses.

A minimum of 6 hours at 300- to 400-level.

International Relations - Minor

The Minor in International Relations provides students with opportunities to investigate the complex interactions between nations, international organizations and non-state actors, delving into diplomacy, conflict resolution, global governance and the socio-political implications of globalization on a global scale.

Program Requirements

Code	Title	Semester Credit Hours
POLS 206	American National Government	3
POLS 209	Introduction to Political Science Research ¹	3
POLS 231	Introduction to World Politics	3
Select two of the following:		6

POLS 312	Ethnic Conflict
POLS 318	Theories of International Relations
POLS 328	Globalization and Democracy
POLS 333	International Cooperation
POLS 335	International Conflict
POLS 338	Government and Politics of the Former Soviet Union
POLS 366	Political Conflicts of the Middle East
POLS 412	International Political Economy
POLS 420	Nuclear Politics
POLS 439	Foreign Policy Decision Making
POLS 447	National Security Policy

Total Semester Credit Hours 15

¹ Must be taken before or as a co-requisite with 300- or 400-level courses.

Students must make a grade of C or better in all courses.

A minimum of 6 hours at 300- to 400-level.

Legal Foundations - Minor

The Minor in Legal Foundations provides students with opportunities to study the fundamental principles and concepts underlying legal systems, exploring constitutional law, jurisprudence and legal frameworks to comprehend the role of law in shaping societal norms and governance.

Program Requirements

Code	Title	Semester Credit Hours
POLS 206	American National Government	3
POLS 209	Introduction to Political Science Research ¹	3
POLS 233	Politics and Policy in the United States	3
Select two of the following:		6
POLS 353	Constitutional Rights and Liberties	
POLS 355	United States Constitutional Development	
POLS 357	National Judicial Politics	
POLS 358	Comparative Judicial Politics	
POLS 461	Jurisprudence	
POLS 462/ WGST 462	Women and the Law	
Total Semester Credit Hours		15

¹ Must be taken before or as a co-requisite with 300- or 400-level courses.

Must make a grade of C or better in all courses.

A minimum of 6 hours at 300- to 400-level.

Political Data and Research - Minor

The Minor in Political Data and Research provides students with opportunities to gain proficiency in quantitative research methodologies, data collection, analysis and interpretation to form evidence-based political decision-making and policy analysis.

Program Requirements

Code	Title	Semester Credit Hours
POLS 206	American National Government	3
POLS 209	Introduction to Political Science Research ¹	3
POLS 308	Game Theoretic Methods in Political Science	3
POLS 309	Polimetrics	3
Select one of the following:		3
POLS 203	Introduction to Political Theory	
POLS 229	Introduction to Comparative Politics	
POLS 231	Introduction to World Politics	
POLS 233	Politics and Policy in the United States	
Total Semester Credit Hours		15

¹ Must be taken before or as a co-requisite with 300- or 400-level courses.

Must make a grade of C or better in all courses.

A minimum of 6 hours at 300- to 400-level.

Political Theory - Minor

The Minor in Political Theory provides students with opportunities to analyze foundational political ideas, ideologies and philosophical frameworks shaping political thought and governance, studying the evolution of political theory and its application to contemporary societal challenges.

Program Requirements

Code	Title	Semester Credit Hours
POLS 203	Introduction to Political Theory	3
POLS 206	American National Government	3
POLS 209	Introduction to Political Science Research ¹	3
Select two of the following:		6
POLS 349	Early Political Thought	
POLS 350	Modern Political Thought	
POLS 352	Empirical Democratic Theory	
POLS 359	American Political Thought	
POLS 362	Latin American Political Thought	
POLS 364	Global Political Thought	
POLS 369	Theories of Democracy	
POLS 454	Contemporary Political Ideas	

POLS 455 Traditions of Political Theory

Total Semester Credit Hours 15

¹ Must be taken before or as a co-requisite with 300- or 400-level courses.

Students must make a grade of C or better in all courses.

A minimum of 6 hours at 300- to 400-level.

Race, Ethnicity, and Gender Politics - Minor

The Minor in Race, Ethnicity and Gender Politics provides students with opportunities to investigate the intricate dynamics of race, ethnicity and gender in politics, examining their impact on policies, representation and socio-political movements.

Program Requirements

Code	Title	Semester Credit Hours
POLS 206	American National Government	3
POLS 209	Introduction to Political Science Research ¹	3
POLS 229	Introduction to Comparative Politics	3
	or POLS 233 or Politics and Policy in the United States	
Select two of the following:		6
POLS 304	Latino Politics in the United States	
POLS 312	Ethnic Conflict	
POLS 317	Women in Politics	
POLS 320	Race and Politics in the United States	
POLS 367/	Women in Government in	
WGST 367	Comparative Perspective	
POLS 462/	Women and the Law	
WGST 462		
Total Semester Credit Hours		15

¹ Must be taken before or as a co-requisite with 300- or 400-level courses.

Must make a grade of C or better in all courses.

A minimum of 6 hours at 300- to 400-level.

Department of Public Service and Administration

The Department of Public Service and Administration (PSAA) develops principled leaders for the public and nonprofit sectors, providing students with the tools and knowledge they need for impactful public service careers. Students in PSAA develop the analytical, communication and leadership skills needed to tackle complex challenges in the public and nonprofit sectors as thoughtful, objective, effective, and ethical public servants.

The PSAA Department offers the highly ranked and NASPAA (Network of Schools of Public Policy, Affairs, and Administration) accredited

Master of Public Service and Administration (MPSA) and Executive Master of Public Service and Administration (EMPSA) degree, as well as graduate certificates in Nonprofit Management, Public Management, and Homeland Security.

Undergraduates in PSAA can pursue either a Bachelor of Arts or a Bachelor of Science degree in Public Service and Administration. These degrees equip students with a deep understanding of the intricate workings of the public and nonprofit sectors while developing the leadership and decision-making skills necessary for driving meaningful change and effective governance. The BA-PSAA degree should be particularly appealing to students who are interested in serving their communities (e.g., those planning to work for organizations such as the Texas Department of Health and Human Services, the U.S. Department of Homeland Security, or the Red Cross) while the BS-PSAA degree should be particularly appealing to students who are interested in building better connections between science and public policy (e.g., those planning to work for organizations such as the Environmental Protection Agency, the Texas Education Agency, or the Sierra Club). Potential careers in the government and nonprofit sectors include public affairs specialists, grant writers, program assistants, project management specialists, parks supervisors, fundraisers, research assistants, budget analysts, management and administrative analysts, program analysts or policy coordinators.

Undergraduates with an interest in public service careers can also develop expertise in key public service specialties by pursuing one of the four PSAA undergraduate minors: Public Management (PBMG), Public Policy Analysis (PPAN), Nonprofit Studies (NPST) or Homeland Security and Emergency Management (HSEM). All students pursuing a bachelor's degree in PSAA are encouraged to also pursue one of these minors.

Faculty

Ashley, Frank B, Senior Professor
Public Service and Administration
EDD, The University of Alabama, 1986

Bailey, Michael, Visiting Lecturer
Public Service and Administration
PHD, Colorado Technical University, 2016

Bright, Leonard, Professor
Public Service and Administration
PHD, Portland State University, 2003

Brown, William A, Professor
Public Service and Administration
PHD, Claremont Graduate University, 2000

Bullock, Justin B, Visiting Lecturer
Public Service and Administration
PHD, The University of Georgia, 2014

Cantrell-Bruce, Tosha, Visiting Lecturer
Public Service and Administration
PHD, University of Illinois at Springfield, 2008

Casellas Connors, Ishara, Assistant Professor
Public Service and Administration
PHD, Boston College, 2020

Cheong, So-Min, Professor
Public Service and Administration
PHD, University of Washington, 2001

Cortes, Kalena E, Professor
Public Service and Administration
PHD, University of California at Berkeley, 2002

Dague, Laura A, Professor
Public Service and Administration
PHD, University of Wisconsin, 2012

Davis, Danny W, Professor of the Practice
Public Service and Administration
PHD, Texas A&M University, 2003

DeBree, Dan, Associate Professor of the Practice
Public Service and Administration
MA, Marine Corps University, 2003

Dwyer, William, Visiting Lecturer
Public Service and Administration
JD, Rutgers Law School, 2004

Gamache, Kevin R, Visiting Lecturer
Public Service and Administration
PHD, Texas A&M University, 2014

Greer, Robert A, Associate Professor
Public Service and Administration
PHD, University of Kentucky, 2013

Haase, Tom, Associate Professor
Public Service and Administration
JD, University of Pittsburgh (Law), 2001
PHD, University of Pittsburgh, 2009

Han, Jeehee, Assistant Professor
Public Service and Administration
PHD, Syracuse University, 2021

Hoang, Trang, Associate Professor
Public Service and Administration
PHD, University of Texas at Dallas, 2019

Kiltz, Linda, Visiting Lecturer
Public Service and Administration
PHD, Portland State University, 2008

Lahey, Joanna N, Professor
Public Service and Administration
PHD, Massachusetts Inst of Technology, 2005

Little, Charles D, Visiting Lecturer
Public Service and Administration
PHD, University of North Texas, 1985

Lum, Jason K, Visiting Lecturer
Public Service and Administration
JD, University of California at Berkeley, 2000

Morrison, Jenny K, Visiting Lecturer
Public Service and Administration
PHD, New York University, 2008

Nakamura, Brian, Associate Professor of the Practice
Public Service and Administration
PHD, University of Southern California, 2002

Qu, Heng, Associate Professor
Public Service and Administration
PHD, Indiana University Purdue University Indianapolis, 2016

Reilly, Michael D, Associate Professor of the Practice
Public Service and Administration
MS, National Defense University, School of Information Warfare and Strategy, 2016

Robichau, Robbie, Associate Professor
Public Service and Administration
PHD, Arizona State University, 2013

Rollins, John W, Visiting Lecturer
Public Service and Administration
JD, American University, 2001

Seaworth, Angela, Instructional Associate Professor
Public Service and Administration
PHD, Indiana University, 2016

Shaw, Timothy A, Visiting Lecturer
Public Service and Administration
JD, Ohio Northern University School of Law, 1983

Smith, Sonny, Visiting Lecturer
Public Service and Administration
PHD, Virginia Tech, 2009

Sullivan, Ronald D, Visiting Lecturer
Public Service and Administration
JD, University of Kansas, 2014

Taylor, Kenneth A, Associate Professor of the Practice
Public Service and Administration
PHD, Our Lady of the Lake University, 2017

Taylor, Lori, Professor
Public Service and Administration
PHD, University of Rochester, 1990

Thompson, Regina, Visiting Associate Professor of the Practice
Public Service and Administration
MSW, The Ohio State University, 2005

Vedlitz, Arnold, Professor
Public Service and Administration
PHD, University of Houston, 1975

Wang, Weijie, Associate Professor
Public Service and Administration
PHD, University of Southern California, 2015

Majors

- Bachelor of Arts in Public Service and Administration (p. 745)
- Bachelor of Science in Public Service and Administration (p. 746)

Minors

- Homeland Security and Emergency Management Minor (p. 747)
- Nonprofit Studies Minor (p. 747)

- Public Management Minor (p. 748)
- Public Policy Analysis Minor (p. 748)

Public Service and Administration - BA

The Bachelor of Arts in Public Service and Administration (BA-PSAA) is an interdisciplinary degree designed to ensure that students develop the professional skills necessary for effective leadership in the public and nonprofit sectors.

Students in this degree program will gain a comprehensive understanding of the dynamic public and nonprofit sectors, along with the skills and expertise to drive meaningful change. The practical and impactful curriculum focuses on the management, economics, communications, and social science skills that are needed for good decision-making within the management, policy, and homeland security fields. The BA-PSAA degree should be particularly appealing to students who are interested in serving their communities (e.g., those planning to work for organizations such as the Texas Department of Health and Human Services, the U.S. Department of Homeland Security, or the Red Cross).

Students who graduate with a Bachelor of Arts in Public Service and Administration will be well-prepared for a variety of careers in the public and nonprofit sectors. Specific examples include public affairs specialists, grant writers, program assistants, project management specialists, parks supervisors, fundraisers, or research assistants.

Program Requirements

First Year

Fall		Semester Credit Hours
BUSH 141	Bush Undergraduate Success Hub	3
ENGL 104	Composition and Rhetoric ¹	3
MATH 140	Mathematics for Business and Social Sciences ¹	3
POLS 206	American National Government ¹	3
Foreign language ²		4
Semester Credit Hours		16
Spring		
MATH 142	Business Calculus ¹	3
or PHIL 240	or Introduction to Logic	
POLS 207	State and Local Government ¹	3
Creative arts (p. 30)		3
Life and physical sciences (p. 27)		3
Foreign language ²		4
Semester Credit Hours		16

Second Year

Fall		
ECON 202	Principles of Economics ¹	3
STAT 201	Elementary Statistical Inference ¹	3
Select one of the following:		3
ENGL 210	Technical and Professional Writing	
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	

COMM 243	Argumentation and Debate	
Language, philosophy and culture (p. 28)		3
Foreign language ²		3
Semester Credit Hours		15
Spring		
ECON 203	Principles of Economics	3
PSAA 210	Integrated Solutions to Public Service Problems ¹	3
American history (p. 30)		3
Humanities directed elective (p. 713)		3
Foreign language ²		3
Semester Credit Hours		15
Third Year		
Fall		
PSAA 340/	Public Administration ¹	3
POLS 340		
PSAA 350	Economics of Public Policy ¹	3
American history (p. 30)		3
Life and physical sciences (p. 27)		3
Humanities directed elective (p. 713)		3
Semester Credit Hours		15
Spring		
PSAA 360	The Nonprofit Sector ¹	3
Life and physical sciences (p. 27)		3
Area elective ³		3
Directed elective ⁴		3
General elective ⁵		3
Semester Credit Hours		15
Fourth Year		
Fall		
PSAA 430	Leading and Managing Public Service Organizations ¹	3
Area elective ³		3
Directed elective ⁴		3
Humanities directed elective (p. 713)		3
General elective ⁵		3
Semester Credit Hours		15
Spring		
PSAA 440	Public Policies and Policymaking ¹	3
Area elective ³		3
Directed elective ⁴		3
General elective ⁵		3
General elective ⁵		1
Semester Credit Hours		13
Total Semester Credit Hours		120

¹ Must make a grade of C or better.

² Complete 14 hours of a foreign language (p. 261) through the intermediate level. If you choose to enroll in a language you have studied previously without receiving college credit, you must first take a placement test. See academic advisor.

³ Select from a focused course cluster: Public & NP Management; Policy Analysis; National Defense and Homeland Security/Emergency Management; or any combination of courses from the list.

⁴ Select from PSAA 205, PSAA 301, PSAA 302, PSAA 403, PSAA 404, PSAA 405.

⁵ Select from any 100-499 course not used elsewhere.

Code	Title	Semester Credit Hours
Public & NP Management		
PSAA 344	Public Communication and Stakeholder Engagement	3
PSAA 364	Fundraising and Philanthropy	3
PSAA 441	Program Assessment and Evaluation	3
PSAA 442	Cross#Sector Collaboration	3
PSAA 443	Managing Workplace Diversity in Public and Nonprofit Organizations	3

Code	Title	Semester Credit Hours
Policy Analysis		
PSAA 352	Immigration Policy	3
PSAA 354	Education Policy	3
PSAA 450	Using Data to Make a Difference	3
PSAA 452	Energy Policy	3
PSAA 453	Environmental Policy	3

Code	Title	Semester Credit Hours
National Defense and Homeland Security/ Emergency Management		
PSAA 272	Introduction to National Defense and Homeland Security	3
PSAA 372	Emergency Management Enterprise - Local, State and Federal	3
PSAA 472	Terrorist Threat to the Nation	3

Public Service and Administration - BS

The Bachelor of Science in Public Service and Administration (BS-PSAA) is an interdisciplinary degree designed to ensure students develop the professional skills necessary for effective leadership in the public and nonprofit sectors.

Students in this degree program will learn the practical skills needed to conduct policy-relevant research and effectively communicate research recommendations. Students will also gain a comprehensive understanding of the dynamic public and nonprofit sectors and learn how to participate in and contribute to the public policy process. The BS-PSAA degree should be particularly appealing to students who are interested in building better connections between science and public policy (e.g., those planning to work for organizations such as the Environmental Protection Agency, the Texas Education Agency, or the Sierra Club).

Students who graduate with a Bachelor of Science in Public Service and Administration will be well-prepared for a variety of careers in the public and nonprofit sectors. Specific examples include public affairs specialists, grant writers, research assistants, budget analysts,

management and administrative analysts, program analysts or policy coordinators.

Program Requirements

First Year		Semester Credit Hours
Fall		
BUSH 141	Bush Undergraduate Success Hub	3
ENGL 104	Composition and Rhetoric ¹	3
MATH 140	Mathematics for Business and Social Sciences ¹	3
POLS 206	American National Government ¹	3
General elective ²		3
Semester Credit Hours		15

Spring		
MATH 142	Business Calculus ¹	3
POLS 207	State and Local Government ¹	3
Creative arts (p. 30)		3
Life and physical sciences (p. 27)		3
General elective ²		3
Semester Credit Hours		15

Second Year		
Fall		
ECON 202	Principles of Economics ¹	3
STAT 201	Elementary Statistical Inference ¹	3
Select one of the following:		3
ENGL 210	Technical and Professional Writing	
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
Language, philosophy and culture (p. 28)		3
Humanities directed elective (p. 713)		3
Semester Credit Hours		15

Spring		
ECON 203	Principles of Economics	3
PSAA 210	Integrated Solutions to Public Service Problems ¹	3
American history (p. 30)		3
Humanities directed elective (p. 713)		3
General elective ²		3
Semester Credit Hours		15

Third Year		
Fall		
PSAA 340/ POLS 340	Public Administration ¹	3
PSAA 350	Economics of Public Policy ¹	3
American history (p. 30)		3
Life and physical sciences (p. 27)		3
Humanities directed elective (p. 713)		3
Semester Credit Hours		15

Spring		
PSAA 360	The Nonprofit Sector ¹	3

Life and physical sciences (p. 27)	3
Area elective ⁴	3
Directed elective ⁵	3
Methods and Science elective ³	3

Semester Credit Hours 15

Fourth Year

Fall

PSAA 430	Leading and Managing Public Service Organizations ¹	3
PSAA 450	Using Data to Make a Difference ¹	3
Area elective ⁴		3
Directed elective ⁵		3
General elective ²		3

Semester Credit Hours 15

Spring

PSAA 440	Public Policies and Policymaking ¹	3
Area elective ⁴		3
Directed elective ⁵		3
Methods and Science elective ³		3
General elective ²		3

Semester Credit Hours 15

Total Semester Credit Hours 120

¹ Must make a grade of C or better.

² Select from any 100-499 course not used elsewhere. Only 14 hours of KINE 199; AERS 100-499 (p. 900); MLSC 100-499 (p. 1151); NVSC 100-499 (p. 1178); SOMS 100-499 (p. 1237) may be used toward General Electives.

³ Select from AGCJ 411; ANTH 448; ANTH 458; BUSN 203; COMM 303/ JOUR 305; COMM 308; ECMT 461; ECMT 463; ECMT 475; ECON 440; ECON 441; ECON 470; EPSY 435; GEOG 390; MARS 325; OCNG 470; PBSI 245; POLS 308; SCMT 305; SOCI 220; SOCI 229; SOCI 320; SOCI 420; STAT 303; STAT 312

⁴ Select from a focused course cluster: Public & NP Management; Policy Analysis; National Defense and Homeland Security/Emergency Management; or any combination of courses from the list.

⁵ Select from PSAA 205, PSAA 301, PSAA 302, PSAA 403, PSAA 404, PSAA 405.

Code	Title	Semester Credit Hours

Public & NP Management

PSAA 344	Public Communication and Stakeholder Engagement	3
PSAA 364	Fundraising and Philanthropy	3
PSAA 441	Program Assessment and Evaluation	3
PSAA 442	Cross#Sector Collaboration	3
PSAA 443	Managing Workplace Diversity in Public and Nonprofit Organizations	3

Code	Title	Semester Credit Hours

Policy Analysis

PSAA 352	Immigration Policy	3
PSAA 354	Education Policy	3

PSAA 452	Energy Policy	3
PSAA 453	Environmental Policy	3

Code	Title	Semester Credit Hours

National Defense and Homeland Security/ Emergency Management

PSAA 272	Introduction to National Defense and Homeland Security	3
PSAA 372	Emergency Management Enterprise - Local, State and Federal	3
PSAA 472	Terrorist Threat to the Nation	3

Homeland Security and Emergency Management - Minor

The Homeland Security and Emergency Management (HSEM) minor prepares students for impactful careers in the exciting field of homeland security and emergency management.

HSEM minors learn about issues relating to national defense and homeland security, public administration and emergency management. They will develop leadership skills while studying timely homeland security topics such as counterterrorism and disaster response.

Program Requirements

Code	Title	Semester Credit Hours

PSAA 210	Integrated Solutions to Public Service Problems	3
PSAA 272	Introduction to National Defense and Homeland Security	3
PSAA 340/ POLS 340	Public Administration	3
PSAA 372	Emergency Management Enterprise - Local, State and Federal	3

Select one of the following: 3

PSAA 303	Leadership in Public Service	
PSAA 403	Public and Nonprofit Budgeting	
PSAA 404	Ethics in Public Service	
PSAA 405	Cultural Competency in Public Service	
PSAA 430	Leading and Managing Public Service Organizations	
PSAA 440	Public Policies and Policymaking	
PSAA 442	Cross#Sector Collaboration	
PSAA 472	Terrorist Threat to the Nation	

Total Semester Credit Hours 15

Students must make a grade of C or better in all courses.

Nonprofit Studies - Minor

The Nonprofit Studies (NPST) minor prepares students for impactful careers in the nonprofit sector.

Create a career path that allows you to connect your skills with what you value. Help solve challenging social issues working for one of more than 1.29 million nonprofit organizations.

Join a growing profession, as nonprofit employment outpaces many other sectors. NPST minors learn about the scope of the nonprofit sector and the role of nonprofits in public service. They will also develop expertise in specific aspects of nonprofit leadership such as fundraising or stakeholder engagement.

Program Requirements

Code	Title	Semester Credit Hours
PSAA 210	Integrated Solutions to Public Service Problems	3
PSAA 360	The Nonprofit Sector	3
Select three of the following:		9
PSAA 340/ POLS 340	Public Administration	
PSAA 344	Public Communication and Stakeholder Engagement	
PSAA 364	Fundraising and Philanthropy	
PSAA 403	Public and Nonprofit Budgeting	
PSAA 405	Cultural Competency in Public Service	
PSAA 430	Leading and Managing Public Service Organizations	
PSAA 441	Program Assessment and Evaluation	
PSAA 442	Cross#Sector Collaboration	
Total Semester Credit Hours		15

Students must make a grade of C or better in all courses.

Public Management - Minor

The Public Management (PBMG) minor prepares students for impactful careers in the public sector.

One in every seven Texas jobs are in the public sector and a minor in public management can help prepare you for nearly all of them. Come be part of using the power of government to change the world for the better. PBMG minors develop a deep understanding of the many ways the public sector affects us all, and hone the skills required to lead and manage in the public sector.

Program Requirements

Code	Title	Semester Credit Hours
PSAA 210	Integrated Solutions to Public Service Problems	3
PSAA 340/ POLS 340	Public Administration	3
PSAA 430	Leading and Managing Public Service Organizations	3
Select two of the following:		6
PSAA 205	Data and Decision#Making in Public Service	

PSAA 303	Leadership in Public Service
PSAA 403	Public and Nonprofit Budgeting
PSAA 404	Ethics in Public Service
PSAA 405	Cultural Competency in Public Service
PSAA 440	Public Policies and Policymaking
PSAA 441	Program Assessment and Evaluation
PSAA 442	Cross#Sector Collaboration
PSAA 443	Managing Workplace Diversity in Public and Nonprofit Organizations

Total Semester Credit Hours **15**

Students must make a grade of C or better in all courses.

Public Policy Analysis - Minor

The Public Policy Analysis (PPAN) minor prepares students for impactful careers in public policy.

Changing the world takes time and money and we cannot afford to waste either of them on policies that do not work. Policy analysis teaches us how to identify programs that work and helps government to redirect money away from programs that do not work. The PPAN minor complements majors within all of the social sciences, humanities, and many of the natural sciences or engineering departments. PPAN students learn about the context and tools of public policy analysis and can focus on specific policy topics such as environmental policy, health policy, or education policy.

Program Requirements

Code	Title	Semester Credit Hours
PSAA 210	Integrated Solutions to Public Service Problems	3
PSAA 350	Economics of Public Policy	3
or ECON 32	or Microeconomic Theory	
PSAA 440	Public Policies and Policymaking	3
PSAA 450	Using Data to Make a Difference	3
Select one of the following:		3
ECON 312	Poverty, Inequality and Social Policy	
ECON 441	Policy Economics	
PSAA 352	Immigration Policy	
PSAA 354	Education Policy	
PSAA 404	Ethics in Public Service	
PSAA 452	Energy Policy	
PSAA 453	Environmental Policy	
Total Semester Credit Hours		15

Students must make a grade of C or better in all courses.

COLLEGE OF NURSING

Administrative Officers

Dean – Leann Horsley, PHD, RN, CHSE, CNE

Executive Associate Dean – Lisa Haddad, PhD, RN

Chief of Staff – James Batchelder, EdD, MBA

Associate Dean for Graduate Nursing Education – Matthew Sorenson, PhD, APRN, ANP-C, FAAN

Associate Dean for Clinical and Outreach Affairs – Nicole Peters Kroll, PhD, APRN, ANP-C, FNP-BC, PMHNP-BC

Interim Associate Dean for Research – Vacant

Associate Dean for Finance – Vacant

Assistant Dean for Undergraduate Nursing Education, Bryan/College Station – Angela Mulcahy-Spence, PhD, RN, CMSRN, CHSE

Assistant Dean for Undergraduate Nursing Education, Round Rock – Matt F. Hoffman, DNP, APRN, FNP-C

Assistant Dean for Undergraduate Nursing Education, McAllen – Vacant

Assistant Dean for Student Affairs – Todd Stricherz, MS

General Statement

The four-year Bachelor of Science in Nursing (BSN) degree provides the educational and experiential base for entry-level professional nursing practice and provides the platform on which to build a career through graduate-level study for roles such as advanced practice registered nurse (nurse practitioner, nurse midwife, clinical nurse specialist, nurse anesthetist), as well as a career in nursing administration, research, and nursing education.

The education of today's nurses transcends the traditional areas, such as chemistry and anatomy, to enable a deeper understanding of health promotion, disease prevention, screening, genetic counseling, and immunization. BSN education provides nurses with an understanding of how health problems may have a social cause, often referred to as the social determinants of health, such as poverty and environmental contamination, as well as provide insight into human psychology, behavior, cultural mores, and values.

The transformation of today's healthcare system offers unlimited opportunities for nurses as care in urban and rural settings becomes more accessible. According to the U.S. Bureau of Labor Statistics, employment of RNs will grow faster than the average for all occupations through 2026, due largely to growing demand in settings such as hospitals, community health centers, home care, and long-term care. The increased complexity of health problems and the move toward community-based care require highly educated and well-prepared nurses at the baccalaureate and graduate levels. It is an exciting era in nursing, one that holds exceptional promise for nurses with a Bachelor of Science in Nursing degree.

Locations

Bryan/College Station Campus
8447 John Sharp Parkway

Bryan, TX 77807-3260
(979) 436-0110

Round Rock Location
3950 North A. W. Grimes Blvd.
Round Rock, TX 78665
(512) 341-4200

McAllen Location
6200 Tres Lagos Blvd.
McAllen, TX 78504
(956) 271-1317

Lufkin Advising Location
Angelina College, Health Careers Building, Room H110
3500 South 1st Street
Lufkin, TX 75904
(936) 633-3293

Faculty

Anderson, Ashley, Clinical Faculty
College of Nursing
MSN, University of Texas Health Science Center at Houston, 2017

Authement, Renae S, Clinical Associate Professor
College of Nursing
DNP, Loyola University, 2015

Baliang, Melody, Clinical Instructor
College of Nursing
MSN, Grand Canyon University, 2022

Barnes, Glenn, Clinical Associate Professor
College of Nursing
DNP, Texas Tech University, 2019

Becka, Matt, Clinical Faculty
College of Nursing
DNP, Chamberlain University, 2019

Becker, Kristin, Lecturer
College of Nursing
MSN, University of Texas Health Science Center at El Paso, 2019

Belcik, Kim, Clinical Associate Professor
College of Nursing
PHD, University of Texas at Austin, 2011

Bloom, Rosaleen Duggan, Assistant Professor
College of Nursing
PHD, University of Utah, 2017

Bolin, Jane L, Senior Professor
College of Nursing
PHD, Pennsylvania State University, 2002

Briscoe, Kristy, Lecturer
College of Nursing
MSN, The University of Texas Health Science Center at Houston, 2016

Brister-Antley, Cendy, Clinical Assistant Professor
College of Nursing
DNP, University of Nevada, Reno, 2017

Buchmann, Marisa, Lecturer
College of Nursing
MSN, Texas A&M University, 2018

Burger, Stephanie, Clinical Instructor
College of Nursing
MSN, The University of Texas Medical Branch at Galveston, 2022

Carter, Courtney, Clinical Instructor
College of Nursing
MSN, Texas A&M University, 2016

Charles, Laurie A, Clinical Assistant Professor
College of Nursing
MSN, Western Governor's University, 2015

Clark, Valerie, Clinical Faculty
College of Nursing
PHD, Fielding Graduate University, 2021

Clements, Paul, Clinical Professor
College of Nursing
PHD, University of Pennsylvania, 2000

Deming, Kimberly, Lecturer
College of Nursing
MSN, The University of Texas at Tyler, 2022

Dominguez, Amanda, Clinical Faculty
College of Nursing
BSN, University of Texas Health Science Center at San Antonio, 2010

Dormire, Sharon L, Professor
College of Nursing
PHD, University of Florida, 1992

Fahrenwald, Nancy Lynn, Professor
College of Nursing
PHD, University of Nebraska Medical Center, 2002

Frye, Nicole Marie, Clinical Faculty
College of Nursing
MSN, Concordia University Texas, 2020

Fuller, Lisa, Lecturer
College of Nursing
MSN, University of Texas Medical Branch, 2013

Gary, Jodie C, Associate Professor
College of Nursing
PHD, University of Texas at Tyler, 2012

Germaine, Ashley Nicole, Clinical Faculty
College of Nursing
BSN, Texas A&M University, 2017

Greenwood, Wendy, Clinical Assistant Professor
College of Nursing
DNP, Old Dominion University, 2022

Grigsby, Sonya, Clinical Assistant Professor
College of Nursing
DNP, University of Texas at Tyler, 2020

Haddad, Lisa, Clinical Professor
College of Nursing
PHD, University of Tennessee Knoxville, 2013

Hamilton, Victoria Ann, Lecturer
College of Nursing
MSN, Texas A&M University, 2020

Helmke, Lacey, Lecturer
College of Nursing
MSN, Texas A&M University, 2021

Hepfer, Katie L, Clinical Associate Professor
College of Nursing
DNP, The University of Iowa, 2016

Hernandez, Eddie, Lecturer
College of Nursing
MSN, Texas A&M University, 2022

Hoffman, Matt F, Clinical Associate Professor
College of Nursing
DNP, The University of Iowa, 2016

Holton, Sara, Lecturer
College of Nursing
MSN, University of Mary Hardin-Baylor, 2022

Horsley, Leann, Professor
College of Nursing
PHD, University of Kansas, 2012

Huang, Ya-Ching Amanda, Assistant Professor
College of Nursing
PHD, The University of Texas at Austin, 2018

Hudson-Gallogly, Kim, Clinical Associate Professor
College of Nursing
PHD, University of Georgia, 2011

Johnson, Elaina, Clinical Instructor
College of Nursing
MSN, University of Texas at Arlington, 2021

Jordan, Bethany L, Lecturer
College of Nursing
MSN, University of Texas at Arlington, 2021

Kleypas, Holly Ann, Lecturer
College of Nursing
MSN, The University of Texas at Arlington, 2018

Knapp, Ashlee, Clinical Faculty
College of Nursing
MSN, Texas Tech University Health Sciences Center, 2024

Kroll, Nicole L. Peters, Clinical Associate Professor
College of Nursing
PHD, University of Texas at Tyler, 2012

LaPaglia, Brandy, Clinical Faculty
College of Nursing
MSN, Lamar University, 2021

Lara, Jose, Clinical Faculty
College of Nursing
DNP, University of Texas at Arlington, 2022

Marklund, Leroy, Clinical Assistant Professor
College of Nursing
DNP, University of Alabama, 2015

Mauldin, Betsy L, Clinical Assistant Professor
College of Nursing
PHD, The University of Texas at Tyler, 2021

Maxa, Tara Nicole, Lecturer
College of Nursing
MSN, Texas A&M University, 2021

McKee, Susan J, Clinical Assistant Professor
College of Nursing
DNP, The University of Texas at Tyler, 2019

Michael, Meg, Clinical Instructor
College of Nursing
MSN, Texas A&M University, 2023

Miller, Renee, Clinical Assistant Professor
College of Nursing
DNP, Murray State University, 2017

Mitchell, Stacey A, Clinical Professor
College of Nursing
DNP, University of Tennessee Health Science Center, 2006

Moffitt, Cassie, Clinical Assistant Professor
College of Nursing
MSN, University of Texas-Tyler, 2017

Monks, Samantha, Clinical Faculty
College of Nursing
BSN, Texas A&M University, 2019

Mulcahy-Spence, Angela M, Clinical Associate Professor
College of Nursing
PHD, University of Texas at Tyler, 2018

Nguyen Reeves, Oanh, Lecturer
College of Nursing
MSN, University of Texas Arlington, 2021

OBriant, Deborah L, Clinical Associate Professor
College of Nursing
DNP, Vanderbilt University, 2020

Olenick, Maria, Associate Professor
College of Nursing
PHD, Widener University, 2012

Olmos, Brenda, Clinical Faculty
College of Nursing
PHD, University of Oklahoma Health Science Center, 2023

Page, Robin L, Associate Professor
College of Nursing
PHD, The University of Texas, 2006

Perez, Cayla, Clinical Assistant Professor
College of Nursing
MSN, Texas A&M University at Corpus Christi, 2017

Pigg, Elizabeth, Clinical Instructor
College of Nursing
MSN, Texas A&M University, 2023

Pittman, Alison F, Clinical Associate Professor
College of Nursing
PHD, University of Texas - Tyler, 2017

Pullium, Cherrie L, Visiting Clinical Assistant Professor
College of Nursing
DNP, The University of Alabama, 2018

Ramirez, Miranda Renee, Clinical Faculty
College of Nursing
DNP, Texas A&M University, 2024

Rice, Judith, Clinical Faculty
College of Nursing
DNP, University of Tennessee HSC, 2012

Richter, Katy, Clinical Instructor
College of Nursing
MSN, Texas A&M University, 2021

Roch, Geneva, Lecturer
College of Nursing
MSN, Texas A&M University, 2022

Rosen, Chelsey L, Clinical Assistant Professor
College of Nursing
PHD, The University of Texas Medical Branch at Galveston, 2023

Ross, Allison, Lecturer
College of Nursing
MSN, The University of Texas at Tyler, 2021

Schutz, Alyssa, Lecturer
College of Nursing
MSN, Texas A&M University, 2018

Seaback, Wanda F, Lecturer
College of Nursing
MNU, Texas Women's University, 2005

Simmons, Sara, Clinical Instructor
College of Nursing
MSN, Western Governors University, 2022

Slaton, Mary, Clinical Instructor
College of Nursing
MSN, Walden University, 2014

Sorenson, Matthew, Professor
College of Nursing
PHD, Loyola University, 2002

Speights, Mary, Lecturer
College of Nursing
MSN, Texas Woman's University, Denton, 2022

St. Germain, Deborah Lynn, Lecturer
College of Nursing
DNP, University of Tennessee, 2008

Stratton, Eric, Lecturer
College of Nursing
MSN, University of Texas at Austin, 2010

Thomas, Karen, Lecturer
College of Nursing
MSN, University of Texas Health Science Houston, 2013

Torbic, Kristin, Lecturer
College of Nursing
MSN, Troy University, 2022

Van, Suzanne M, Clinical Faculty
College of Nursing
MSN, University of Texas at El Paso, 2014

Vargas, Sylvia, Clinical Assistant Professor
College of Nursing
DNP, The University of Texas Health Science Center at San Antonio, 2021

Vela, Carmen G, Clinical Assistant Professor
College of Nursing
DNP, American Sentinel University, 2018

Villalon-Arriaga, Lorena, Lecturer
College of Nursing
MSN, Texas A&M University, 2021

Webb, Elaine, Clinical Instructor
College of Nursing
MSN, Texas A&M University, 2018

Williams, Michael, Visiting Clinical Assistant Professor
College of Nursing
DNP, Baylor University, 2023

Wilson, Kelly L, Professor
College of Nursing
PHD, Texas A&M University, 2004

Yearty, Bethany, Clinical Assistant Professor
College of Nursing
PHD, William Carey University, 2022

Majors

College of Nursing

- Bachelor of Science in Nursing, Honors (p. 752)
- Bachelor of Science in Nursing, RN to BSN (p. 753)
- Bachelor of Science in Nursing, Second Degree BSN (p. 755)
- Bachelor of Science in Nursing, Traditional BSN (p. 756)

Masters

College of Nursing

- Master of Science in Nursing in Family Nurse Practitioner (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/nursing/family-practitioner-msn/>)

- Master of Science in Nursing in Forensic Nursing (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/nursing/forensic-nursing-msn/>)
- Master of Science in Nursing in Nursing Education (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/nursing/nursing-education-msn/>)

Professional

College of Nursing

- Doctor of Nursing Practice (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/nursing/nursing-dnp/>)

Nursing - BSN, Honors

This program is provided for honors students who examine the role and career path of nurse scientists and explore the impact of nursing research on health outcomes and nursing practice.

The BSN Honors Program is designed for exceptional undergraduate nursing students aiming to excel in nursing science. Upon acceptance in the program, honors students are paired with a nurse faculty mentor for experiential research opportunities. Honors students investigate specific nursing problems and conduct defined research activities as part of the mentors' research team. The program concludes with students presenting their research findings in the form of a professional poster, presentation, or publication, all while receiving guidance and support from their mentor. Honors students graduate with the designation of Honors in Nursing.

Program Requirements

First Year

Fall

	Semester Credit Hours
BIOL 107 Zoology or BIOL 111 or Introductory Biology I	4
PBSI 107 Introduction to Psychology	3
American history (p. 30) ¹	3
Communication (p. 27) ¹	3
Semester Credit Hours	13

Spring

PBSI 225 Lifespan Development ^{2,3}	3
Select one of the following: ²	4
CHEM 106 & CHEM 116 Molecular Science for Citizens and Molecular Science for Citizens Laboratory	
CHEM 107 & CHEM 117 General Chemistry for Engineering Students and General Chemistry for Engineering Students Laboratory	
CHEM 119 Fundamentals of Chemistry I	
CHEM 120 Fundamentals of Chemistry II	
American history (p. 30) ¹	3
Communication (p. 27) ¹	3
Mathematics (p. 27) ^{1,2}	3
Semester Credit Hours	16

Second Year**Fall**

BIOL 319 or VIBS 305	Integrated Human Anatomy and Physiology I ^{2,3,4} or Biomedical Anatomy	4
NUTR 222	Nutrition for Health and Health Care ²	3
Creative arts (p. 30) ¹		3
Government/Political science (p. 31) ¹		3
Mathematics (p. 27) ^{1,2}		3
Semester Credit Hours		16

Spring

BIOL 320 or VTPP 423	Integrated Human Anatomy and Physiology II ^{2,3,4} or Applied Biomedical Physiology I	4
PHIL 111 or PHIL 251	Contemporary Moral Issues or Introduction to Philosophy	3
Select one of the following: ²		4
BIOL 206	Introductory Microbiology	
BIOL 351	Fundamentals of Microbiology	
VTPB 405	Biomedical Microbiology	
Government/Political science (p. 31) ¹		3
Semester Credit Hours		14

Third Year**Fall**

NURS 318	Professional Identity I - The Role of the Professional Nurse	3
NURS 330	Management of Care I - The Fundamentals of Nursing Care Across the Lifespan	5
NURS 340	Patho-Pharm I - Connecting Pathophysiology and Pharmacology to Common Patient Conditions	4
NURS 343	Building Healthy Communities I - Wellness and Health Promotion Across the Lifespan	4
NURS 481	Seminar	1
Semester Credit Hours		17

Spring

NURS 319	Professional Identity II - Interprofessional Practice and Evidence-Based Decision-Making	3
NURS 332	Management of Care II - Nursing Care of Adults with Common and Chronic Conditions	5
NURS 341	Patho-Pharm II - Connecting Pathophysiology and Pharmacology to Complex Patient Conditions	3
NURS 342	Mental Health Nursing Care Across the Lifespan	3
NURS 344	Building Healthy Communities II - Fostering Health Infrastructure	3
NURS 481	Seminar	1
Semester Credit Hours		18

Fourth Year**Fall**

NURS 418	Professional Identity III - Development in the Professional Nurse Role	3

NURS 433	Management of Care III - Nursing Care of Adults with Complex, High-Acuity Conditions	5
NURS 436	Maternal and Child Health	5
NURS 442	Application of Pharmacology Principles Across the Lifespan	3
NURS 491	Research	1

Semester Credit Hours **17**

Spring

NURS 419	Professional Identity IV - The Professional Nurse Leader	3
NURS 435	Management of Care IV - Synthesis of Knowledge, Skills and Attitudes for Professional Success	6
NURS 445	Writing for Nursing Professionals - The Nurse's Role in Health Advocacy and Healthcare Quality	3
NURS 491	Research	1

Semester Credit Hours **13**

Total Semester Credit Hours **124**

¹ Core Curriculum courses are listed on the University Core Curriculum (p.) page. STAT 201 is recommended to fulfill 3 hours of Mathematics but is not required.

² Indicates Nursing Science Course.

³ These courses may be taken at a community college but must be completed by the first day at the School of Nursing. Students may elect to place these courses anywhere in their schedule, though it is encouraged that these be completed over the summer.

⁴ Texas common courses BIOL 2401 and 2402 taken at any Texas accredited public institution will meet the requirement for BIOL 319 and BIOL 320.

BSN students must make a minimum grade of C in all courses.

Foreign Language

Proficiency in a foreign language is required. This can be met by taking two years of the same language in high school or college credit.

Prerequisite Courses

Prerequisites may be planned or in progress during the application cycle, but must be completed with a grade of C or better before the program start date. The courses may be completed at any regionally accredited college or university

Nursing - BSN, RN to BSN Track

The RN to BSN program enables applicants who hold a Registered Nursing license to earn a baccalaureate degree in nursing.

Students must have an associate degree in nursing from an accredited college and hold a current, unencumbered Registered Nurse license to participate.

This program is approved for delivery via distance education technology. It is delivered asynchronously online to accommodate family and professional responsibilities of the working nurse while advancing

their education. The upper division program can be completed in 3 or 4 semesters of study.

ASCEND

The Aggie Student-Centered Express Nursing Degree track (ASCEND) is an RN-to-BSN option exclusively for Blinn College nursing students. The ASCEND program is offered to qualified students who have completed have completed the first or second semester of the associate degree nursing (ADN) program. Once accepted, ASCEND students will co-enroll in Nursing courses at Blinn College and TAMU CON. ASCEND students will complete their BSN within 1 or 2 semesters after earning their ADN.

Application for the ASCEND program must include a written attestation of program eligibility signed by the ADN program director.

Entry to the RN to BSN (Bachelor of Science in Nursing) Program

Admission to the College of Nursing RN to BSN Program is competitive.

Admission decisions are based on multiple elements in the student's academic and professional background.

Minimum requirements include:

- Must graduate from a nationally accredited associate degree in nursing (ADN) program
 - The Accreditation Commission for Education in Nursing (ACEN)
 - The Commission for Nursing Education Accreditation (CNEA)
 - The State Board of Nursing (for select states)
- Grade of C in each prerequisite course
- Cumulative grade point average of 2.5 (on a 4.0 scale); GPA associate degree in nursing course work grade point average of 2.5; ASCEND students must have earned a minimum of 3.0 GPA in Texas A&M College of Nursing prerequisite, nursing science, and Blinn College ADN coursework by the start of classes.
- One professional reference from either a professor or the student's current supervisor
- Professional resume
- Limited number of course repeats, withdraws, or failures in academic history
- The Undergraduate Admissions, Progression, and Graduation Committee may require select applicants to complete timed verbal and written assessments of the student's experiences and attributes, to include community service, leadership, honors and awards and work experience.
- Applicants who complete their Associate Degree in Nursing (ADN) through an LVN to RN or Paramedic to RN bridge program must have earned a minimum of 35 transferable credits in their program to apply.

Minimum enrollment requirements for RN-BSN students:

- Must hold a current, unencumbered RN license
- New ADN graduates enrolled in the ASCEND program may continue enrollment in the RN-to-BSN program but must pass the NCLEX by the end of the next semester following ADN graduation. RN-to-BSN students who do not hold a valid RN license by the end of the first semester of enrollment will be suspended from the program.

- ASCEND Program students must submit an attestation of ongoing program eligibility from the ADN program director prior to enrollment each semester.

Articulation Agreements

Blinn College, South Texas College, and Angelina College

This program is also approved for delivery via asynchronous distance education technology.

Program Requirements

First Year

Fall

	Semester Credit Hours
BIOL 107 Zoology or BIOL 111 or Introductory Biology I	4
PBSI 107 Introduction to Psychology	3
American history (p. 30)	3
Communication (p. 27) ¹	3
Life and physical sciences (p. 27)	1
Semester Credit Hours	14

Spring

PBSI 225 Lifespan Development ^{2,3}	3
Select one of the following: ²	4
CHEM 106 Molecular Science for Citizens & CHEM 116 and Molecular Science for Citizens Laboratory	
CHEM 107 General Chemistry for Engineering & CHEM 117 Students and General Chemistry for Engineering Students Laboratory	
CHEM 119 Fundamentals of Chemistry I	
CHEM 120 Fundamentals of Chemistry II	
American history (p. 30)	3
Communication (p. 27) ¹	3
Mathematics (p. 27) ^{1,2}	3
Semester Credit Hours	16

Second Year

Fall

BIOL 319 Integrated Human Anatomy and Physiology or VIBS 305 I ^{2,3,4} or Biomedical Anatomy	4
POLS 206 American National Government	3
Select one of the following:	3
NUTR 202 Fundamentals of Human Nutrition	
NUTR 203 Scientific Principles of Human Nutrition	
NUTR 222 Nutrition for Health and Health Care	
Creative arts (p. 30) ¹	3
Mathematics (p. 27) ^{1,2}	3
Semester Credit Hours	16

Spring

BIOL 320 Integrated Human Anatomy and Physiology or VTPB 405 II ^{2,3,4} or Biomedical Microbiology	4

PHIL 111	Contemporary Moral Issues	3
or PHIL 251	or Introduction to Philosophy	
POLS 207	State and Local Government	3
Select one of the following: ²		4
BIOL 206	Introductory Microbiology	
BIOL 351	Fundamentals of Microbiology	
VTPB 405	Biomedical Microbiology	
Semester Credit Hours		14
Third Year		
Fall		
Directed electives ⁵		15
Semester Credit Hours		15
Spring		
Directed electives ⁵		15
Semester Credit Hours		15
Summer		
NURS 460	Nursing Dimensions and Informatics for the RN	3
NURS 461	Application of Evidence Based Practice for the RN	3
Semester Credit Hours		6
Fourth Year		
Fall		
NURS 462	Pathophysiology and Pharmacology for the RN	4
NURS 464	Health Promotion Across the Lifespan for the RN	3
NURS 467	Leadership and Management for the RN	5
Semester Credit Hours		12
Spring		
NURS 463	Health Assessment for the RN	3
NURS 465	Care of the Older Adult for the RN	2
NURS 466	Community Health for the RN	5
NURS 468	Professional Practice Issues for the RN	2
Semester Credit Hours		12
Total Semester Credit Hours		120

¹ Core Curriculum courses are listed on the University Core Curriculum (p. 26) page. STAT 201 is recommended to fulfill 3 hours of Mathematics, but is not required.

² Indicates Nursing Science course.

³ These courses may be taken at a community college, but must be completed by the first day at the School of Nursing. Students may elect to place these courses anywhere in their schedule, though it is encouraged that these be completed over the summer.

⁴ Texas common courses BIOL 2401 and 2402 taken at any Texas accredited public institution will meet the requirement for BIOL 319 and BIOL 320.

⁵ Consult with an academic advisor for acceptable courses.

BSN students must make a minimum grade of C in all courses.

Nursing - BSN, Second Degree BSN Track

This program is for students who hold a bachelor's degree in another field of study and want to pursue a nursing degree through an accelerated program.

Acceptance into this track (offered in Round Rock, Texas) requires successful completion of prerequisite coursework prior to beginning upper-division courses. #All students will be required to complete core curriculum requirements if these were not met in the previous degree program. #Contact the Office of Student Affairs for more information.

Upper-Level Entry to the Second Degree Bachelor of Science in Nursing

Admission to the College of Nursing professional program is competitive.

Admission decisions are based on:

- The strength of multiple elements in the student's academic background
- Minimum grade of C in each prerequisite course and required 3.3 prerequisite and 3.3 Nursing science GPA.
- One NursingCAS application completed by the published deadline for the desired admission term. All academic information included on the application must be posted to and appear in the student's official record at Texas A&M.
- HESI A2 score – minimum score of 75% in each required section
- Timed verbal and written assessments of the student's attributes and experiences, to include community service, leadership, work experience, and activities in health care
- Limited number of course repeats, withdraws, or failures in academic history

External Transfer Applicants

All applicants to the second-degree program use the external transfer application.

Program Requirements

First Year

Fall		Semester Credit Hours
BIOL 107	Zoology	4
or BIOL 111	or Introductory Biology I	
PBSI 107	Introduction to Psychology	3
American history (p. 30) ¹		3
Communication (p. 27) ¹		3
Mathematics (p. 27) ^{1,2}		3
Semester Credit Hours		16
Spring		
PBSI 225	Lifespan Development ^{2,3}	3
Select one of the following: ²		4
CHEM 106	Molecular Science for Citizens	
& CHEM 116	and Molecular Science for Citizens Laboratory	

CHEM 107 & CHEM 117	General Chemistry for Engineering Students and General Chemistry for Engineering Students Laboratory	
CHEM 119	Fundamentals of Chemistry I	
CHEM 120	Fundamentals of Chemistry II	
American history (p. 30) ¹		3
Communication (p. 27) ¹		3
Mathematics (p. 27) ^{1,2}		3
Semester Credit Hours		16
Second Year		
Fall		
BIOL 319 or VIBS 305	Integrated Human Anatomy and Physiology I ^{2,3,4} or Biomedical Anatomy	4
NUTR 222	Nutrition for Health and Health Care ²	3
Creative arts (p. 30) ¹		3
Government/Political science (p. 31)		3
Semester Credit Hours		13
Spring		
BIOL 320 or VTPP 423	Integrated Human Anatomy and Physiology II ^{2,3,4} or Applied Biomedical Physiology I	4
PHIL 111 or PHIL 251	Contemporary Moral Issues or Introduction to Philosophy	3
Select one of the following: ²		4
BIOL 206	Introductory Microbiology	
BIOL 351	Fundamentals of Microbiology	
VTPB 405	Biomedical Microbiology	
Government/Political science (p. 31)		3
Semester Credit Hours		14
Third Year		
Fall		
NURS 318	Professional Identity I - The Role of the Professional Nurse	3
NURS 330	Management of Care I - The Fundamentals of Nursing Care Across the Lifespan	5
NURS 340	Patho-Pharm I - Connecting Pathophysiology and Pharmacology to Common Patient Conditions	4
NURS 343	Building Healthy Communities I - Wellness and Health Promotion Across the Lifespan	4
Semester Credit Hours		16
Spring		
NURS 319	Professional Identity II - Interprofessional Practice and Evidence-Based Decision-Making	3
NURS 332	Management of Care II - Nursing Care of Adults with Common and Chronic Conditions	5
NURS 341	Patho-Pharm II - Connecting Pathophysiology and Pharmacology to Complex Patient Conditions	3
NURS 342	Mental Health Nursing Care Across the Lifespan	3

NURS 344	Building Healthy Communities II - Fostering Health Infrastructure	3
Semester Credit Hours		17
Summer		
NURS 418	Professional Identity III - Development in the Professional Nurse Role	3
NURS 433	Management of Care III - Nursing Care of Adults with Complex, High-Acuity Conditions	5
NURS 436	Maternal and Child Health	5
NURS 442	Application of Pharmacology Principles Across the Lifespan	3
Semester Credit Hours		16
Fourth Year		
Fall		
NURS 419	Professional Identity IV - The Professional Nurse Leader	3
NURS 435	Management of Care IV - Synthesis of Knowledge, Skills and Attitudes for Professional Success	6
NURS 445	Writing for Nursing Professionals - The Nurse's Role in Health Advocacy and Healthcare Quality	3
Semester Credit Hours		12
Total Semester Credit Hours		120

¹ Core Curriculum courses are listed on the University Core Curriculum (p.) page. STAT 201 is recommended to fulfill 3 hours of Mathematics, but is not required.

² Indicates Nursing Science course.

³ These courses may be taken at a community college, but must be completed by the first day at the School of Nursing. Students may elect to place these courses anywhere in their schedule, though it is encouraged that these be completed over the summer.

⁴ Texas common courses BIOL 2401 and 2402 taken at any Texas accredited public institution will meet the requirement for BIOL 319 and BIOL 320.

BSN students must make a minimum grade of C in all courses.

Nursing - BSN, Traditional BSN

This is for students who have at least two years of prerequisite coursework and are interested in a traditional 2-year nursing program.

The traditional BSN track requires the successful completion of prerequisite coursework prior to beginning upper-division courses.

Academic advisors will be able to advise students regarding equivalencies to common course numbers. Information is also available regarding courses at www.tccns.org and through the Texas A&M Transfer Course Equivalency.

Applicants with a previous bachelor's degree may apply to either the traditional BSN track or the second-degree BSN track (offered in Round Rock, Texas) and must follow the same requirements as noted above.

This program is approved to be offered at the Texas A&M Higher Education Center in McAllen, Texas.

Entry to the Traditional Bachelor of Science in Nursing

Admission to the College of Nursing professional program is competitive.

Admission decisions are based on:

- The strength of multiple elements in the student's academic background
- Minimum grade of C in each prerequisite course and required 3.3 pre-requisite and 3.3 Nursing science GPA
- One Nursing#CAS application completed by the published deadline for the desired admission term. All academic information included on the application must be posted to and appear in a student's official record at Texas A&M.
- HESI A2 score – minimum score of 75% in each required section
- Timed verbal and written assessments of the#student's attributes and experiences, to include community service, leadership, work experience, and activities in health care
- Limited number of course repeats, withdraws, or failures in academic history

Internal Applicants

An#Internal Applicant#is a current Texas A&M University undergraduate in a non-nursing major who meets specific requirements to apply to the upper division course sequence in nursing. Meeting requirements does not guarantee#admission but#allows a student the opportunity to apply for entry to the nursing program.

Students must submit the application no later than the published deadline in the term in which they are applying. #Note: All academic information included on the application must be posted to and appear in a student's official record at Texas A&M.

External Transfer Applicants

External Transfer Applicants from colleges and universities outside of Texas A&M University may be considered for admission through the competitive application process.

Current Texas A&M University students who will earn a bachelor's degree prior to the start date should also follow this process when applying for either the traditional or second-degree program.

Students participating in the Program for Transfer Admission (PTA) must follow the external transfer process foundhere.

Program Requirements

First Year

Fall		Semester Credit Hours
BIOL 107 or BIOL 111	Zoology or Introductory Biology I	4
PBSI 107	Introduction to Psychology	3
American history (p. 30) ¹		3
Communication (p. 27) ¹		3
Semester Credit Hours		13
Spring		
PBSI 225	Lifespan Development ^{2,3}	3

Select one of the following: ² 4

CHEM 106 & CHEM 116	Molecular Science for Citizens and Molecular Science for Citizens Laboratory	
CHEM 107 & CHEM 117	General Chemistry for Engineering Students and General Chemistry for Engineering Students Laboratory	
CHEM 119	Fundamentals of Chemistry I	
CHEM 120	Fundamentals of Chemistry II	
American history (p. 30) ¹		3
Communication (p. 27) ¹		3
Mathematics (p. 27) ^{1,2}		3
Semester Credit Hours		16

Second Year

Fall		
BIOL 319 or VIBS 305	Integrated Human Anatomy and Physiology ^{2,3,4} or Biomedical Anatomy	4
NUTR 222	Nutrition for Health and Health Care ²	3
Creative arts (p. 30) ¹		3
Government/Political science (p. 31) ¹		3
Mathematics (p. 27) ^{1,2}		3
Semester Credit Hours		16

Spring

BIOL 320 or VTPP 423	Integrated Human Anatomy and Physiology II ^{2,3,4} or Applied Biomedical Physiology I	4
PHIL 111 or PHIL 251	Contemporary Moral Issues or Introduction to Philosophy	3
Select one of the following: ²		4
BIOL 206	Introductory Microbiology	
BIOL 351	Fundamentals of Microbiology	
VTPB 405	Biomedical Microbiology	
Government/Political science (p. 31) ¹		3
Semester Credit Hours		14

Third Year

Fall		
NURS 318	Professional Identity I - The Role of the Professional Nurse	3
NURS 330	Management of Care I - The Fundamentals of Nursing Care Across the Lifespan	5
NURS 340	Patho-Pharm I - Connecting Pathophysiology and Pharmacology to Common Patient Conditions	4
NURS 343	Building Healthy Communities I - Wellness and Health Promotion Across the Lifespan	4
Semester Credit Hours		16
Spring		
NURS 319	Professional Identity II - Interprofessional Practice and Evidence-Based Decision-Making	3
NURS 332	Management of Care II - Nursing Care of Adults with Common and Chronic Conditions	5

NURS 341	Patho-Pharm II - Connecting Pathophysiology and Pharmacology to Complex Patient Conditions	3
NURS 342	Mental Health Nursing Care Across the Lifespan	3
NURS 344	Building Healthy Communities II - Fostering Health Infrastructure	3
Semester Credit Hours		17
Fourth Year		
Fall		
NURS 418	Professional Identity III - Development in the Professional Nurse Role	3
NURS 433	Management of Care III - Nursing Care of Adults with Complex, High-Acuity Conditions	5
NURS 436	Maternal and Child Health	5
NURS 442	Application of Pharmacology Principles Across the Lifespan	3
Semester Credit Hours		16
Spring		
NURS 419	Professional Identity IV - The Professional Nurse Leader	3
NURS 435	Management of Care IV - Synthesis of Knowledge, Skills and Attitudes for Professional Success	6
NURS 445	Writing for Nursing Professionals - The Nurse's Role in Health Advocacy and Healthcare Quality	3
Semester Credit Hours		12
Total Semester Credit Hours		120

¹ See the University Core Curriculum (p.) course list. STAT 201 is recommended to fulfill 3 hours of Mathematics, but is not required.

² Indicates Nursing Science course.

³ These courses may be taken at a community college, but must be completed by the first day at the School of Nursing. Students may elect to place these courses anywhere in their schedule, though it is encouraged that these be completed over the summer.

⁴ Texas common courses BIOL 2401 and BIOL 2402 taken at any Texas accredited public institution will meet the requirement for BIOL 319 and BIOL 320.

BSN students must make a minimum grade of C in all courses.

Foreign Language

Proficiency in a foreign language is required. This requirement can be met by taking two years of the same language in high school or college credit.

Prerequisite Courses

Prerequisites may be planned or in progress during the application cycle, but must be completed with a grade of C or better before the program start date. The courses may be completed at any regionally accredited college or university.

COLLEGE OF PERFORMANCE, VISUALIZATION AND FINE ARTS

General Statement

The College of Performance, Visualization and Fine Arts is the home of the visual and performing arts at Texas A&M University. The college offers students the opportunity to prepare for careers in creative practices and to develop intellectual responsiveness to the problems, questions, and values that will confront them in their professions and as lifelong learners.

The faculty of the college includes artists, computer scientists, designers, historians, performers, creative technologists, and critical theorists. At the foundation of the college's academic programs is an interdisciplinary approach to exploring where art, science, technology and theory combine through dance, music, theater, and visual art and design.

Undergraduate degrees are offered in Performance and Visual Studies, Music Performance, Theatre, Dance Science, Kinesiology, and Visualization with undergraduate minors in Art, Artificial Intelligence in the Arts, Choreography, Dance Performance, Devised Theatre, Film and Media Studies, Game Design and Development, Graphic Design, Music, Music Technology, Performance Studies, Studio Art, and Virtual Production and an undergraduate certificate in Performing Social Activism.

Graduate degrees include the Master of Arts in Performance Studies, Master of Fine Arts in Dance, Master of Fine Arts in Visualization, and Master of Science in Visualization. Graduate Certificates are offered in Film and Media Studies.

Faculty

Adinku, Grace Uchechukwu, Senior Lecturer
College of Performance, Visualization & Fine Arts
PHD, Kwame Nkrumah University, 2013
MA, Texas A&M University, 2020

Akleman, Ergun, Professor
College of Performance, Visualization & Fine Arts
PHD, Georgia Institute of Technology, 1992

Andreassen, Mayet Maria, Instructional Associate Professor
College of Performance, Visualization & Fine Arts
MFA, School of Animation and Visual Effects, Academy of Art University, 2006

Armstrong, Carisa L, Associate Professor
College of Performance, Visualization & Fine Arts
MFA, Case Western Reserve University, 2002

Ball, James R, Associate Professor
College of Performance, Visualization & Fine Arts
PHD, New York University, 2012

Bedford, Diane C, Clinical Associate Professor
College of Performance, Visualization & Fine Arts
MFA, The Florida State University, 2010

Bergeron, Christine S, Clinical Professor
College of Performance, Visualization & Fine Arts
MFA, Florida State University, 1998

Bieber, Susanneh, Associate Professor
College of Performance, Visualization & Fine Arts
PHD, Freie Universitat Berlin, 2012

Bologan, Anatol, Instructional Associate Professor
College of Performance, Visualization & Fine Arts
MFA, Texas A&M University, 2018

Boone, Jessica, Visiting Lecturer
College of Performance, Visualization & Fine Arts
MFA, The University of Utah, 2023

Boran, John David, Instructional Assistant Professor
College of Performance, Visualization & Fine Arts
MFA, The School of Visual Arts, New York, 2019

Bruner, Michael A, Instructional Assistant Professor
College of Performance, Visualization & Fine Arts
MFA, University of Texas, Austin, 2021

Budzise-Weaver, Tina M, Associate Professor
College of Performance, Visualization & Fine Arts
MLS, University of North Texas, 2012

Bujnoch, Emily A, Instructional Assistant Professor
College of Performance, Visualization & Fine Arts
MFA, Texas A&M University, 2022

Campbell, Matthew Alan, Instructional Associate Professor
College of Performance, Visualization & Fine Arts
PHD, The Ohio State University, 2019

Cardoso, Leonardo, Associate Professor
College of Performance, Visualization & Fine Arts
PHD, The University of Texas at Austin, 2013
MMU, The University of Texas at Austin, 2010

Cartwright, John T, Lecturer
College of Performance, Visualization & Fine Arts
MFA, The Ohio State University, 2023

Chetty, Deepak, Assistant Professor
College of Performance, Visualization & Fine Arts
MFA, University of Texas at Austin, 2015

Chin, Abby Williams, Lecturer
College of Performance, Visualization & Fine Arts
MFA, University of Illinois at Urbana-Champaign, 2023

Connor, William Klugh, Senior Lecturer
College of Performance, Visualization & Fine Arts
PHD, Royal Holloway University of London, 2012

Cook, Meg C, Assistant Professor
College of Performance, Visualization & Fine Arts
MFA, Texas A&M University, 2019

Dexter, Rayna M, Instructional Associate Professor
College of Performance, Visualization & Fine Arts
MFA, Kent State University, 2009

Donkor, David A, Associate Professor
College of Performance, Visualization & Fine Arts
PHD, Northwestern University, 2008

Edwards, Andrea G, Instructional Assistant Professor
College of Performance, Visualization & Fine Arts
MA, University of Illinois at Urbana Champaign, 1992

Fan, Hongshuo, Assistant Professor
College of Performance, Visualization & Fine Arts
PHD, The University of Manchester, 2022

Figueiredo, Virginia, Instructional Associate Professor
College of Performance, Visualization & Fine Arts
PHD, University of California, LA, 2009
MMU, California State University, Fullerton, 2006

Finch, Krista S, Assistant Professor
College of Performance, Visualization & Fine Arts
MFA, Maryland Institute College of Art, 2000
MFA, Maryland Institute, College of Art, 2000

Gayk, Michael James, Instructional Associate Professor
College of Performance, Visualization & Fine Arts
MFA, University of Washington, 2001

Gibson, Elijah, Assistant Professor
College of Performance, Visualization & Fine Arts
MFA, University of Wisconsin-Milwaukee, 2013

Goodman, Jeanne M, Clinical Associate Professor
College of Performance, Visualization & Fine Arts
MLS, Simmons College, 2012

Guerra, Merli V., Assistant Professor
College of Performance, Visualization & Fine Arts
MFA, Rutgers University, Mason Gross School of the Arts, 2021

Hammonds, Hollis, Associate Professor
College of Performance, Visualization & Fine Arts
MFA, University of Cincinnati, 2001

Hatchell, Rusty E, Visiting Lecturer
College of Performance, Visualization & Fine Arts
MA, University of Texas at Austin, 2018

Hatt, Nicholas, Instructional Assistant Professor
College of Performance, Visualization & Fine Arts
DMA, Florida State University, 2018

Hays, Rebecca, Associate Professor
College of Performance, Visualization & Fine Arts
MMU, University of North Texas, 2003
DMA, University of Illinois at Urbana-Champaign, 2008

Holman, Anna, Instructional Assistant Professor
College of Performance, Visualization & Fine Arts
PHD, University of California, Santa Barbara, 2023

Honeycutt, Amanda Jill, Instructional Associate Professor
College of Performance, Visualization & Fine Arts
MFA, Texas A&M University Commerce, 2020

Honeycutt, Wade, Visiting Lecturer
College of Performance, Visualization & Fine Arts
BS, Texas A&M University, 2018

House, Benjamin R, Visiting Lecturer
College of Performance, Visualization & Fine Arts
MS, Texas A&M University, 2019

House, Donald H, Senior Professor
College of Performance, Visualization & Fine Arts
PHD, University of Massachusetts Amherst, 1984

House, Felice L, Associate Professor
College of Performance, Visualization & Fine Arts
MFA, The University of Texas at Austin, 2011

Humphrey, Daniel, Professor
College of Performance, Visualization & Fine Arts
PHD, University of Rochester, 2006

Imhoff-Jones, Sarah, Instructional Associate Professor
College of Performance, Visualization & Fine Arts
MFA, Texas Women's University, 1999
PHD, Pacifica Graduate Institution, 2021

Kattari, Kimberly A, Associate Professor
College of Performance, Visualization & Fine Arts
PHD, The University of Texas at Austin, 2011

Kicklighter, Caleb L, Instructional Assistant Professor
College of Performance, Visualization & Fine Arts
MFA, Texas A&M University, 2018

Kim, Seung Beom, Associate Professor of the Practice
College of Performance, Visualization & Fine Arts
BFA, School of Visual Arts, 1993

Kim, You-Jin, Assistant Professor
College of Performance, Visualization & Fine Arts
MFA, Duke University, 2016
PHD, University of California, Santa Barbara, 2024

Klein, Barbara, Instructional Associate Professor
College of Performance, Visualization & Fine Arts
MFA, Texas A&M University, 2019

Koustov, Dmitri V, Senior Lecturer
College of Performance, Visualization & Fine Arts
BFA, Ivanovo Art institute, 1987

Kumar, Suryansh, Assistant Professor
College of Performance, Visualization & Fine Arts
PHD, Australian National University, 2019

LaFevers, Cory James, Senior Lecturer
College of Performance, Visualization & Fine Arts
PHD, University of Texas at Austin, 2018

Lee, Jong-in, Assistant Professor
College of Performance, Visualization & Fine Arts
PHD, Simon Fraser University, 2024

Leiderman, Daniil M, Instructional Associate Professor
College of Performance, Visualization & Fine Arts
PHD, Princeton University, 2016

Li, Xin, Professor
College of Performance, Visualization & Fine Arts
PHD, Stony Brook University, 2008

Mallory, Jason, Instructional Associate Professor
College of Performance, Visualization & Fine Arts
DMA, University of Iowa, 2014

March, Scott, Visiting Associate Professor of the Practice
College of Performance, Visualization & Fine Arts
BA, Baylor University, 1994

Marini, Francesca, Associate Professor
College of Performance, Visualization & Fine Arts
PHD, University of California at Los Angeles, 2005

McConnell, George D, Associate Professor
College of Performance, Visualization & Fine Arts
PHD, University of Minnesota, 2011

McLaughlin, Timothy D, Professor
College of Performance, Visualization & Fine Arts
MS, Texas A&M University, 1994

McNamara, Ann M, Professor
College of Performance, Visualization & Fine Arts
PHD, University of Bristol, UK, 2000

Misemer, Sarah M, Professor
College of Performance, Visualization & Fine Arts
PHD, University of Kansas, 2001

Morris, Jeffrey M, Professor
College of Performance, Visualization & Fine Arts
PHD, University of North Texas, 2007

Nichols, Jeff, Visiting Lecturer
College of Performance, Visualization & Fine Arts
MS, Texas A&M University, 2020

Parrish, David, Associate Professor of the Practice
College of Performance, Visualization & Fine Arts
MS, Texas A&M University, 1995

Perez, Francisco, Instructional Associate Professor
College of Performance, Visualization & Fine Arts
PHD, University of Kentucky, 2018

Perry-Johnson, Everett, Instructional Assistant Professor
College of Performance, Visualization & Fine Arts
MFA, New York University, 2014

Poblete, Michael, Instructional Assistant Professor
College of Performance, Visualization & Fine Arts
PHD, University of Hawaii at Manoa, 2022

Pugh, Rebecca, Instructional Assistant Professor
College of Performance, Visualization & Fine Arts
MFA, University of Nevada, Las Vegas, 2015

Quackenbush, Anne, Assistant Professor of the Practice
College of Performance, Visualization & Fine Arts
BA, Scripps College, 1986

Rabbers, Carolyn Marie, Instructional Assistant Professor
College of Performance, Visualization & Fine Arts
MFA, University of the Arts, Philadelphia, 2020

Ralph-Nurhikim, Gulnigar, Instructional Assistant Professor
College of Performance, Visualization & Fine Arts
MFA, University of Southern California School of Cinematic Arts, 2021

Ramadan, Hadeel M, Instructional Associate Professor
College of Performance, Visualization & Fine Arts
MFA, Virginia Tech, 2014

Regan, Martin P, Professor
College of Performance, Visualization & Fine Arts
PHD, University of Hawai'i at Manoa, 2006

Reiser, Vanessa, Visiting Lecturer
College of Performance, Visualization & Fine Arts
MS, Trinity Laban Conservatoire of Music & Dance, 2022

Rhim, Jimin, Instructional Assistant Professor
College of Performance, Visualization & Fine Arts
PHD, Korea Advanced Institute of Science & Technology, 2024

Rojas-Munoz, Edgar, Assistant Professor
College of Performance, Visualization & Fine Arts
PHD, Purdue University, 2020

Roykovich, JR, Instructional Assistant Professor
College of Performance, Visualization & Fine Arts
MFA, Rutgers University, 2014

SIMMS, MICHELLE, Lecturer
College of Performance, Visualization & Fine Arts
PHD, Texas A&M University, 2011

Sachdeva, Riti, Instructional Assistant Professor
College of Performance, Visualization & Fine Arts
MFA, University of New Mexico, 2011

Schuld, Dawna L, Associate Professor
College of Performance, Visualization & Fine Arts
PHD, The University of Chicago, 2009

Scott, Andee, Associate Professor
College of Performance, Visualization & Fine Arts
MFA, Texas Woman's University, 2001

Seo, Jinsil, Professor
College of Performance, Visualization & Fine Arts
PHD, Simon Fraser University, 2011

Smith, Mason A, Instructional Assistant Professor
College of Performance, Visualization & Fine Arts
MS, Texas A&M University, 2018

Spalink, Angenette Marie, Associate Professor
College of Performance, Visualization & Fine Arts
PHD, Bowling Green State University, 2014

Spiers, Aurore, Assistant Professor
College of Performance, Visualization & Fine Arts
PHD, University of Chicago, 2022

Starrett, Courtney, Associate Professor
College of Performance, Visualization & Fine Arts
MFA, Temple University, 2005

Sullivan, Patrick, Assistant Professor
College of Performance, Visualization & Fine Arts
PHD, University of Rochester, 2022

Sutherland, Susan, Lecturer
College of Performance, Visualization & Fine Arts
MA, University of Wisconsin, Madison, 1994

Tao, Jian, Assistant Professor
College of Performance, Visualization & Fine Arts
PHD, Washington University in St. Louis, 2008

Thibault, Aaron, Associate Professor of the Practice
College of Performance, Visualization & Fine Arts
BS, University of Texas, Austin, 2004

Tong, Wai, Assistant Professor
College of Performance, Visualization & Fine Arts
PHD, The Hong Kong University of Science & Technology, 2023

Uchacz, Tianna Helena, Assistant Professor
College of Performance, Visualization & Fine Arts
PHD, University of Toronto, 2016

Vartan, Lynn, Associate Professor
College of Performance, Visualization & Fine Arts
PHD, University of Southern California, 2004

Vigus, Glen W, Visiting Lecturer
College of Performance, Visualization & Fine Arts
MED, Texas A&M University, 2005

Walsh, Michael M, Associate Professor of the Practice
College of Performance, Visualization & Fine Arts
MFA, University of Southern California, 2001

Weaver, Timothy, Instructional Associate Professor
College of Performance, Visualization & Fine Arts
MS, Texas A&M University, 2010

Wilborn, David F, Associate Professor
College of Performance, Visualization & Fine Arts
PHD, The University of Texas at Austin, 1994

Wingfield, Emma C, Lecturer
College of Performance, Visualization & Fine Arts
MA, University College London, 2012

Woodfin, Samuel, Instructional Assistant Professor
College of Performance, Visualization & Fine Arts
MFA, Laguna College of Art and Design, 2018

Yadav, Dinesh, Associate Professor
College of Performance, Visualization & Fine Arts
PHD, Indira Gandhi National Open University, 2018

Ziff, Stewart Edward, Instructional Associate Professor
College of Performance, Visualization & Fine Arts
MFA, School of Visual Arts, 1995

Zika, Joel, Assistant Professor
College of Performance, Visualization & Fine Arts
PHD, Swinburne University, 2021

Majors

College of Performance, Visualization and Fine Arts

- Bachelor of Arts in Performance and Visual Studies (p. 767)
- Bachelor of Fine Arts in Music Performance (p. 765)
- Bachelor of Fine Arts in Theatre (p. 768)
- Bachelor of Science in Dance Science (p. 763)
- Bachelor of Science in Kinesiology, Dance Science Track (p. 764)
- Bachelor of Science in Visualization (p. 769)

Minors

College of Performance, Visualization and Fine Arts

- Art Minor (p. 770)
- Artificial Intelligence in the Arts Minor (p. 771)
- Choreography Minor (p. 771)
- Dance Performance Minor (p. 771)
- Devised Theatre Minor (p. 772)
- Film and Media Studies Minor (p. 772)
- Game Design and Development Minor (p. 773)
- Graphic Design Minor (p. 773)
- Music Minor (p. 773)
- Music Technology Minor (p. 774)
- Performance Studies Minor (p. 774)
- Studio Art Minor (p. 775)
- Virtual Production Minor (p. 775)

Masters

College of Performance, Visualization and Fine Arts

- Master of Arts in Performance Studies (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/performance-visualization-fine-arts/performance-studies-ma/>)
- Master of Fine Arts in Dance (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/performance-visualization-fine-arts/dance-mfa/>)
- Master of Fine Arts in Visualization (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/performance-visualization-fine-arts/visualization-mfa/>)
- Master of Science in Visualization (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/performance-visualization-fine-arts/visualization-ms/>)

Doctoral

College of Performance, Visualization and Fine Arts

- Doctor of Philosophy in Visual Computing and Interactive Media (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/performance-visualization-fine-arts/visual-computing-interactive-media-phd/>)

Dance Science - BS

This program is offered for students with prior dance experience who are interested in careers in dance education or dance science.

This degree's flexibility allows those interested in professional school after graduation the ability to fulfill their prerequisites and focus on the art and science of dance. Many of our students go on to study physical therapy, occupational therapy, or medicine. The educators that graduate from our program have the knowledge and skills to train dancers at the highest level while decreasing the prevalence of injury.

Performance

Performance opportunities include an annual dance concert (Perpetual Motion), undergraduate and graduate student concerts, informal showings, student organization concerts, as well as state, regional, and national/international performances. Students are also given the opportunity to attend various festivals and conferences.

The Dance Program and the College of Performance, Visualization and Fine Arts bring in guest artists to work with students each year. These guests provide an array of opportunities for students including concerts, workshops, and setting repertory. This not only gives students a unique opportunity to build their resumes but to work with a variety of professionals in the field.

Program Requirements

This degree plan has been laid out showing students the number of hours they must take each semester to complete the degree in four years without attending summer school. This is a suggested plan and does not have to be followed specifically. Students should use this information in conjunction with their advisor or program director when scheduling courses each semester to ensure they are meeting all prerequisites, taking courses in a timely manner and meeting all grade requirements.

First Year

Fall		Semester Credit Hours
BIOL 107	Zoology	4
DCED 222	Introduction to Dance Science ¹	2
KINE 120	The Science of Basic Health and Fitness	1
American history (p. 30)		3
Ballet technique ^{1,2}		2
Mathematics (p. 27) ³		3
Semester Credit Hours		15
Spring		
DCED 202	Dance Appreciation ^{4,5,6}	3
DCED 215	Pilates Apparatus I ¹	2

ENGL 104	Composition and Rhetoric	3
PHYS 201	College Physics	4
Ballet technique ^{1,2}		2
Modern technique ^{1,7}		2

Semester Credit Hours 16

Second Year

Fall

DCED 201	Dance History ^{4,8,9}	3
DCED 230	Conditioning for Dancers ⁴	2
American history (p. 30)		3
Ballet technique ^{1,2}		2
Communication (p. 27)		3
Modern technique ^{1,7}		2

Semester Credit Hours 15

Spring

DCED 303	Health Practices for Dancers ³	3
PBSI 107	Introduction to Psychology	3
Ballet technique ^{1,2}		2
Mathematics (p. 27) ³		3
Modern technique ^{1,7}		2
Science elective ^{4,10}		3

Semester Credit Hours 16

Third Year

Fall

BIOL 319	Integrated Human Anatomy and Physiology I	4
DCED 308	Safe Practices in Teaching Dance ^{4,11}	3
POLS 206	American National Government	3
Modern technique ^{1,7}		2
Dance technique elective ^{1,12}		2
Prescribed elective ^{4,13}		3

Semester Credit Hours 17

Spring

BIOL 320	Integrated Human Anatomy and Physiology II	4
DCED 403	Dance Movement Analysis ⁴	3
POLS 207	State and Local Government	3
Dance technique elective ^{1,12}		2
Science elective ^{4,10}		3

Semester Credit Hours 15

Fourth Year

Fall

DCED 310	Research Methods in Dance ^{4,11}	2
DCED 315	Special Populations in Dance ³	3
Dance technique elective ^{1,12}		2
Prescribed elective ^{4,13}		3
Science elective ^{4,10}		3

Semester Credit Hours 13

Spring

DCED 411	Wellness and the Performing Artist ⁴	3
DCED 416	Conducting Dance Science Research ⁴	1
Prescribed elective ^{4,13}		3

Prescribed elective ^{4,13}	3
Science elective ^{4,10}	3
Semester Credit Hours	13
Total Semester Credit Hours	120

¹ Must make a grade of B or better.

² Select 8 hours from DCED 260, DCED 261, DCED 361, DCED 362, DCED 462, DCED 463. Course offerings vary by semester. Consult with an academic advisor for course offerings.

³ MATH 150 may not be used to fulfill this requirement.

⁴ Must make a grade of C or better.

⁵ Satisfies the Creative Arts requirement.

⁶ Satisfies the International Cultural Diversity requirement.

⁷ Select 8 hours from DCED 271, DCED 272, DCED 372, DCED 373, DCED 473, DCED 474. Course offerings vary by semester. Consult with an academic advisor for course offerings.

⁸ Satisfies the Language, Philosophy and Culture requirement.

⁹ Satisfies the Cultural Discourse requirement.

¹⁰ Select 12 hours from BIOL 111, BIOL 112, KINE 305, KINE 318, KINE 404, KINE 406, KINE 433, KINE 435, KINE 426, PHYS 202, PBSI 225, PBSI 307, PBSI 304, NUTR 202, PHLT 336, PHLT 360, PHLT 342/HLTH 342, PHLT 354/HLTH 354.

¹¹ Satisfies the Writing Intensive requirement.

¹² Select 6 hours from DCED 240, DCED 242, DCED 250, DCED 297, DCED 351, DCED 387, DCED 398, DCED 488, DCED 292.

¹³ Select 12 hours from CHEM 119, CHEM 120, DCED 304, DCED 401, DCED 410, DCED 419, HLTH 354/PHLT 354, PBSI 206/AFST 206, PBSI 209/AFST 209, STAT 301, STAT 302, STAT 303, DCED 203, DCED 217, DCED 216/VIST 216 or additional science electives.

Kinesiology - BS, Dance Science Track

This program offers several options designed to prepare students for a variety of careers in public school education, exercise science, and dance science.

The Bachelor of Science degree in Kinesiology also offers some options providing academic preparation for students interested in professional schools, e.g., physical therapy, occupational therapy, physician's assistant, or medicine. There are some common course requirements for all kinesiology options. Additional hours for each option are specifically designed to prepare students for that field of study. The sequencing of courses should be determined in consultation with an appropriate academic advisor.

The Dance Science track for the BS in Kinesiology is offered to prepare and educate students to enter the field of dance science or dance education. Dance Scientists are professionals who are employed by dance companies and dance training facilities throughout the world to devise effective training programs as well as advise the dancers regarding nutrition, injury prevention/care, and dance psychology. Graduates of this program have become researchers, dance therapists, massage therapists, physical therapists, and better-informed dancers and teachers.

Performance

Performance opportunities include an annual dance concert (Perpetual Motion), student concerts, informal showings, student organization concerts, as well as state, regional, and national/international

performances. Students are also given the opportunity to attend various festivals and conferences.

The Dance Program and the College of Performance, Visualization and Fine Arts bring in guest artists to work with students each year. These guests provide an array of opportunities for students including concerts, workshops, and setting repertory. This not only gives students a unique opportunity to build their resumes but to work with a variety of professionals in the field.

Program Requirements

This degree plan has been laid out showing students the number of hours they must take each semester in order to complete the degree in four years without attending summer school. This is a suggested plan and does not have to be followed as laid out below. Students should use this information in conjunction with advising documents available from their advisor or the department website when scheduling courses each semester to ensure they are meeting all prerequisites, taking courses for admission to professional phase in a timely manner and meeting all grade requirements.

First Year

Fall		Semester Credit Hours
BIOL 107	Zoology ^{1,2}	4
DCED 222	Introduction to Dance Science ²	2
ENGL 103	Introduction to Rhetoric and Composition ²	3
or ENGL 104	or Composition and Rhetoric	
KINE 120	The Science of Basic Health and Fitness ^{1,2}	1
KINE 213	Foundations of Kinesiology ²	3
Select one of the following: ^{3,4}		2
DCED 260	Ballet I	
DCED 361	Ballet II	
DCED 462	Ballet III	
Semester Credit Hours		15

Spring

DCED 202	Dance Appreciation ^{2,5,6}	3
DCED 215	Pilates Apparatus I ³	2
PBSI 107	Introduction to Psychology ^{6,7}	3
Select one of the following: ^{3,4}		2
DCED 272	Movement Lab: Modern Dance I	
DCED 373	Movement Lab: Modern Dance II	
DCED 474	Movement Lab: Modern Dance III	
Select one of the following: ^{3,4}		2
DCED 261	Movement Lab: Ballet I	
DCED 362	Movement Lab: Ballet II	
DCED 463	Movement Lab: Ballet III	
Professional development elective ^{2,8}		3
Semester Credit Hours		15

Second Year

Fall		
BIOL 319	Integrated Human Anatomy and Physiology ^{1,2}	4
DCED 303	Health Practices for Dancers ²	3
KINE 199	Required Physical Activity ⁹	1

Select one of the following:^{3,4} 2

DCED 271	Modern Dance I
DCED 372	Modern Dance II
DCED 473	Modern Dance III

Select one of the following:^{3,4} 2

DCED 260	Ballet I
DCED 361	Ballet II
DCED 462	Ballet III

Select one of the following:^{1,2} 3

ENGL 203	Writing about Literature
ENGL 210	Technical and Professional Writing
COMM 203	Public Speaking
COMM 205	Communication for Technical Professions
COMM 243	Argumentation and Debate

Semester Credit Hours 15

Spring

BIOL 320	Integrated Human Anatomy and Physiology II ²	4

Select one of the following:^{3,4} 2

DCED 261	Movement Lab: Ballet I
DCED 362	Movement Lab: Ballet II
DCED 463	Movement Lab: Ballet III

Select one of the following:^{3,4} 2

DCED 272	Movement Lab: Modern Dance I
DCED 373	Movement Lab: Modern Dance II
DCED 474	Movement Lab: Modern Dance III

Select one of the following: 3

DCED 315	Special Populations in Dance
DCED 410	Dance Teams in Secondary Education
DCED 411	Wellness and the Performing Artist

Select one of the following:² 3-4

MATH 140	Mathematics for Business and Social Sciences
MATH 148	Calculus II for Biological Sciences
MATH 152	Engineering Mathematics II
MATH 168	Finite Mathematics
MATH 172	Calculus II

Semester Credit Hours 14

Third Year

Fall

DCED 308	Safe Practices in Teaching Dance ^{2,10}	3

Select one of the following:^{3,4} 2

DCED 271	Modern Dance I
DCED 372	Modern Dance II
DCED 473	Modern Dance III

American history (p. 30)^{1,6} 3

Professional development elective^{2,8} 3

Professional development elective^{2,8} 3

Semester Credit Hours 14

Spring

KINE 307	Lifespan Motor Development ²	3

PHYS 201	College Physics ^{1,2}	4

Select one of the following:² 3-4

MATH 142	Business Calculus
MATH 147	Calculus I for Biological Sciences
MATH 151	Engineering Mathematics I
MATH 171	Calculus I

American history (p. 30)^{1,6} 3

Professional development elective^{2,8} 3

Semester Credit Hours 16

Fourth Year

Fall

DCED 401	Dance Pedagogy ²	3
or KINE 318	or Care of the Athlete	

POLS 206	American National Government ¹	3

Language, philosophy and culture (p. 28)^{1,6} 3

Professional development elective^{2,8} 3

Professional development elective^{2,8} 3

Semester Credit Hours 15

Spring

DCED 403	Dance Movement Analysis ^{2,9,10}	3

KINE 406	Motor Learning and Skill Performance ²	3

KINE 433	Physiology of Exercise ²	3

KINE 428	Exercise Biomechanics Laboratory	1

KINE 426	Exercise Biomechanics	3

POLS 207	State and Local Government ¹	3

Semester Credit Hours 16

Total Semester Credit Hours 120

¹ Must meet Core Curriculum requirements.

² Must make a grade of C or better.

³ Must make a grade of B or better.

⁴ To be chosen in consultation with your academic advisor.

⁵ Meets Creative Arts core curriculum requirement.

⁶ Course selection should meet the International and Cultural Diversity (p. 49) and/or Cultural Discourse (p. 48) Graduation requirement if needed.

⁷ Meets Social Science core curriculum requirement.

⁸ To be chosen in consultation with your academic advisor and selected from the following courses: Additional DCED/KINE tech courses; BIOL 112; CHEM 119, CHEM 120; DCED 201, DCED 304, DCED 400, DCED 402, DCED 405; HLTH 354/PHLT 354, INST 210; INST 222 or TEFB 273; KINE 175, KINE 210, KINE 305, KINE 407, KINE 427, KINE 435; KNFB 450/HEFB 450; NUTR 202; PHYS 202; PBSI 307 or PBSI 225; STAT 301, STAT 302, STAT 303.

⁹ Select one of the following: Pilates, Yoga, Country and Western Dance, Strength Training, Zumba, Tai Chi, or Meditation for Stress.

¹⁰ Meets the University Writing Requirement.

Music Performance - BFA

This unique program provides a comprehensive grounding in music while emphasizing the InterArts connections of music with other art forms such as dance, theatre, game design, or the visual arts.

The Bachelor of Fine Arts (BFA) in Music Performance provides musicians with the comprehensive skill set essential for developing traditional and original musical performances while fostering artistic collaboration and innovation. Coursework includes instruction in

music performance, interdisciplinary collaboration, music technology, music entrepreneurship, and global and popular music studies. The combination of courses blending tradition with front-line innovation encourage creative ways of thinking about performance, innovative ways of integrating music performance in social engagements, creative applications of music performance and technology, and flexible interdisciplinary skills. Skills developed through course applications encourage innovation in problem solving, critical thinking, collaboration, time management, stress management, communication and social competency. Students are guided in transferring acquired marketable skills to the contemporary workplace, balancing preparation for professional musical careers with personal and artistic fulfillment.

Program Requirements

First Year

		Semester Credit Hours
Fall		
MUSC 130	Introduction to Music Performance ¹	3
MUSC 204	Music Theory I ¹	2
MUSC 208	Musicianship I ¹	1
American history (p.)		3
Life and physical sciences (p.)		3
Ensemble performance ^{1,2}		1
Individual performance instruction ^{1,3}		1
Semester Credit Hours		14

Spring		
MUSC 140	Introduction to InterArts Performance ¹	3
MUSC 220	Music History Survey ¹	3
MUSC 205	Music Theory II ¹	2
MUSC 210	Musicianship II ¹	1
Mathematics (p.)		3
Ensemble performance ^{1,2}		1
Individual performance instruction ^{1,3}		1
Semester Credit Hours		14

Second Year

Fall		
MUSC 206	Music Theory III ¹	2
MUSC 212	Musicianship III ¹	1
American history (p.)		3
Communication (p.)		3
Ensemble performance ^{1,2}		1
Individual performance instruction ^{1,3}		1
Topics in music ^{1,4}		3
General elective ⁵		3
Semester Credit Hours		17

Spring		
MUSC 230	Topics in Music Analysis ¹	3
Communication (p.)		3
Ensemble performance ^{1,2}		1
Individual performance instruction ^{1,3}		1
Topics in music ^{1,4}		3
General elective ⁵		3
Semester Credit Hours		14

Third Year

Fall		
MUSC 300	Music Research and Writing ¹	3
MUSC 324/ ANTH 324	Music in World Cultures ¹	3
MUSC 330	Music Performance Project ¹	3
Government/Political Science (p.)		3
Ensemble performance ^{1,2}		1
Individual performance instruction ^{1,3}		1
Music technology ^{1,6}		3
Semester Credit Hours		17

Spring		
MUSC 305	Music Entrepreneurship ¹	3
Government/Political Science (p.)		3
Ensemble performance ^{1,2}		1
Individual performance instruction ^{1,3}		1
Performance history ^{1,7}		3
General elective ⁵		3
Semester Credit Hours		14

Fourth Year

Fall		
MUSC 430	Music Performance Studio ¹	3
Life and physical science (p.)		3
Mathematics (p.)		3
General elective ⁵		3
General elective ⁵		3
Semester Credit Hours		15
Spring		
MUSC 441	Music Performance Capstone ¹	3
Language, philosophy and culture (p.)		3
Life and physical science (p.)		3
Social and behavioral sciences (p.)		3
General elective ⁵		3
Semester Credit Hours		15
Total Semester Credit Hours		120

¹ Must make a grade of C or better.

² Select from MUSC 277, MUSC 280, MUSC 282, MUSC 283, MUSC 290, MUSC 381. 3 credits must be taken at the 300 level.

³ Select from MUSC 245, MUSC 253, MUSC 254, MUSC 255, MUSC 256, MUSC 270, MUSC 271, MUSC 272, MUSC 273, MUSC 353, MUSC 354, MUSC 355, MUSC 356, MUSC 370, MUSC 371, MUSC 372, MUSC 373, MUSC 375. 3 credits must be taken at the 300 level.

⁴ Select from MSTC 150, MSTC 417; MUSC 200, MUSC 221, MUSC 222, MUSC 224, MUSC 225, MUSC 226, MUSC 241, MUSC 242, MUSC 243, MUSC 244, MUSC 246, MUSC 323, MUSC 327/AFST 327, MUSC 424; PERF 328.

⁵ Select from any 100-499 course not used elsewhere. 9 hours must be 300-400 level courses.

⁶ Select from MSTC 101, MSTC 221, MSTC 223; MUSC 115, MUSC 203.

⁷ Select from MUSC 311, MUSC 312, MUSC 315, PERF 310, PERF 311, PERF 312

Performance and Visual Studies - BA

This program combines elements from Art History, Anthropology, Cultural Studies, Ethnomusicology, Media Studies, and the Dramatic Arts, offering a comprehensive and diverse educational experience.

The mission of the BA in Performance and Visual Studies is to cultivate a dynamic and interdisciplinary learning environment where students explore the depths of performance and visual culture and develop crucial skills in research, writing, and interpretation. To this end, the program fosters contemplation and analytical reflection about the role and meaning of artistic and creative practices in the world and trains students in humanities practices (Visual and Performing Arts Analysis, Historical and Archival Research, Criticism, Ethnography, Critical Theory, Performance as Research, and Public Humanities). Objects of study include theatre, music, dance, film and television, performance art, visual art, material culture, sports, politics, folklore, ritual, performance of self, social media, video games, and other expressive practices and art forms.

The core of the program is the seminar class—a small collaborative, discussion-based class, which historically and/or theoretically explores a topic of performance and visual culture in-depth. Students complete a two-semester long, individualized research project. The program's position within the College of Performance, Visualization and Fine Arts affords its students the opportunity to work closely with artists and to engage with cutting-edge media technology. Students in the program are able to research the arts in a collaborative environment, working with students and faculty pursuing a variety of unique and dynamic creative practices. The program encourages and supports study abroad, community-focused internships, and independent studies, where students can pursue their interests under guidance from faculty members.

The overarching goal of the program is to empower graduates to be thoughtful contributors and innovators in the broader cultural landscape. Graduates of this program are well equipped for diverse career paths, such as professions in curating, teaching, criticism, arts administration, and non-profit. Alternatively, graduates of the degree will be well positioned for further studies at the MA and PhD level.

Program Requirements

First Year

Fall		Semester Credit Hours
PERF 101	Introduction to Performance Studies ¹	3
American history (p. 30)		3
Creative arts (p. 30)		3
Performance and visual studies elective ^{1,2}		3
General elective ³		3
Semester Credit Hours		15
Spring		
FILM 101/ VIST 101	Introduction to Visual Studies ¹	3
Communication (p. 27)		3
Mathematics (p. 27)		3
Social and behavioral sciences (p. 31)		3
Performance and visual studies elective ^{1,2}		3
Semester Credit Hours		15

Second Year

Fall

Government/Political science (p. 31)	3
Communications (p.)	3
Global arts ^{1,4}	3
History of performing and visual arts ^{1,5}	3
General elective ³	3
Semester Credit Hours	15

Spring

Government/Political science (p. 31)	3
Life and physical sciences (p. 27)	3
History of performing and visual arts ^{1,5}	3
Performance and visual studies elective ^{1,2}	3
General elective ³	3
Semester Credit Hours	15

Third Year

Fall

PERF 320	Research Methods in Performance and Visual Studies ¹	3
American history (p. 30)		3
Life and physical sciences (p. 27)		3
Mathematics (p. 27)		3
Seminar ^{1,6}		3
Semester Credit Hours		15

Spring

PERF 330	Public Scholarship in Performance and Visual Studies ¹	3
Language, philosophy and culture (p. 28)		3
Life and physical sciences (p. 27)		3
Seminar ^{1,6}		3
General elective ³		3
Semester Credit Hours		15

Fourth Year

Fall

PERF 430	Performance and Visual Studies Studio ¹	3
Seminar ^{1,6}		3
General elective ³		3
General elective ³		3
General elective ³		3
Semester Credit Hours		15

Spring

PERF 481	Capstone Seminar: Performance as Research ¹	3
Performance and visual studies elective ^{1,2}		3
General elective ³		3
General elective ³		3
General elective ³		3
Semester Credit Hours		15
Total Semester Credit Hours		120

¹ Must make a grade of C or better on all major coursework.

² Select from ARTS 100-499 (p. 935), DCED 100-499 (p. 997), FILM 100-499 (p. 1041), MSTC 100-499 (p. 1158), MUSC 100-499 (p. 1161),

PERF 100-499 (p. 1192), PVFA 100-499 (p. 1215), THEA 100-499 (p. 1251), VIST 100-499 (p. 1259). 6 hours must be taken at the 300-400 level.

³ Select from any 100-499 course. 9 hours must be taken at the 300-400 level.

⁴ Select from FILM 215/GLST 215, PERF 156, PERF 301, PERF 325, MUSC 323, MUSC 324/ANTH 324, THEA 200

⁵ Select from ARTS 149, ARTS 150, ARTS 329, ARTS 330, ARTS 341, ARTS 343, ARTS 345, ARTS 349, ARTS 350, COMM 360, DCED 201, FILM 299, MUSC 224, MUSC 225, MUSC 226, MSTC 150, PERF 310, PERF 311, PERF 312, THEA 281.

⁶ Select from ARTS 339, FILM 399/PERF 399, FILM 417, FILM 469, FILM 470, FILM 481, PERF 450, PERF 451, PERF 452, PERF 453, PERF 454, PERF 455, PERF 456, PERF 457, PERF 460, PERF 461.

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

General Degree Requirements:

Minimum 2.0 GPA overall and a minimum 2.0 GPA in major coursework.

A grade of C or higher is required in all coursework within the major.

Complete 36 hours of upper division (300-400 level) hours in residence, 12 hours of which must be completed in major coursework.

Complete two PERF courses formally designated as writing or communication intensive. At least one course must be completed with the writing intensive designation.

Theatre – BFA

This degree will include instruction in performance and directing, design and production, arts administration and entrepreneurship, and civic dramaturgy and community engagement.

The Bachelor of Fine Arts (BFA) in Theatre prepares individuals to manage the planning, design, preparation, and production of theatrical programs. The BFA in Theatre trains artists in the range of skills necessary to stage new and original theatrical works and performers to be creative and independent agents. Those who complete the degree are flexible and innovative creators, who can communicate across cultures and media, and thrive in highly varied and ever-changing milieus. Theatre makers develop unique global, cultural, and social competencies to work with diverse populations and communities, leveraging their artistic skills to address the challenges facing our society. Performing artists working in theatre hone their empathy, active listening skills, and critical inquiry abilities through collaborative performance-making.

Program Requirements

First Year

Fall		Semester Credit Hours
PVFA 111	Creating with Care ¹	3
THEA 103	Introduction to Devised Theatre ¹	3
Creative arts (p. 30)		3

Life and physical sciences (p. 27)	3
General elective ²	3

Semester Credit Hours 15

Spring		
ENGL 104	Composition and Rhetoric	3
THEA 110	Acting I: Fundamentals ¹	3
THEA 112	Introduction to Stagecraft ¹	3
THEA 245	Introduction to Theatrical Design ¹	3
Mathematics (p. 27)		3

Semester Credit Hours 15

Second Year

Fall		
THEA 220	Decentering the Text ¹	3
American history (p. 30)		3
Communication (p. 27)		3
Design and production elective ³		3
Performance elective ⁴		3

Semester Credit Hours 15

Spring		
THEA 300	Dramaturgy ¹	3
Select one of the following: ¹		3

PERF 310	History of Performance in the Ancient World	
PERF 311	History of Performance in the Common Era	
PERF 312	History of Performance Modern Era	
Mathematics (p. 27)		3
Design and production elective ³		3
General elective ²		3

Semester Credit Hours 15

Third Year

Fall		
PERF 303	Creating Performance ¹	3
Select one of the following: ¹		3

PERF 450	Seminar in 20th-21st Century Performance	
PERF 451	Seminar in Historical Performance	
PERF 452	Seminar in Global Performance	
PERF 453	Seminar in Performance Ethnography	
PERF 454	Seminar Performing the City	
PERF 455	Seminar in Gender, Sexuality, and Performance	
PERF 456	Seminar in Identity, Intersectionality, and Performance	
PERF 457	Seminar in Performance and Technology	
PERF 460	Seminar in Performance Theory	
PERF 461	Seminar in Folklore	

Life and physical sciences (p. 27)	3
Design and production elective ³	3
General elective ²	3

Semester Credit Hours 15

Spring		
THEA 304	Devised Theatre Studio ¹	3
Government/Political science (p. 31)		3

Language, philosophy and culture (p. 28)	3
Arts administration and community engagement elective ⁵	3
Performance elective ⁴	3
Semester Credit Hours	15
Fourth Year	
Fall	
American history (p. 30)	3
Government/Political science (p. 31)	3
Arts administration and community engagement elective ⁵	3
Performance elective ⁴	3
General elective ²	3
Semester Credit Hours	15
Spring	
THEA 441 Capstone Seminar in Theatre ¹	3
Life and physical sciences (p. 27)	3
Social and behavioral sciences (p. 31)	3
General elective ²	6
Semester Credit Hours	15
Total Semester Credit Hours	120

¹ Must make a grade of C or better.

² Select from any 100-499 course not used elsewhere, up to 12 hours of courses from THEA 100-499 (p. 1251) may be applied.

³ Select from MUSC 203; PERF 446; THEA 250, THEA 255, THEA 307, THEA 345, THEA 355, THEA 360, THEA 392, THEA 435.

⁴ Select from DCED 240; DCED 242; DCED 306; DCED 400; DCED 402; ENGL 385; MSTC 341, MSTC 417; MUSC 235, MUSC 335, MUSC 345; PERF 333; PERF 407; PVFA 310; PVFA 483; THEA 210, THEA 310, THEA 320, THEA 379, THEA 390, THEA 410.

⁵ Select from DCED 216/VIST 216, DCED 304, DCED 411; INST 222; PERF 223, PERF 308, PERF 338; PVFA 240; THEA 342, THEA 370, THEA 401, THEA 482.

Graduation requirements include 3 hours of International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a general elective can be used to satisfy this requirement. The required 6 hours may be met by courses satisfying other areas of a degree program. See your academic advisor for further information.

Visualization - BS

This program integrates elements of fine arts, three-dimensional design, programming, and digital technology to provide a broad, wide-ranging educational experience for creating visual imagery.

The mission of the Bachelor of Science in Visualization program is to engage and develop the student's visual, intuitive and analytical capabilities through the scientific and aesthetic issues surrounding the use of technology in visual communication. To fulfill its mission, the program requires both a creative spirit and the technical understanding to adapt to the changing demands of the visual industries served by the departmental programs.

The core of the program is the studio experience, which explores the relationship between theory and practices through a variety of exercises and projects using traditional and electronic media. Upon completion of

the foundational courses, students will have the opportunity to select one of Visualization focus areas: Animation, Game Creation, or Interactive Design. A semester away from Texas A&M University is required during the junior year. This is followed by a capstone proposal and studio during the junior and senior years. A broad range of directed electives allows the student to gain an in-depth understanding of an area of specialization.

Graduates of the program are prepared to be technically adept artists, designers and/or tool-makers capable of utilizing interactive and directed media. Employment may be found in such fields as user interface and web design, the entertainment industry (game design and development, animation and visual effects), as well as fields such as modeling and simulation, data analytics and other fields where visualization contributes to understanding. Alternatively, graduates may enter graduate programs that emphasize digital media in either computer science or art/design. Two such programs, the Master of Science (MS) in Visualization and the Master of Fine Arts (MFA) in Visualization, are offered by the College of Performance, Visualization and Fine Arts at Texas A&M University.

Program Requirements

First Year

		Semester Credit Hours
Fall		
ARTS 115	Drawing for Visualization ¹	3
MATH 150 or MATH 151	Functions, Trigonometry and Linear Systems or Engineering Mathematics I	4
VIST 105	Principles of Design I ¹	3
VIST 131	First Year Seminar ¹	1
VIST 172	Foundations of Visual Computing ¹	3
Semester Credit Hours		14
Spring		
ARTS 149 or ARTS 150	Art History Survey I ¹ or Art History Survey II	3
MATH 151 or MATH 152	Engineering Mathematics I or Engineering Mathematics II	4
VIST 106	Principles of Design II ¹	3
VIST 110	Design Innovation ¹	3
VIST 173	Foundations of Visual Computing II ¹	3
Semester Credit Hours		16

Second Year

Fall		
ARTS 339 or ARTS 349	Themes in Contemporary Art ¹ or The History of Modern Art	3
PHYS 201	College Physics	4
VIST 210	Time and Interaction ¹	3
VIST 272	Visual Computing ¹	3
VIST 275	Production Techniques ¹	3
Semester Credit Hours		16
Spring		
ENGL 104	Composition and Rhetoric	3
VIST 206	Visual Studies Studio I ¹	3
Life and physical sciences (p. 27)		4
Directed elective ^{1,2}		3

Supporting elective ^{1,3}	3
Semester Credit Hours	16
Third Year	
Fall	
VIST 305 Visual Studies Studio II ¹	3
VIST 339 Research Techniques in Visualization ¹	3
Communication (p. 27)	3
Social and behavioral sciences (p. 31)	3
Directed elective ^{1,2}	3
Semester Credit Hours	15
Spring	
VIST 301 Field Studies in Design Innovation ^{1,4} or VIST 494 or Internship	6
Language, philosophy and culture (p. 28) ⁴	3
Supporting elective ^{1,3,4}	3
General elective ^{4,5}	3
Semester Credit Hours	15
Fourth Year	
Fall	
HIST 105 History of the United States	3
VIST 405 Visual Studies Studio III or VIST 409 or Capstone Studio	3
Government/Political science (p. 31)	3
Directed elective ¹	3
Supporting elective ²	3
Semester Credit Hours	15
Spring	
HIST 106 History of the United States	3
VIST 409 Capstone Studio ¹	3
Government/Political science (p. 31)	3
Life and physical sciences (p. 27)	1
Directed elective ^{1,2}	3
Semester Credit Hours	13
Total Semester Credit Hours	120

¹ Must make a grade of C or better.

² Select from ARTS 210, ARTS 212, ARTS 303, ARTS 304, ARTS 305, ARTS 308, ARTS 312, ARTS 315, ARTS 325, ARTS 328, ARTS 341, ARTS 353, VIST 235, VIST 282, VIST 283, VIST 284, VIST 310, VIST 357, VIST 370, VIST 372, VIST 386, VIST 439, VIST 465, VIST 470, VIST 472, VIST 474, VIST 476/CSCE 447, VIST 477/CSCE 446, VIST 480, VIST 487/CSCE 443.

³ Select from ARTS 200-499 (p. 935); VIST 200-499 (p. 1259) (except 301, 311, 331, 494).

⁴ Semester Away: May be satisfied by study abroad, at another university, internship, or special arrangement by advisor or instructor. Electives may be taken online, distance education, at another university or college, or at study abroad university.

⁵ Select from any 300-499 course not used elsewhere. If you do not participate in study abroad, 3 hours will come from International and Cultural Diversity (p. 49).

Students must also make a grade of C or better in any course used as an equivalent substitution for Visualization courses that satisfy degree requirements.

Art - Minor

This minor provides students with a prevalent view of the world of art.

A broad orientation to the visual arts is offered by the College of Performance, Visualization and Fine Arts to non-Visualization majors. Students must have a minimum cumulative GPA of 3.5 with 70 or fewer credit hours completed to apply and must maintain a C average or better in all Art minor courses. The student's home school/college/department may grant, with agreement from the College of Performance, Visualization and Fine Arts, transfer credit of no more than 6 credit hours. Transfer credit will not be accepted for any 300- or 400-level courses. Credit for study abroad (CARC) courses may not be applied to the minor in Art if an on-campus course containing similar content is offered.

Per University guidelines, the student's home school/college/department is responsible for advising students pursuing the minor in Art.

To apply, download the Art Minor Form via the PVFA website, complete it, and turn it into the Program Director, Jill Honeycutt at jhoneycutt@tamu.edu.

Exact application due dates will be posted on the PVFA website: Summer/Fall Due: Mid-March |Spring Due: Mid-October.

Program Requirements

Code	Title	Semester Credit Hours
ARTS 104	Introduction to Graphic Design	1
Select five of the following:		15
ARTS 103	Design I	
ARTS 149	Art History Survey I	
ARTS 150	Art History Survey II	
ARTS 210	Introduction to Digital Photography	
ARTS 303	Graphic Design I	
ARTS 304	Graphic Design II	
ARTS 312	Advanced Photography	
ARTS 330	The Arts of America	
ARTS 340	History of the Photographic Image	
ARTS 342	History of Graphic Design	
ARTS 343	History of Illustration	
ARTS 349	The History of Modern Art	
ARTS 403	Graphic Design III	
ARTS 489	Special Topics in...	
VIST 339	Research Techniques in Visualization	
VIST 474	Designing for the Web	
Total Semester Credit Hours		16

Minimum of 6 hours of 300- or 400-level courses are required.

Students must make a grade of C or better in all courses.

Artificial Intelligence in the Arts - Minor

This minor offers essential training and qualifications, positioning students for success in the evolving landscape of AI-enhanced art.

Artificial Intelligence (AI) is revolutionizing the way artists create, enhancing both the creative process and productivity across various art forms. The Minor in Artificial Intelligence in the Arts is designed to meet the growing demand for AI integration in artistic practice, equipping students with the skills to incorporate AI into visual arts, dance, theatre, interactive media, and music. The program provides a comprehensive education on the use of AI tools, emphasizing critical decision-making, ethical considerations, and the social implications of AI.

Program Requirements

Code	Title	Semester Credit Hours
PVFA 201	Introduction to Artificial Intelligence in the Arts	3
PVFA 301	Artificial Intelligence, Ethics and Social Impact in the Arts	3
PVFA 409	Artificial Intelligence in the Arts Capstone	3
Prescribed elective ¹		6
Total Semester Credit Hours		15

¹ Select from ARTS 301, DCED 307, MSTC 245, VIST 371.

Choreography - Minor

This minor allows students to focus on dance making through knowledge in music, movement exploration, choreographic principles, and dance production.

The Dance Program offers a minor in choreography which can be used to enhance the major in dance or performance studies. At the end of the choreography minor students will self-produce a concert with one to two other choreography minor students including new work, costume construction, lighting design, marketing, and stage crew management. This capstone experience prepares students to self-produce their work preparing them for careers as choreographers, artistic directors, and studio teachers. Students can also participate in program-based events throughout the year including concerts such as the Student Choreography Showcase.

The Dance Program and the College of Performance, Visualization and Fine Arts bring in guest artists to work with students each year. These guests provide an array of opportunities for students including concerts, workshops, and setting repertory. This not only gives students a unique opportunity to build their resumes but to work with a variety of professionals in the field.

Program Requirements

Code	Title	Semester Credit Hours
DCED 203	Dance Production	3
DCED 216/ VIST 216	Performance Documentation and Editing	3
DCED 217	Musicality and Movement for Performers	3
DCED 306	Choreographic Principles	3
DCED 400	Group Choreography	3
DCED 402	Concert Choreography and Production	3

Total Semester Credit Hours 18

Students must make a grade of C or better in all courses.

Minimum of 2.5 GPA in minor coursework.

Dance Performance - Minor

This minor allows students to deepen their technical training and focuses on the performance of concert dance.

Overview Admission to the dance performance minor requires an audition. Refer to the Dance Program website for information on auditions.

The Dance Program offers a minor in dance performance which can be used to enhance the major in dance. Dance is an important part of the visual and performing arts educational experience. A minor in performance can enhance a student's academic experience. Dance minor students are part of the Dance Program and can participate in program-based events throughout the year.

Performance Opportunities

Performance opportunities include an annual dance concert (Perpetual Motion), student concerts, informal showings, student organization concerts, as well as state, regional, and national/international performances. Students are also given the opportunity to attend various festivals and conferences.

The Dance Program and the College of Performance, Visualization and Fine Arts bring in guest artists to work with students each year. These guests provide an array of opportunities for students including concerts, workshops, and setting repertory. This not only gives students a unique opportunity to build their resumes but to work with a variety of professionals in the field.

Program Requirements

Code	Title	Semester Credit Hours
DCED 217	Musicality and Movement for Performers ¹	3
DCED 230	Conditioning for Dancers ¹	2
DCED 265	Dance Performance Practicum ^{1, 2}	2
PVFA 310	Performance in Virtual and Augmented Realities ¹	3
Select 8 hours from the following: ^{3, 4}		8

Ballet ⁵	
Hip Hop ⁶	
Improvisation ⁷	
Jazz Dance ⁸	
Modern Dance ⁹	
Total Semester Credit Hours	18

¹ Must make a grade of C or better.

² Student must take this course twice to fulfill requirements for the program.

³ The 8 hours of technique can be any combination of the listed courses, but upper level courses require placement through audition or instructor approval. 3 hours at 300/400-level must come from two dance technique courses.

⁴ Must make a grade of B or better.

⁵ DCED 250, DCED 260, DCED 261, DCED 351, DCED 361, DCED 362, DCED 462, DCED 463.

⁶ DCED 297, DCED 398.

⁷ DCED 240, DCED 242.

⁸ DCED 286, DCED 387, DCED 488.

⁹ DCED 271, DCED 272, DCED 372, DCED 373, DCED 473, DCED 474.

Minimum of 2.5 GPA in minor coursework.

Devised Theatre - Minor

This minor equips students to be well-rounded, dynamic, and flexible artists and scholars.

The minor in Devised Theatre provides the essential skills in devising and collective creation, enabling artists from varied fields to add theatrical practice to their repertoire, and build performance into their art and scholarship. The minor emphasizes the practice of theatre making as it builds on Performance Studies' strength in practice as research and inquiry-based performance.

Devised theatre decenters the text in theatrical performance-making, to embrace the collective efforts of an ensemble of artists, and challenge entrenched hierarchies in traditional forms of theatrical production. Artists at the forefront of theatre and performance are increasingly turning to methods of collective creation and devising to generate new works. This minor introduces the form, trains students to work with a variety of sources, surveys multiple devising methods, and includes a studio course in which students collaborate to create original performances. In addition, students may take courses in acting, design, music composition, and other areas to expand the repertoire of skills they may draw on to make theatrical performances.

Program Requirements

Code	Title	Semester Credit Hours
PERF 303	Creating Performance	3
THEA 103	Introduction to Devised Theatre	3
THEA 300	Dramaturgy	3
THEA 304	Devised Theatre Studio	3
Select six hours from the following		6
MSTC 417	Intermedia Performance	
MUSC 235	Introduction to Composition	
MUSC 345	Advanced Composition	

PERF 308	Performing Arts Administration	
PERF 333	Movement in Performance Studies	
PERF 338	Performing Communities	
PERF 446	Design as Performance	
THEA 210	Physical Acting	
THEA 245	Introduction to Theatrical Design	
Total Semester Credit Hours		18

Minimum of 6 hours at 300- to 400- level.

Minimum 2.7 GPA.

Film and Media Studies - Minor

This minor prepares undergraduate students to think and write critically about film and media from multiple perspectives.

The interdisciplinary minor in Film and Media Studies offers courses in the history, criticism, and theory of film and media, and provides opportunities to pursue analyses of the aesthetic, cultural, economic, technological, and international dimensions of film. The foundational courses set the stage for advanced courses in film and media. A major goal of the program is to connect the student's major field of study with an understanding of film and media's cultural and social significance. Drawing from the expertise of affiliated faculty across the university, the minor can be tailored to the student's interests.

The Film and Media Studies minor supports student development for any career field because it provides opportunities to obtain skills that are critical to success in today's workplaces: critical thinking, problem solving, oral and visual communication, writing, research, cultural understanding, and global perspectives. The minor builds foundational skills for student success, leadership in the workplace, future graduate studies, and becoming an informed citizen.

Program Requirements

Code	Title	Semester Credit Hours
FILM 251/ ENGL 251	Introduction to Film Analysis	3
FILM 299	History of Film	3
FILM 300-499 (p. 1041)		3
FILM 481	Seminar in Film Studies	3
Select one of the following:		3
FILM 300-499 (p. 1041)		
HIST 460	American Society and Culture Since 1877	
SPAN 410	Hispanic Film	
SPAN 414	Mexican Cinema and Culture	
Total Semester Credit Hours		15

Students must make a grade of C or better in all courses.

At least 9 credits must be at the 300-400 level.

Game Design and Development - Minor

This minor provides a foundation in the principles of game design and software development.

The minor in Game Design and Development offers students the opportunity to develop the knowledge and skills associated with the aesthetic and technical aspects of game creation. Students develop core competencies, collaborate on the design and development of game projects, and engage in authentic, situated creative problem-solving to broaden their horizons as interdisciplinary team members.

Program Requirements

Code	Title	Semester Credit Hours
Select one of the following:		3-4
CSCE 110	Programming I	3
or CSCE 441	or Introduction to Computer Science Concepts and Programming	
CSCE 120	Program Design and Concepts ¹	3
or VIST 386	or Game Design I	
CSCE 443/ VIST 487	Game Development	3
Select two from:		6
ARTS 345	History of Gaming	3
COMM 230/Communication Technology Skills JOUR 230		
COMM 453	Communication and Video Games	3
CSCE 436	Computer-Human Interaction	
MSTC 221	Fixed Media Composition	3
VIST 357	Interaction Design	
VIST 370	Interactive Virtual Environments	3
VIST 374	Multimedia Design and Development	
VIST 477/ CSCE 446	Virtual Reality	3
VIST 480	Game Level Design	
Total Semester Credit Hours		15

¹ CSCE majors must take this course instead of CSCE 110 and CSCE 111.

Minimum GPA of 3.2 for admittance into the minor.
A grade of C or better is required for all courses used towards the minor.

Graphic Design - Minor

This minor is designed to provide students with a general understanding of typography, the use of image and color, layout, relevant software skills, and the language of graphic design.

The Graphic Design Minor allows you to specialize in design foundations. The program will also offer students the opportunity to have introductory exposure to the methods of the discipline of design.

Students must have a minimum cumulative GPA of 3.25 with 70 or fewer credit hours completed to apply and must maintain a C average or better in all Graphic Design Minor courses. The student's home school/college/department may grant, with agreement from the College of Performance, Visualization and Fine Arts, transfer credit of no more than six credit hours. Transfer credit will not be accepted for any 300- or 400-level courses. Per University guidelines, the student's home school/college/department is responsible for advising students pursuing the minor in Graphic Design.

To apply, download the Graphic Design Minor Form via the PVFA website (<https://pvfa.tamu.edu/academics/undergraduate-programs/minors/minor-in-graphic-design/>), complete it, and turn it into the Program Director.

Program Requirements

Code	Title	Semester Credit Hours
ARTS 104	Introduction to Graphic Design	1
or VIST 105	or Principles of Design I	
ARTS 303	Graphic Design I	3
ARTS 304	Graphic Design II	3
Select three of the following:		9
ARTS 103	Design I	3
ARTS 210	Introduction to Digital Photography	
ARTS 255	Typography	3
ARTS 342	History of Graphic Design ¹	
ARTS 353	Color Theory	3
ARTS 356	Motion Graphics	
ARTS 403	Graphic Design III	3
ARTS 455	Experimental Typography ¹	
VIST 354	Principles of Multimedia Design	3
VIST 374	Multimedia Design and Development ¹	
VIST 474	Designing for the Web	3
Total Semester Credit Hours		16

¹ Limited course offerings.

Students must make a grade of C or better in all courses to be awarded the Graphic Design minor and receive transcript recognition.

Music - Minor

This minor prepares students to develop a fundamental understanding of music through introductory music theory, musicianship, and music history.

The Minor in Music gives students the opportunity to pursue musical interests while developing skills and exploring the history and context of music. Through individual instruction or group performance, students will have opportunities to perform, to develop skills on their preferred instrument(s), and/or to learn new instruments and styles. Students can choose from a variety of electives, tailoring their course of instruction

to their own needs and interests. This flexible minor allows students to complement their major field of study and prepares them for post-graduation pathways that integrate music into their personal and professional life.

Program Requirements

Code	Title	Semester Credit Hours
MUSC 204	Music Theory I	2
MUSC 208	Musicianship I	1
Select one of the following:		3
MUSC 311	Music History I	
MUSC 312	Music History II	
MUSC 315	Music History III	
Performance ¹		3
Group performance ²		3
Music electives ³		6
Total Semester Credit Hours		18

¹ Select from: MUSC 245, MUSC 253, MUSC 254, MUSC 255, MUSC 256, MUSC 270, MUSC 271, MUSC 272, MUSC 273, MUSC 353, MUSC 354, MUSC 355, MUSC 356, MUSC 370, MUSC 371, MUSC 372, MUSC 373, MUSC 375, MUSC 381

² Select from: MUSC 330, MUSC 335, MUSC 381

³ Select from MUSC 100-499 (p. 1161), PERF 328 not applied elsewhere in the minor.

Minimum of 6 hours at 300-400 level.

Students must make a grade of C or better in all courses.

Music Technology - Minor

This program focuses on preparing students to think about music and sound in new ways,

Beyond clean audio editing and using off-the-shelf products in conventional ways, the minor in music technology guides students in exploring novel approaches to musical expression through technology-based live performance, fixed media art, installation art, and interdisciplinary creative work.

Required courses provide a broad range of experiences in composing with sound, digital audio editing and signal processing, recording techniques, and merging music with other disciplines in novel and thought-provoking ways. Electives leverage our faculty's particular strengths and areas of research toward helping students discover and develop their own unique approaches to making technology-based music. Such topics include analog circuitry, analog equipment, digital and hybrid musical instrument building, making music by programming a computer, artificial intelligence, synthesis techniques, musical structures, interactivity, generative (or algorithmic) music, feedback systems, live coding, and more than a century of historical developments.

Throughout the minor, students will build a portfolio of creative work demonstrating their experience and unique voices as twenty-first century musicians ready to make the most creative use of emerging technologies. Students will gain skills that apply to conventional work in audio editing, recording, live sound reinforcement, and sound design but

will be able to approach these activities with the artistic sensibility of a musician.

Program Requirements

Code	Title	Semester Credit Hours
MSTC 101	Introduction to Performance Technology	3
MSTC 221	Fixed Media Composition	3
MSTC 100-499 ¹		12
Total Semester Credit Hours		18

¹ 6 hours must be selected from 300-400-level.

Students must make a grade of C or better in all courses.

Performance Studies - Minor

The minor in Performance Studies offers students the opportunity to apply the methods of performance studies and the practice of performance to their other academic and artistic interests. In Performance Studies, performance is used to understand and change the world. Performance is part of everyday life; it is a way to express one's self, identity, experience, and values. Performance Studies is the study of music, theatre, and dance as modes of artistic expression; but also the performative aspects of film and TV, podcasts, tourist attractions, religious services, public ceremonies, sports and games, rituals and festivals, dress and costuming, political debates, social media, and more.

Because performance studies combines theory and practice, our courses combine scholarly research and creative performance. Students select seminars and electives that engage with their own particular academic and artistic interests. In addition to being introduced to the theory of the discipline, students analyze and create live performance in their classes. Minors in Performance Studies cultivate an analytical perspective about the role and meaning of performance in global culture that contributes to their academic development, creative practices, and professional success.

Program Requirements

Code	Title	Semester Credit Hours
PERF 101	Introduction to Performance Studies	3
PERF 450-461 (p. 1192)		3
Select from the following:		12
PERF 100-499 (p. 1192)		
MUSC 100-499 (p. 1161) ¹		
Total Semester Credit Hours		18

¹ MUSC 280, MUSC 282, MUSC 283, and MUSC 290 may not be applied to coursework in the Performance Studies Minor.

Minimum of 6 hours at 300- to 400-level.

Minimum 2.7 GPA.

Studio Art - Minor

The minor in Studio Art allows you to explore your creative side through the combination of art and digital tools. In this program, you will develop and hone your skills through practice of the visual arts in multiple mediums. Online and in-person coursework contains both a hands-on exploration of traditional art making and instruction with innovative digital tools. Throughout the minor, students will build a portfolio of creative work exploring a personal style as artists, while building a general studio art foundation.

Students must have a minimum cumulative GPA of 3.25 with 70 or fewer credit hours completed to apply and must maintain a C average or better in all Studio Art Minor courses. The student's home school/college/department may grant, with agreement from the College of Performance, Visualization and Fine Arts, transfer credit of no more than six credit hours. Transfer credit will not be accepted for any 300- or 400-level courses. Per University guidelines, the student's home school/college/department is responsible for advising students pursuing the minor in Studio Art.

To apply, download the Studio Art Minor Form via the PVFA website, complete it, and turn it into Program Director, Jill Honeycutt at jhoneycutt@tamu.edu.

Program Requirements

Code	Title	Semester Credit Hours
ARTS 103	Design I	3
or VIST 105 or Principles of Design I		
ARTS 104	Introduction to Graphic Design	1
or VIST 105 or Principles of Design I		
ARTS 111	Drawing I ¹	3
or ARTS 115 or Drawing for Visualization		
Select three of the following:		9
ARTS 210	Introduction to Digital Photography	
ARTS 212	Life Drawing	
ARTS 305	Painting I	
ARTS 308	Sculpture	
ARTS 312	Advanced Photography	
ARTS 315	Figure Drawing For Narrative and Concept Development	
ARTS 325	Digital Painting	
ARTS 328	Advanced Painting	
ARTS 353	Color Theory	
VIST 311	Field Studies in Design Communication ²	
VIST 465	Video and Time Based Media	
Total Semester Credit Hours		16

¹ Course must be taken in residence at Texas A&M. No transfer courses or substitutions will be allowed.

² Course must be approved by Program Director.

Students must make a grade of C or better in all courses to be awarded the Studio Art minor and receive transcript recognition.

Virtual Production - Minor

Virtual Production has become common in entertainment media production for films, television, and commercials. Its use is expanding into other areas including architectural/engineering visualization, manufacturing, product design, simulation and training, and live performances for music, theater, and broadcast. The curriculum includes virtual production techniques, storyboarding, visual computing, lighting, and cinematography. On completion of the minor, students will be prepared to fulfill roles in production as Technical Artists, Lighting Specialists, Technical Designers, Digital Asset Artists in a Virtual Art Department, Virtual Imaging Technician/Grip, Pipeline Technical Directors, and Virtual Production Technical Generalists.

Program Requirements

Code	Title	Semester Credit Hours
VIST 172	Foundations of Visual Computing ^{1,2}	3
VIST 225	Virtual Production Techniques ¹	3
VIST 429	On Set Virtual Production ¹	3
Select two of the following: ¹		6
VIST 272	Visual Computing ²	
VIST 325	Pre-Visualization and Storyboarding for Virtual Production	
VIST 327	Virtual Cinematography and Lighting	
VIST 419	Motion Capture Animation	
VIST 425	Art Direction for Virtual Production	
Select one of the following:		3
VIST 370	Interactive Virtual Environments	
VIST 372	Creating Digital Environments	
VIST 401	World-Building in Games	
VIST 432	Applied Perception	
VIST 465	Video and Time Based Media	
VIST 470	Digital Rendering	
VIST 476/CSCE 447	Data Visualization	
VIST 477/CSCE 446	Virtual Reality	
VIST 480	Game Level Design	
VIST 487/CSCE 443	Game Development	
VIST 494	Internship	
Total Semester Credit Hours		18

¹ Must make a grade of C or better.

² Only offered in the fall semester.

SCHOOL OF PUBLIC HEALTH

Administrative Officers

Dean - Shawn Gibbs, PhD, MBA, CIH

Senior Associate Dean for Research - Tiffany A. Radcliff, PhD

Associate Dean for Academic Affairs - Rhonda Rahn, PhD

Associate Dean for Faculty Affairs - Tamika Gilreath, PhD

Associate Dean for Student Services - Donald J. Curtis, Jr., PhD

Assistant Dean for Accountability and Strategic Initiatives - Eric Wilson, PhD

Assistant Dean for Business Affairs - Stephen Bockelmann

General Statement

Founded in 1998 as the first public health school in the nation with a focus on rural and underserved communities, the School of Public Health developed into a nationally ranked, fully accredited public health academic, research, and service program.

Offering classes at the College Station campus as well as other Texas locations through distance education, the school provides a bachelors program and graduate level programs including two master's degrees (Master of Public Health and Master of Health Administration) in several public health disciplines: epidemiology, biostatistics, environmental health, occupational safety and health, health administration, policy and management, and health behavior. The school also offers a Doctor of Public Health with concentrations in epidemiology, environmental health, and health behavior, and a Doctor of Philosophy in health services research.

The school provides an excellent forum for tomorrow's public health leaders to engage in a learning environment that builds on a wide array of research strengths and scholarly inquiry of a stellar faculty (ten of whom have received the prestigious designations of Regents Professor, and one Distinguished Professor). Further, the research and practice links established by the faculty provide an extensive diversity of opportunities for students to work closely with professionals in applied public health settings.

Providing a forum for future public health leaders, the school builds an array of research strengths and practice skills for rural and urban settings.

History

The School of Public Health is the first of its kind in the nation. The Texas Legislature established the school in 1995 as part of a rural health initiative to better address rural health needs in the state. After receiving degree-granting authority for the Master of Public Health degree in April 1998 from the Texas Higher Education Coordinating Board, the School of Rural Public Health welcomed its inaugural class in September 1998.

In 2014, the School of Public Health welcomed its first students into the brand-new Bachelor of Science in Public Health program, the first program of its kind in the state affiliated with a fully accredited School of Public Health. With a mission to serve the public health needs of the entire state, the undergraduate program is based on a philosophy of health promotion and disease prevention to improve the quality of life of

individuals, families, and communities in the State of Texas and beyond. Graduates of the BSPH program will be able to assess factors influencing health in populations as well as plan, design, implement and successfully manage effective healthcare programs and interventions as well as be well-positioned for careers in medicine, nursing and other allied health professions.

School of Public Health - Undergraduate Advising Office
153 Reynolds Medical Sciences Building
College Station, TX 77843
(979) 436-9463
<https://public-health.tamu.edu> (<http://sph.tamhsc.edu/phs/>)

Faculty

Abdellatif, Hoda, Clinical Associate Professor
Public Health Sciences
BDS, University of Alexandria, Egypt, 1979
DrPH, University of Michigan, 1987

Aborahma, Dana, Clinical Faculty
Public Health Sciences
DDS, Texas A&M University College of Dentistry, 2021

Aguilar, Kaysey N, Instructional Assistant Professor
Environmental & Occptnl Hlth
DrPH, Texas A&M University, 2022

Ahenda, Petronella, Instructional Assistant Professor
Epidemiology & Biostatistics
DrPH, Texas A&M University, 2024

Ajayi, Kobi Vanessa, Research Assistant Professor
Health Behavior
PHD, Texas A&M University, 2023

Alexander, Adam, Instructional Professor
Health Policy & Management
EDD, University of Louisiana at Monroe, 2015
DMD, University of Mississippi Medical Center, 2014

Allgood, Kristi, Assistant Professor
Epidemiology & Biostatistics
PHD, University of Michigan School of Public Health, 2021

Andreasen, Liana Vrajitoru, Visiting Lecturer
Health Behavior
PHD, Binghamton University, 2004

Andreyeva, Elena, Assistant Professor
Health Policy & Management
PHD, Georgia State University, 2016

Baetge, Claire C, Instructional Assistant Professor
Health Behavior
PHD, Texas A&M University, 2014

Baletka, Dawn Marie, Visiting Lecturer
Health Behavior
PHD, Sam Houston State University, 2006

Barbier, Robert, Visiting Associate Professor of the Practice
Health Policy & Management
MBA, University of Houston, 2023

Barry, Adam, Professor
Health Behavior
PHD, Texas A&M University, 2007

Benden, Mark E, Professor
Environmental & Occptnl Hlth
PHD, Texas A&M University, 2006

Blackburn, Christine Crudo, Assistant Professor
Health Policy & Management
PHD, Washington State University, 2015

Blake, Jamilia J, Professor
Health Behavior
PHD, University of Georgia, 2007

Bolick, Barbara Jean, Instructor
Health Behavior
BA, The University of Texas at Austin, 1994

Boyce, Matt, Assistant Professor
Health Policy & Management
PHD, Georgetown University, 2024

Brinkmeyer-Langford, Candice L, Associate Professor
Environmental & Occptnl Hlth
PHD, Texas A&M University, 2006

Buckley, John J, Professor of the Practice
Health Policy & Management
MBA, George Washington University, 1969

Burdine, James N, Professor
Health Behavior
DrPH, University of North Carolina at Chapel Hill, 1979

Butkus, Shannon E, Adjunct Assistant Professor
Health Policy & Management
PHD, Texas A&M University, 2018

Carrillo, Genny, Professor
Environmental & Occptnl Hlth
PHD, Tulane University, 1993

Chen, Lei-Shih, Professor
Health Behavior
PHD, Texas A&M University, 2007

Chiang, Shawn, Assistant Professor
Health Behavior
MPH, George Washington University, 2017

Cizmas, Leslie H, Instructional Associate Professor
Environmental & Occptnl Hlth
PHD, Texas A&M University, 2003

Clark, Heather R, Assistant Professor of the Practice
Health Behavior
DrPH, Texas A&M University, 2014

Clendenin, Angela G, Instructional Associate Professor
Epidemiology & Biostatistics
PHD, Texas A&M University, 2017

Cobb, Cory, Assistant Professor
Health Behavior
PHD, University of Central Arkansas, 2019

Colwell, Brian, Professor
Health Behavior
PHD, Indiana University at Bloomington, 1992

Costa, Michael George, Adjunct Assistant Professor
Health Policy & Management
MA, University of Cincinnati, 2021

Cote, Murray J, Associate Professor
Health Policy & Management
PHD, Texas A&M University, 1996

Cuevas, Carolyn, Adjunct Assistant Professor
Health Policy & Management
PHD, Texas A&M University, 2021

Deleon, Joy Yong Barros, Instructional Assistant Professor
Health Behavior
PHD, University of Alabama - Birmingham, 2017

Dixon, Benika, Assistant Professor
Epidemiology & Biostatistics
DrPH, Texas A&M University, 2020

Douphrate, David, Associate Professor
Environmental & Occptnl Hlth
PHD, Colorado State University, 2008

Erickson, Timothy, Assistant Professor
Epidemiology & Biostatistics
PHD, University of Texas Health Science Center, 2019

Fehr, Sara K, Instructional Associate Professor
Health Behavior
PHD, University of Cincinnati, 2015

Ferdinand, Alva O, Associate Professor
Health Policy & Management
PHD, University of Alabama Birmingham, 2013

Fischer, Rebecca SB, Associate Professor
Epidemiology & Biostatistics
PHD, The University of Texas, 2014

Flores, Krystal, Instructional Associate Professor
Health Behavior
DrPH, Texas A&M University, 2019

Ford, Eric W, Adjunct Professor
Health Policy & Management
PHD, University of Alabama at Birmingham, 2000

Fulton, Sam, Visiting Professor of the Practice
Health Policy & Management
MBA, Sam Houston State University, 2012

Garney, Whitney R, Associate Professor
Health Behavior
PHD, Texas A&M University, 2015

Gibbs, Shawn Glen, Professor
Environmental & Occptnl Hlth
PHD, University of Cincinnati, 2002

Gilreath, Tamika D, Professor
Health Behavior
PHD, The Pennsylvania State University, 2007

Golla, Vijay, Associate Professor
Environmental & Occptnl Hlth
PHD, The University of Iowa, 2007

Gorman, Dennis M, Professor
Epidemiology & Biostatistics
PHD, University of Essex, 1988

Griffith, Jennifer M, Instructional Professor
Health Policy & Management
DrPH, University of North Carolina at Chapel Hill, 2004

Haeder, Simon, Associate Professor
Health Policy & Management
PHD, University of Wisconsin-Madison, 2022

Han, Daikwon, Associate Professor
Epidemiology & Biostatistics
PHD, University of Buffalo, 2003

Han, Gang, Professor
Epidemiology & Biostatistics
PHD, The Ohio State University, 2008

Hanik, Bruce W, Instructional Associate Professor
Health Behavior
PHD, Texas A&M University, 2011

Hong, Liang, Professor
Public Health Sciences
DDS, University of Tennessee, 2015
PHD, University of Iowa, 2004

Howell, Kristen Elaine, Assistant Professor
Epidemiology & Biostatistics
PHD, University of Memphis School of Public Health, 2021

Huber, John C, Visiting Lecturer
Health Policy & Management
PHD, University of Texas, HSC, 2004

Jennings, Jason, Visiting Associate Professor of the Practice
Health Policy & Management
MBA, University of Texas at Tyler, 2003

Ji, Qian, Instructional Assistant Professor
Health Behavior
PHD, Texas A&M University, 2021

Johnson, Dennis P, Professor of the Practice
Environmental & Occptnl Hlth
MPH, University of Oklahoma Health Science Center, 1979

Johnson, Natalie M, Associate Professor
Environmental & Occptnl Hlth
PHD, Texas A&M University, 2010

Kalbasi, Shaida, Instructional Associate Professor
Epidemiology & Biostatistics
PHD, Texas A&M University, 2015

Kim, Jay, Associate Professor
Environmental & Occptnl Hlth
PHD, University of Washington, 2012

Kim, Junhyoung, Associate Professor
Health Behavior
PHD, The Pennsylvania State University, 2012

Kirkland, Stephanie, Instructional Assistant Professor
Health Policy & Management
PHD, University of Alabama at Birmingham, 2022

Kum, Hye Chung, Professor
Health Policy & Management
PHD, University of North Carolina at Chapel Hill, 2004

Le, Aurora, Associate Professor
Health Behavior
PHD, Indiana University School of Public Health-Bloomington, 2020

Lee, Jungjoo, Assistant Professor
Epidemiology & Biostatistics
PHD, University of Texas Health Science Center at Houston, 2025

Lee, Jungjoo, Assistant Professor
Environmental & Occptnl Hlth
PHD, Indiana University at Bloomington, 2023

Lin, Sherry, Instructional Associate Professor
Health Policy & Management
PHD, Texas A&M University, 2015

Linde, Sebastian, Associate Professor
Health Policy & Management
PHD, Purdue University, 2017

Lockman, Alee, Assistant Professor
Health Policy & Management
PHD, Harvard University, 2023

Ma, Ping, Associate Professor
Health Behavior
PHD, Tulane University School of Public Health and Tropical Medicine, 2013

Maddock, Jay E, Professor
Environmental & Occptnl Hlth
PHD, University of Rhode Island, 1999

Marthey, Daniel, Assistant Professor
Health Policy & Management
PHD, University of Maryland, 2022

McDonald, Thomas J, Professor
Environmental & Occptnl Hlth
PHD, Texas A&M University, 1988

McNeill, Elisa H, Instructional Professor
Health Behavior
PHD, Texas A&M University, 2010

Miller, Thomas Ray, Adjunct Assistant Professor
Health Policy & Management
PHD, The University of Iowa, 2007

Moats, Jason B, Professor of the Practice
Health Policy & Management
PHD, Texas A&M University, 2013

Montemayor, Benjamin Neil, Assistant Professor
Health Behavior
PHD, University of Kentucky, 2020

Noureldin, Amal Ahmed K, Professor
Public Health Sciences
BDS, Cairo University, Egypt, 1993
PHD, Cairo University, Egypt, 2007

Obeidat, Raghad, Clinical Assistant Professor
Public Health Sciences
BDS, Jordan University of Science and Technology Faculty of Dentistry,
2008

Ohsfeldt, Robert L, Professor
Health Policy & Management
PHD, University of Houston, 1983

Ory, Marcia G, Professor
Environmental & Occptnl Hlth
PHD, Purdue University, 1976

Owens, Christopher R, Assistant Professor
Health Behavior
PHD, Indiana University-Bloomington, 2020

Patel, Simmi, Clinical Associate Professor
Public Health Sciences
DDS, University of Texas Health Science Center at San Antonio, 2001

Patino, Isabella, Instructional Assistant Professor
Health Behavior
MPH, Texas A&M University, 2020

Patterson, Meg Stiefel, Associate Professor
Health Behavior
PHD, Texas A&M University, 2016

Pickens, Adam W, Instructional Associate Professor
Environmental & Occptnl Hlth
PHD, Texas Tech University, 2008

Prochnow, Tyler, Assistant Professor
Health Behavior
PHD, Baylor University, 2021

Radcliff, Tiffany A, Professor
Health Policy & Management
PHD, School of Public Health University of Minnesota, 2000

Rahn, Rhonda N, Instructional Professor
Health Behavior
PHD, Texas A&M University, 2014

Regan, Annette Karna, Adjunct Assistant Professor
Epidemiology & Biostatistics
PHD, University of Western Australia, 2016

Rhee, Joohyun, Instructional Assistant Professor
Environmental & Occptnl Hlth
PHD, Texas A&M University, 2015

Robinson, Phillip, Professor of the Practice
Health Policy & Management
MHA, Washington University School of Medicine, 1980

Robison, Zach, Lecturer
Health Policy & Management
MBA, University of Colorado, 2018

Rochford, Hannah Irene, Assistant Professor
Health Policy & Management
PHD, The University of Iowa, 2023

Rodriguez, Anabel, Assistant Professor
Environmental & Occptnl Hlth
PHD, University of Texas Health Science Center at Houston, 2019

Roh, Taehyun, Assistant Professor
Epidemiology & Biostatistics
PHD, University of Iowa, 2016

Roque, Maria Teresa, Instructional Assistant Professor
Health Behavior
PHD, Texas A&M University, 2024

Sansom, Garrett T, Assistant Professor
Environmental & Occptnl Hlth
DrPH, Texas A&M University, 2016

Sansom, Lindsay C, Research Assistant Professor
Environmental & Occptnl Hlth
PHD, Texas A&M University, 2018

Schmit, Cason D, Associate Professor
Health Policy & Management
JD, Arizona State University, 2012

Sexton, Taylor, Visiting Lecturer
Health Policy & Management
MPH, University of North Texas Health Science Center, 2021

Shaltout, Mahmoud, Instructional Associate Professor
Epidemiology & Biostatistics
PHD, University of Salford, 2015

Sherman, Ledric D, Associate Professor
Health Behavior
PHD, Texas A&M University, 2013

Smith, Matthew L, Professor
Health Behavior
PHD, Texas A&M University, 2008

Stasi, Selina M, Instructional Assistant Professor
Health Behavior
PHD, Texas A&M University, 2018

Tarwater, Patrick, Professor
Epidemiology & Biostatistics
PHD, The University of Texas Health Science Center, 1999

Taylor, Loni, Assistant Professor
Epidemiology & Biostatistics
DVM, University of Missouri, 2008

Timothe, Peggy, Associate Professor
Public Health Sciences
DDS, New York University, 1994

Ukert, Benjamin, Assistant Professor
Health Policy & Management
PHD, Georgia State University, 2016

Williams, Megan Katelyn, Instructional Assistant Professor
Health Behavior
MPH, East Carolina University, 2020

Xu, Xiaohui, Professor
Epidemiology & Biostatistics
PHD, University of Pittsburgh, 2007

Yudkin, Joshua, Assistant Professor
Health Behavior
PHD, University of Texas School of Public Health, 2023

Zhang, Bangning, Instructional Assistant Professor
Epidemiology & Biostatistics
PHD, Texas A&M University, College Station, 2023

Zheng, Qi, Professor
Epidemiology & Biostatistics
PHD, Texas A&M University, 1993

Majors

School of Public Health

- Bachelor of Science in Public Health, Internship Track (p. 781)
- Bachelor of Science in Public Health, Non-Internship Track (p. 783)
- Bachelor of Science in Public Health and Master of Public Health in Epidemiology, 5-Year Degree Program (p. 786)
- Bachelor of Science in Public Health and Master of Public Health in Health Policy and Management, 5-Year Degree Program (p. 789)
- Bachelor of Science in Public Health and Master of Public Health in Health Behavior, 5-Year Degree Program (p. 792)
- Bachelor of Science in Public Health and Master of Public Health in Occupational Health and Safety, 5-Year Degree Program (p. 795)

Minors

School of Public Health

- Health Behavior Minor (p. 798)
- Occupational Safety and Health Minor (p. 799)
- Public Health Studies Minor (p. 799)

Masters

School of Public Health

- Master of Health Administration in Health Administration (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/public-health/interdepartmental/health-administration-mha/>)

Department of Environmental and Occupational Health

- Master of Public Health in Environmental Health (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/public-health/environmental-occupational-health/environmental-health-mp/>)
- Master of Public Health in Occupational Safety and Health (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/public-health/environmental-occupational-health/occupational-safety-health-mp/>)

Department of Epidemiology and Biostatistics

- Master of Public Health in Biostatistics (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/public-health/epidemiology-biostatistics/biostatistics-mp/>)
- Master of Public Health in Epidemiology (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/public-health/epidemiology-biostatistics/epidemiology-mp/>)

Department of Health Behavior

- Master of International Affairs and Master of Public Health (HBEH) Combined Degree Program (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/government-public-service/international-affairs/combined-inta-hbeh/>)
- Master of Public Health in Health Behavior (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/public-health/health-behavior/mph/>)

Department of Health Policy and Management

- Master of International Affairs and Master of Public Health (PHPM) Combined Degree Program (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/government-public-service/international-affairs/combined-inta-phpm/>)
- Master of Public Health in Health Policy and Management (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/public-health/health-policy-management/mph/>)
- Master of Public Health in Health Policy and Management (PHPM) and Juris Doctor (JDLW) Combined Degree Program (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/public-health/health-policy-management/combination-mp-hj/>)
- Master of Science in Public Health in Health Policy and Management (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/public-health/health-policy-management/msph/>)

Doctoral

School of Public Health

- Doctor of Public Health in Public Health Sciences (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/public-health/interdepartmental/public-health-sciences-drph/>)

Department of Health Policy and Management

- Doctor of Philosophy in Health Services Research (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/public-health/health-policy-management/health-services-research-phd/>)
- Master of Public Service and Administration (PSAA) and Doctor of Philosophy (HRSA) Combined Degree Program (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/government-public-service/public-service-administration/psaa-hrsa/>)

Health Education Programs

- Doctor of Philosophy in Health Education (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/public-health/health-education-programs/health-education-phd/>)

Public Health - BS, Internship Track

This program provides students with hands-on job experience while developing a program they envision for themselves in health education.

Public Health professionals with a Bachelor of Science in Public Health-Internship Track (BS-PHLT-PHI) are prepared to:

- understand the context and impact of public health history and ethics on the nation's health.
- determine the scope and influential factors for public health challenges and how they impact individuals and communities.
- assess community and public health needs and develop strategies to positively impact quality of health.
- communicate to individuals, communities, and other stakeholders about public health challenges and opportunities with cultural competence.
- function in a variety of government and private health agencies, clinical settings, nonprofit organizations, volunteer agencies, and other community organizations as a public health advocate.

The Bachelor of Science (BS) in Public Health program is based on a philosophy of health promotion and disease prevention, to improve the quality of life of individuals, families and communities through education and program intervention. The BS in Public Health focuses on four areas:

1. the determinants of health, including biological, environmental, sociocultural, health service, and economic factors;
2. identification of scientific data, tools of informatics, and other information for identifying factors that both foster and hinder the health and well-being of individuals and communities;
3. addressing major local, state, national, and global health challenges; and
4. designing public health approaches and interventions that improve health outcomes, population health, and well-being.

The BS in Public Health-Internship Track is unique in that it offers a wide range of approved electives permitting the student to develop a program according to the student's needs and interests. A student can complement or enrich a pre-health professions degree plan for students intending further education in nursing, occupational therapy, and some additional health professions.

The BS in Public Health-Internship Track is more than a means to produce ready public health practitioners. The curriculum for the BS-PHLT-PHI

exposes a student to pre-professional training through a non-paid, full semester internship during the final semester. This experience provides the student with on-the-job training and employment opportunities. This internship track places students in a setting which best fits their professional goals.

The Internship Track is not available for students wanting to pursue a BS in Public Health combination program.

The coursework for this program will qualify students to sit for the Certified Health Education Specialist (CHES (<https://www.nchec.org/ches/>)) exam and the Certified in Public Health (CPH (<https://www.nbphe.org/>)) exams.

Program Requirements

First Year

Fall		Semester Credit Hours
BIOL 111	Introductory Biology I	4
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
Select one of the following:		3
MATH 140	Mathematics for Business and Social Sciences	
MATH 142	Business Calculus	
MATH 147	Calculus I for Biological Sciences	
MATH 148	Calculus II for Biological Sciences	
MATH 151	Engineering Mathematics I	
MATH 152	Engineering Mathematics II	
MATH 168	Finite Mathematics	
MATH 171	Calculus I	
MATH 172	Calculus II	
PHIL 240	Introduction to Logic	
STAT 201	Elementary Statistical Inference	
Social and behavioral sciences (p. 31)		3
Semester Credit Hours		13

Spring

BIOL 112	Introductory Biology II	4
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	

Select one of the following:	3
MATH 140 Mathematics for Business and Social Sciences	
MATH 142 Business Calculus	
MATH 147 Calculus I for Biological Sciences	
MATH 148 Calculus II for Biological Sciences	
MATH 151 Engineering Mathematics I	
MATH 152 Engineering Mathematics II	
MATH 168 Finite Mathematics	
MATH 171 Calculus I	
MATH 172 Calculus II	
PHIL 240 Introduction to Logic	
STAT 201 Elementary Statistical Inference	
Creative arts (p. 30)	3
General electives ²	3
Semester Credit Hours	16

Second Year**Fall**

CHEM 119 Fundamentals of Chemistry I	4
POLS 206 American National Government	3
American history (p. 30)	3
General electives ²	6
Semester Credit Hours	16

Spring

POLS 207 State and Local Government	3
American history (p. 30)	3
Language, philosophy and culture (p. 28)	3
General electives ²	6
Semester Credit Hours	15

Third Year**Fall**

PHLT 302 Foundations of Public Health ³	3
PHLT 303 Social Context of Population Health ³	3
PHLT 304 Biological Basis of Public Health Diseases & Disorders ³	3
PHLT 310 Public Health Writing ³	1
PHLT 313 Health Care and Public Health System ³	3
PHLT 316 Public Health Data Management and Assessment ³	3
Semester Credit Hours	16

Spring

PHLT 305 Epidemiology in Public Health ³	3
PHLT 311 Narrative Approach to Public Health ³	1
PHLT 322 Concepts in Health Education ³	3
PHLT 336 Health Disparities and Diversity in Society ³	3
PHLT 412 Health Advocacy and Policy ³	3
Directed electives ^{3,4}	3
Semester Credit Hours	16

Fourth Year**Fall**

PHLT 330 The Environment and Public Health ³	3
PHLT 307 Public Health in the Global Context ³	3

PHLT 410 Public Health Communication ³	3
PHLT 420/HLTH 415 Health Education Methodology ³	3
PHLT 425/HLTH 425 Health Program Evaluation ³	3
PHLT 481 Seminar ³	1
Semester Credit Hours	16
Spring	
PHLT 484 Internship ³	12
Semester Credit Hours	12
Total Semester Credit Hours	120

¹ Cannot use both ENGL 103 and ENGL 104.

² Chosen in consultation with BSPH academic advisor.

³ Must make a grade of C or better.

⁴ A list of approved courses that fulfill the directed elective hours is available below. Courses that constitute the major are those offered by the School of Public Health and those approved for public health studies electives. Additional courses may be available. Students must check with their academic advisor.

Directed Electives

Public Health (PHLT) directed electives are courses that are specifically approved for the curriculum. A student must select 3 semester credit hours from the following list of approved courses in consultation with their academic advisor. Directed Electives must have a letter grade of C or better.

Code	Title	Semester Credit Hours
ACCT 209	Survey of Accounting Principles	3
BESC 314	Pathogens, the Environment and Society	3
BESC 401	Bioenvironmental Microbiology	3
BICH 303	Elements of Biological Chemistry	3
BICH 410	Comprehensive Biochemistry I	3
BICH 411	Comprehensive Biochemistry II	3
BICH 412	Biochemistry Laboratory I	1
BIOL 206	Introductory Microbiology	4
BIOL 319	Integrated Human Anatomy and Physiology I	4
BIOL 320	Integrated Human Anatomy and Physiology II	4
BIOL 351	Fundamentals of Microbiology	4
CHEM 120	Fundamentals of Chemistry II	4
CHEM 227	Organic Chemistry I	3
CHEM 228	Organic Chemistry II	3
CHEM 237	Organic Chemistry Laboratory	1
CHEM 238	Organic Chemistry Laboratory	1
ENTO 210	Global Public Health Entomology	3
ENTO 423	Medical Entomology	2
ENTO 427	Medical Entomology Laboratory	1
ENTO 431/FIVS 431	The Science of Forensic Entomology	3

ENTO 432/ FIVS 432	Applied Forensic Entomology	1	PHLT 413	Public Health Informatics	3
FINC 409	Survey of Finance Principles	3	PHLT 414	Applications of Epidemiology in Public Health	3
GENE 301	Comprehensive Genetics	3	PHLT 415	Emergency Management in Public Health	3
GENE 302	Principles of Genetics	3	PHLT 416	Public Health Leadership and Ethics	3
GENE 310	Principles of Heredity	3	PHLT 426/ MKTG 443	The Business of Healthcare	3
GENE 312	Comprehensive Genetics Laboratory	1	PHLT 432	Human Factors and Ergonomic Health and Safety	3
GENE 314	Principles of Genetics Laboratory	1	PHLT 433	Industrial Inspections and Audit Techniques	3
GENE 320/ BIMS 320	Biomedical Genetics	3	PHLT 434	Project Cost Benefit and Economics	3
HLTH 210	Introduction to the Discipline	3	PHLT 436	Infectious Disease in the Developing World: Risks, Challenges, and Solutions	3
HLTH 221	Safety	3	PHLT 470	Global Public Health Systems and Practice Experiences	1-3
HLTH 231	Healthy Lifestyles	3	PHLT 485	Directed Studies	1-4
HLTH 240	Computer Technology in Health and Kinesiology	3	PHLT 489	Special Topics In...	1-4
HLTH 331	Community Health	3	PHLT 491	Research	0-4
HLTH 334	Women's Health	3	PHYS 201	College Physics	4
HLTH 335	Human Diseases	3	PHYS 202	College Physics	4
HLTH 342/ PHLT 342	Human Sexuality	3	STAT 301	Introduction to Biometry	3
HLTH 353/ PHLT 353	Drugs and Society	3	STAT 302	Statistical Methods	3
HLTH 354/ PHLT 354	Medical Terminology for the Health Professions	3	STAT 303	Statistical Methods	3
HLTH 403/ PHLT 403	Consumer Health	3	URPN 370	Health Systems Planning	3
HLTH 405/ PHLT 405	Rural Health	3	URPN 371	Environmental Health Planning and Policy	3
HLTH 410	Worksite Health Promotion	3	VIBS 407/ NRSC 407	Core Ideas in Neuroscience	2
HLTH 429	Environmental Health	3	VTPB 221	Great Diseases of the World	3
HLTH 481	Seminar in Allied Health	1	VTPB 409	Introduction to Immunology	3
HLTH 482	Grant Writing in Health	1	VTPP 425	Pharmacology	3
NUTR 202	Fundamentals of Human Nutrition	3	Approval of degree plan does not guarantee access to courses. Students must satisfy prerequisites, and some course (writing intensive classes included) are available to majors only. It is the responsibility of the student to ascertain whether there are any restrictions or prerequisites for courses in their degree plan.		
NUTR 222	Nutrition for Health and Health Care	3			
NUTR 320/ FSTC 320	Understanding Obesity - A Social and Scientific Challenge	3			
PBSI 225	Lifespan Development	3	Public Health - BS, Non-Internship Track		
PBSI 235	Introduction to Behavioral and Cognitive Neuroscience	3			
PBSI 306	Psychological Disorders	3			
PBSI 307	Developmental Psychology	3	This program provides students with a traditionally based approach that serves as a foundation for further education in professional programs.		
PHIL 111	Contemporary Moral Issues	3			
PHIL 251	Introduction to Philosophy	3			
PHIL 480	Medical Ethics	3	Public Health professionals with a Bachelor of Science in Public Health-Non-Internship Track (BS-PHLT-PHN) are prepared to:		
PHLT 301	Public Health Concepts	1			
PHLT 306	Border Health	3			
PHLT 308	Comparative Global Health Systems	3	- understand the context and impact of public health history and ethics on the nation's health. - determine the scope and influential factors for public health challenges and how they impact individuals and communities. - assess community health needs and develop strategies to positively impact quality of health.		
PHLT 331	Occupational Safety and Health I	3			
PHLT 332	Occupational Safety and Health II	3			
PHLT 333	Accident Investigation	3			
PHLT 334	Fire Safety and Workplace Hazards	3			
PHLT 335	Hazardous Materials	3			
PHLT 370	Broad Street Learning Community II	3			

- communicate to individuals, communities, and other stakeholders about public health challenges and opportunities with cultural competence.
- function in a variety of government and private health agencies, clinical settings, nonprofit organizations, volunteer agencies, and other community organizations as a public health advocate.

The Bachelor of Science (BS) in Public Health program is based on a philosophy of health promotion and disease prevention, to improve the quality of life of individuals, families and communities through education and program intervention. The BS in Public Health focuses on four areas:

1. the determinants of health, including biological, environmental, sociocultural, health service, and economic factors;
2. identification of scientific data, tools of informatics, and other information for identifying factors that both foster and hinder the health and well-being of individuals and communities;
3. addressing major local, state, national, and global health challenges; and
4. designing public health approaches and interventions that improve health outcomes, population health, and well-being.

The Bachelor of Science in Public Health-Non-Internship Track is more than a means to produce ready public health practitioners. The curriculum for the BS-PHLT-PHN can complement or enrich a traditional biology-based pre-health professions degree plan for students intending further education in medicine, nursing, occupational therapy, physician's assistant, physical therapist, and other allied health professions.

The Bachelor of Science in Public Health-Non-Internship Track is approved to be offered at the Texas A&M Higher Education Center in McAllen, Texas.

The coursework for this program will qualify students to be able to sit for the Certified Health Education Specialist (CHES (<https://www.nchec.org/ches/>)) exam and the Certified in Public Health (CPH (<https://www.nbphe.org/>)) exams.

Program Requirements

First Year

Fall		Semester Credit Hours
BIOL 111	Introductory Biology I	4
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
Select one of the following:		3
MATH 140	Mathematics for Business and Social Sciences	
MATH 142	Business Calculus	
MATH 147	Calculus I for Biological Sciences	
MATH 148	Calculus II for Biological Sciences	

MATH 151	Engineering Mathematics I	
MATH 152	Engineering Mathematics II	
MATH 168	Finite Mathematics	
MATH 171	Calculus I	
MATH 172	Calculus II	
PHIL 240	Introduction to Logic	
STAT 201	Elementary Statistical Inference	
Social and behavioral sciences (p. 31)		3
Semester Credit Hours		13
Spring		
BIOL 112	Introductory Biology II	4
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
Select one of the following:		3
MATH 140	Mathematics for Business and Social Sciences	
MATH 142	Business Calculus	
MATH 147	Calculus I for Biological Sciences	
MATH 148	Calculus II for Biological Sciences	
MATH 151	Engineering Mathematics I	
MATH 152	Engineering Mathematics II	
MATH 168	Finite Mathematics	
MATH 171	Calculus I	
MATH 172	Calculus II	
PHIL 240	Introduction to Logic	
STAT 201	Elementary Statistical Inference	
Creative arts (p. 30)		3
Semester Credit Hours		13
Second Year		
Fall		
CHEM 119	Fundamentals of Chemistry I	4
POLS 206	American National Government	3
American history (p. 30)		3
General electives ²		6
Semester Credit Hours		16
Spring		
POLS 207	State and Local Government	3
American history (p. 30)		3
Language, philosophy and culture (p. 28)		3
General electives ²		6
Semester Credit Hours		15
Third Year		
Fall		
PHLT 302	Foundations of Public Health ³	3
PHLT 303	Social Context of Population Health ³	3

PHLT 304	Biological Basis of Public Health Diseases & Disorders ³	3
PHLT 310	Public Health Writing ³	1
PHLT 313	Health Care and Public Health System ³	3
PHLT 316	Public Health Data Management and Assessment ³	3
Semester Credit Hours		16
Spring		
PHLT 305	Epidemiology in Public Health ³	3
PHLT 311	Narrative Approach to Public Health ³	1
PHLT 336	Health Disparities and Diversity in Society ³	3
PHLT 411	Project Management in Public Health ³	3
PHLT 412	Health Advocacy and Policy ³	3
Directed electives ^{3,4}		3
Semester Credit Hours		16
Fourth Year		
Fall		
PHLT 330	The Environment and Public Health ³	3
PHLT 410	Public Health Communication ³	3
PHLT 441	Strategies for Population Health Improvement ³	3
Directed electives ^{3,4}		6
Semester Credit Hours		15
Spring		
PHLT 307	Public Health in the Global Context ³	3
PHLT 445	Applications of Public Health ³	3
PHLT 481	Seminar ³	1
Directed electives ^{3,4}		9
Semester Credit Hours		16
Total Semester Credit Hours		120

¹ Cannot use both ENGL 103 and ENGL 104.

² Chosen in consultation with BSPH academic advisor.

³ Must make a grade of C or better.

⁴ A list of approved courses that fulfill the directed elective hours is available below. Courses that constitute the major are those offered by the School of Public Health and those approved for public health studies electives. Additional courses may be available. Students must check with their academic advisor.

Directed Electives

Public Health (PHLT) directed electives are courses that are specifically approved for the curriculum. A student must select 18 semester credit hours from the following list of approved courses in consultation with their academic advisor. Directed Electives must have a letter grade of C or better.

Code	Title	Semester Credit Hours
ACCT 209	Survey of Accounting Principles	3
BESC 314	Pathogens, the Environment and Society	3
BESC 401	Bioenvironmental Microbiology	3
BICH 303	Elements of Biological Chemistry	3

BICH 410	Comprehensive Biochemistry I	3
BICH 411	Comprehensive Biochemistry II	3
BICH 412	Biochemistry Laboratory I	1
BIOL 206	Introductory Microbiology	4
BIOL 319	Integrated Human Anatomy and Physiology I	4
BIOL 320	Integrated Human Anatomy and Physiology II	4
BIOL 351	Fundamentals of Microbiology	4
CHEM 120	Fundamentals of Chemistry II	4
CHEM 227	Organic Chemistry I	3
CHEM 228	Organic Chemistry II	3
CHEM 237	Organic Chemistry Laboratory	1
CHEM 238	Organic Chemistry Laboratory	1
ENTO 210	Global Public Health Entomology	3
ENTO 423	Medical Entomology	2
ENTO 427	Medical Entomology Laboratory	1
ENTO 431/ FIVS 431	The Science of Forensic Entomology	3
ENTO 432/ FIVS 432	Applied Forensic Entomology	1
FINC 409	Survey of Finance Principles	3
GENE 301	Comprehensive Genetics	3
GENE 302	Principles of Genetics	3
GENE 310	Principles of Heredity	3
GENE 312	Comprehensive Genetics Laboratory	1
GENE 314	Principles of Genetics Laboratory	1
GENE 320/ BIMS 320	Biomedical Genetics	3
HLTH 210	Introduction to the Discipline	3
HLTH 221	Safety	3
HLTH 231	Healthy Lifestyles	3
HLTH 240	Computer Technology in Health and Kinesiology	3
HLTH 331	Community Health	3
HLTH 334	Women's Health	3
HLTH 342/ PHLT 342	Human Sexuality	3
HLTH 335	Human Diseases	3
HLTH 353/ PHLT 353	Drugs and Society	3
HLTH 354/ PHLT 354	Medical Terminology for the Health Professions	3
HLTH 403/ PHLT 403	Consumer Health	3
HLTH 405/ PHLT 405	Rural Health	3
HLTH 410	Worksite Health Promotion	3
HLTH 429	Environmental Health	3
NUTR 202	Fundamentals of Human Nutrition	3
NUTR 222	Nutrition for Health and Health Care	3
NUTR 320/ FSTC 320	Understanding Obesity - A Social and Scientific Challenge	3

PBSI 225	Lifespan Development	3
PBSI 235	Introduction to Behavioral and Cognitive Neuroscience	3
PBSI 306	Psychological Disorders	3
PBSI 307	Developmental Psychology	3
PHIL 111	Contemporary Moral Issues	3
PHIL 251	Introduction to Philosophy	3
PHIL 480	Medical Ethics	3
PHLT 301	Public Health Concepts	1
PHLT 306	Border Health	3
PHLT 308	Comparative Global Health Systems	3
PHLT 331	Occupational Safety and Health I	3
PHLT 332	Occupational Safety and Health II	3
PHLT 333	Accident Investigation	3
PHLT 334	Fire Safety and Workplace Hazards	3
PHLT 335	Hazardous Materials	3
PHLT 370	Broad Street Learning Community II	3
PHLT 413	Public Health Informatics	3
PHLT 414	Applications of Epidemiology in Public Health	3
PHLT 415	Emergency Management in Public Health	3
PHLT 416	Public Health Leadership and Ethics	3
PHLT 426/ MKTG 443	The Business of Healthcare	3
PHLT 432	Human Factors and Ergonomic Health and Safety	3
PHLT 433	Industrial Inspections and Audit Techniques	3
PHLT 434	Project Cost Benefit and Economics	3
PHLT 436	Infectious Disease in the Developing World: Risks, Challenges, and Solutions	3
PHLT 470	Global Public Health Systems and Practice Experiences	1-3
PHLT 485	Directed Studies	1-4
PHLT 489	Special Topics In...	1-4
PHLT 491	Research	0-4
PHYS 201	College Physics	4
PHYS 202	College Physics	4
STAT 301	Introduction to Biometry	3
STAT 302	Statistical Methods	3
STAT 303	Statistical Methods	3
URPN 370	Health Systems Planning	3
URPN 371	Environmental Health Planning and Policy	3
VIBS 407/ NRSC 407	Core Ideas in Neuroscience	2
VTPB 221	Great Diseases of the World	3
VTPB 409	Introduction to Immunology	3
VTPP 425	Pharmacology	3

Approval of degree plan does not guarantee access to courses. Students must satisfy prerequisites, and some course (writing intensive classes included) are available to majors only. It is the responsibility of the

student to ascertain whether there are any restrictions or prerequisites for courses in their degree plan.

Public Health - 5-year Bachelor of Science and Master of Public Health in Epidemiology

This program delivers students with a well-rounded understanding of the role that Epidemiology and Public Health play in medicine, nursing, allied or other health professions.

The Bachelor of Science in Public Health and Master of Public Health in Epidemiology 5-year combined degree program is more than a means to produce next-level Epidemiologists. It will deliver graduates who immediately impact the field of Epidemiology.

The undergraduate component of the program is based on a philosophy of health promotion and disease prevention, to improve the quality of life of individuals, families and communities through education and program intervention. The BSPH discipline focuses on four areas:

- the determinants of health, including biological, environmental, sociocultural, health service, and economic factors,
- identification of scientific data, tools of informatics, and other information for identifying factors that both foster and hinder the health and well-being of individuals and communities,
- addressing major local, state, national, and global health challenges, and
- designing public health approaches and interventions that improve health outcomes, population health, and well-being.

The MPH in Epidemiology focuses on the distributions and determinants of disease (or health-related outcomes) among populations and the methods employed to describe them. Students leave the MPH in Epidemiology program with the ability to understand and develop evidence-based public health research, policy, and practice.

The MPH in Epidemiology prepares students to:

- Select epidemiologic methods that are appropriate to address epidemiologic content areas.
- Analyze strengths and limitations of study designs for providing evidence for causal associations.
- Apply appropriate advanced data analysis and management techniques to analyze epidemiologic data.
- Assess and compare different reporting formats to communicate epidemiologic data to a variety of audiences.
- Explain the role of epidemiology in developing, implementing, and evaluating health policy.

The graduate MPH component is a non-thesis degree program with culminating experiences as part of the degree requirements. Students will participate in a practicum demonstrating overall public health problem-solving skills and complete a rigorous capstone class.

The coursework for this program will qualify students to be able to sit for the Certified Health Education Specialist (CHES (<https://www.nchec.org/ches/>)) exam and the Certified in Public Health (CPH (<https://www.nbphe.org/>)) exams.

Program Requirements

The following is a suggested schedule that includes the required courses for the combination BS and MPH in Public Health-Epidemiology. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year

Fall		Semester Credit Hours
BIOL 111	Introductory Biology I	4
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
Select one of the following:		3
MATH 140	Mathematics for Business and Social Sciences	
MATH 142	Business Calculus	
MATH 147	Calculus I for Biological Sciences	
MATH 148	Calculus II for Biological Sciences	
MATH 151	Engineering Mathematics I	
MATH 152	Engineering Mathematics II	
MATH 168	Finite Mathematics	
MATH 171	Calculus I	
MATH 172	Calculus II	
PHIL 240	Introduction to Logic	
STAT 201	Elementary Statistical Inference	
Social and behavioral sciences (p. 31)		3
Semester Credit Hours		13
Spring		
BIOL 112	Introductory Biology II	4
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
Select one of the following:		3
MATH 140	Mathematics for Business and Social Sciences	
MATH 142	Business Calculus	
MATH 147	Calculus I for Biological Sciences	
MATH 148	Calculus II for Biological Sciences	

MATH 151	Engineering Mathematics I	
MATH 152	Engineering Mathematics II	
MATH 168	Finite Mathematics	
MATH 171	Calculus I	
MATH 172	Calculus II	
PHIL 240	Introduction to Logic	
STAT 201	Elementary Statistical Inference	
Creative arts (p. 30)		3
Semester Credit Hours		13
Second Year		
Fall		
CHEM 119	Fundamentals of Chemistry I	4
POLS 206	American National Government	3
American history (p. 30)		3
General electives ²		6
Semester Credit Hours		16
Spring		
POLS 207	State and Local Government	3
American history (p. 30)		3
Language, philosophy and culture (p. 28)		3
General electives ²		6
Semester Credit Hours		15
Third Year		
Fall		
PHLT 302	Foundations of Public Health ³	3
PHLT 303	Social Context of Population Health ³	3
PHLT 304	Biological Basis of Public Health Diseases & Disorders ³	3
PHLT 310	Public Health Writing ³	1
PHLT 313	Health Care and Public Health System ³	3
PHLT 316	Public Health Data Management and Assessment ³	3
Semester Credit Hours		16
Spring		
PHLT 305	Epidemiology in Public Health ³	3
PHLT 311	Narrative Approach to Public Health ³	1
PHLT 330	The Environment and Public Health ³	3
PHLT 411	Project Management in Public Health ³	3
PHLT 412	Health Advocacy and Policy ³	3
Directed electives ^{3,4}		3
Semester Credit Hours		16
Fourth Year		
Fall		
PHEB 602	Biostatistics I ³	3
PHLT 441	Strategies for Population Health Improvement ³	3
SOPH 601	Health Behavior ^{3,5}	3
SOPH 602	Health Policy and Management ^{3,5}	3
SOPH 603	Epidemiology ^{3,5}	3
Semester Credit Hours		15
Spring		
PHEB 603	Biostatistics II ³	3

PHEB 605	Epidemiologic Methods I ³	3
PHEB 612	Data Management / Computing ³	3
PHLT 410	Public Health Communication ³	3
PHLT 445	Applications of Public Health ³	3
PHLT 481	Seminar ³	1
Semester Credit Hours		16
Summer		
PHEB 684	Practicum ^{3,5}	3
Semester Credit Hours		3
Fifth Year		
Fall		
PHEB 609	Categorical Data Analysis ³	3
PHEB 610	Epidemiologic Methods II ³	3
PHEB 615-627 (https://catalog.tamu.edu/graduate/course-descriptions/pheb/) ³		3
PHLT 307	Public Health in the Global Context ³	3
PHLT 336	Health Disparities and Diversity in Society ³	3
PHEB elective ⁶		3
Semester Credit Hours		18
Spring		
PHEB 615-627 (https://catalog.tamu.edu/graduate/course-descriptions/pheb/) ³		3
SOPH 680	Public Health Capstone ^{3,5}	3
PHEB elective ⁶		3
Semester Credit Hours		9
Total Semester Credit Hours		150

¹ Cannot use both ENGL 103 and ENGL 104.

² Chosen in consultation with BSPH academic advisor.

³ Must make a grade of C or better.

⁴ A list of approved courses that fulfill the directed elective hours is available below. Courses that constitute the major are those offered by the School of Public Health and those approved for public health studies electives. Additional courses may be available. Students must check with their academic advisor.

⁵ These 15 hours will be used towards both the BS and MPH degree in Public Health

⁶ PHEB elective options includes courses from PHEB or other SPH departments may be taken. One elective must be a statistics course. For courses outside SPH, please get approval from the departmental advisor.

Directed Electives

Public Health (PHLT) directed electives are courses that are specifically approved for the curriculum. A student must select 3 semester credit hours from the following list of approved courses in consultation with their academic advisor. Directed Electives must have a letter grade of C or better.

Code	Title	Semester Credit Hours
ACCT 209	Survey of Accounting Principles	3
BESC 314	Pathogens, the Environment and Society	3
BESC 401	Bioenvironmental Microbiology	3

BICH 303	Elements of Biological Chemistry	3
BICH 410	Comprehensive Biochemistry I	3
BICH 411	Comprehensive Biochemistry II	3
BICH 412	Biochemistry Laboratory I	1
BIOL 206	Introductory Microbiology	4
BIOL 319	Integrated Human Anatomy and Physiology I	4
BIOL 320	Integrated Human Anatomy and Physiology II	4
BIOL 351	Fundamentals of Microbiology	4
CHEM 120	Fundamentals of Chemistry II	4
CHEM 227	Organic Chemistry I	3
CHEM 228	Organic Chemistry II	3
CHEM 237	Organic Chemistry Laboratory	1
CHEM 238	Organic Chemistry Laboratory	1
ENTO 210	Global Public Health Entomology	3
ENTO 423	Medical Entomology	2
ENTO 427	Medical Entomology Laboratory	1
ENTO 431/ FIVS 431	The Science of Forensic Entomology	3
ENTO 432/ FIVS 432	Applied Forensic Entomology	1
FINC 409	Survey of Finance Principles	3
GENE 301	Comprehensive Genetics	3
GENE 302	Principles of Genetics	3
GENE 310	Principles of Heredity	3
GENE 312	Comprehensive Genetics Laboratory	1
GENE 314	Principles of Genetics Laboratory	1
GENE 320/ BIMS 320	Biomedical Genetics	3
HLTH 210	Introduction to the Discipline	3
HLTH 221	Safety	3
HLTH 231	Healthy Lifestyles	3
HLTH 240	Computer Technology in Health and Kinesiology	3
HLTH 331	Community Health	3
HLTH 334	Women's Health	3
HLTH 342/ PHLT 342	Human Sexuality	3
HLTH 335	Human Diseases	3
HLTH 353/ PHLT 353	Drugs and Society	3
HLTH 354/ PHLT 354	Medical Terminology for the Health Professions	3
HLTH 403/ PHLT 403	Consumer Health	3
HLTH 405/ PHLT 405	Rural Health	3
HLTH 410	Worksite Health Promotion	3
HLTH 429	Environmental Health	3
NUTR 202	Fundamentals of Human Nutrition	3
NUTR 222	Nutrition for Health and Health Care	3

NUTR 320/ FSTC 320	Understanding Obesity - A Social and Scientific Challenge	3
PBSI 225	Lifespan Development	3
PBSI 235	Introduction to Behavioral and Cognitive Neuroscience	3
PBSI 306	Psychological Disorders	3
PBSI 307	Developmental Psychology	3
PHIL 111	Contemporary Moral Issues	3
PHIL 251	Introduction to Philosophy	3
PHIL 480	Medical Ethics	3
PHLT 301	Public Health Concepts	1
PHLT 306	Border Health	3
PHLT 308	Comparative Global Health Systems	3
PHLT 331	Occupational Safety and Health I	3
PHLT 332	Occupational Safety and Health II	3
PHLT 333	Accident Investigation	3
PHLT 334	Fire Safety and Workplace Hazards	3
PHLT 335	Hazardous Materials	3
PHLT 370	Broad Street Learning Community II	3
PHLT 413	Public Health Informatics	3
PHLT 414	Applications of Epidemiology in Public Health	3
PHLT 415	Emergency Management in Public Health	3
PHLT 416	Public Health Leadership and Ethics	3
PHLT 426/ MKTG 443	The Business of Healthcare	3
PHLT 432	Human Factors and Ergonomic Health and Safety	3
PHLT 433	Industrial Inspections and Audit Techniques	3
PHLT 434	Project Cost Benefit and Economics	3
PHLT 436	Infectious Disease in the Developing World: Risks, Challenges, and Solutions	3
PHLT 470	Global Public Health Systems and Practice Experiences	1-3
PHLT 485	Directed Studies	1-4
PHLT 489	Special Topics In...	1-4
PHLT 491	Research	0-4
PHYS 201	College Physics	4
PHYS 202	College Physics	4
STAT 301	Introduction to Biometry	3
STAT 302	Statistical Methods	3
STAT 303	Statistical Methods	3
URPN 370	Health Systems Planning	3
URPN 371	Environmental Health Planning and Policy	3
VIBS 407/ NRSC 407	Core Ideas in Neuroscience	2
VTPB 221	Great Diseases of the World	3
VTPB 409	Introduction to Immunology	3
VTPP 425	Pharmacology	3

The program includes a total of 165 hours which up to 15 hours may be applied toward both the Bachelor of Science in Public Health and the Master of Public Health in Epidemiology.

Approval of degree plan does not guarantee access to courses. Students must satisfy prerequisites, and some courses (writing intensive classes included) are available to majors only. It is the responsibility of the student to ascertain whether there are any restrictions or prerequisites for courses in their degree plan.

Public Health - 5-Year Bachelor of Science and Master of Public Health in Health Policy and Management

This program provides students with the ability to evaluate health programs, develop budgets, manage projects, propose policies, and communicate effectively on a national level.

The Bachelor of Science in Public Health and Master in Public Health in Health Policy and Management (HPM) 5-year combination program is an accelerated program to produce next-level HPM experts. It will deliver graduates who can not only immediately impact the delivery and administration of health care programs and policies nationwide, but also deliver individuals with a well-developed skill set to manage medicine, nursing, population health, and other health professions.

The undergraduate component of the program is based on a philosophy of workplace health promotion and proactive prevention of illness to improve the quality of life of individuals, employees, families and communities through education and program intervention. The BSPH focuses on four areas:

- the determinants of health, including biological, environmental, sociocultural, health service, and economic factors,
- identification of scientific data, tools of informatics, and other information for identifying factors that both foster and hinder the health and well-being of individuals and communities,
- with a well developed skill set to be policy analyst, policy makers, or to apply project management and strategic management tools for programs,
- addressing major local, state, national, and global health challenges, and
- designing public health approaches and interventions that improve health outcomes, population health, and well-being.

The Master of Public Health (MPH) is a multi-disciplinary professional degree program designed to provide graduate level practical training in areas of specialized public health practice. The MPH in Health Policy and Management provides the study of health policy topics and concerns and policy formation, development and evaluation strategies, coupled with key operational management tools and techniques. Classroom instruction is supplemented with opportunities to apply knowledge and practice-related skills in a professional setting. The MPH in Health Policy and Management prepares students to:

- Use policy and management tools to evaluate implications of specific programs, policies, and interventions on organizations and populations.
- Develop and justify budgets that support programs and organizations in the public health and health care sectors.

- Communicate evidence-based options to address public health management and policy problems.
- Apply project management and strategic management tools to create public health program goals, strategies, and objectives.
- Recommend and justify policies or organizational initiatives for implementation after examining their feasibility and implications.

The graduate MPH component is a non-thesis degree program with applied and culminating experiences as part of the degree requirements. Students will participate in a practicum demonstrating overall public health problem-solving skills and complete a rigorous capstone class.

The coursework for this program will qualify students to sit for the Certified Health Education Specialist (CHES (<https://www.nchec.org/ches/>)) exam and the Certified in Public Health (CPH (<https://www.nbphe.org/>)) exams.

Program Requirements

The following is a suggested schedule that includes the required courses for the combined BS/MPH in Public Health-Health Policy and Management. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year

Fall		Semester Credit Hours
BIOL 111	Introductory Biology I	4
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
Select one of the following:		3
MATH 140	Mathematics for Business and Social Sciences	
MATH 142	Business Calculus	
MATH 147	Calculus I for Biological Sciences	
MATH 148	Calculus II for Biological Sciences	
MATH 151	Engineering Mathematics I	
MATH 152	Engineering Mathematics II	
MATH 168	Finite Mathematics	
MATH 171	Calculus I	
MATH 172	Calculus II	
PHIL 240	Introduction to Logic	
STAT 201	Elementary Statistical Inference	
Social and behavioral sciences (p. 31)		3
Semester Credit Hours		13
Spring		
BIOL 112	Introductory Biology II	4
Select one of the following:		3

COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
Select one of the following:		3
MATH 140	Mathematics for Business and Social Sciences	
MATH 142	Business Calculus	
MATH 147	Calculus I for Biological Sciences	
MATH 148	Calculus II for Biological Sciences	
MATH 151	Engineering Mathematics I	
MATH 152	Engineering Mathematics II	
MATH 168	Finite Mathematics	
MATH 171	Calculus I	
MATH 172	Calculus II	
PHIL 240	Introduction to Logic	
STAT 201	Elementary Statistical Inference	
Creative arts (p.)		3
Semester Credit Hours		13

Second Year

Fall		
CHEM 119	Fundamentals of Chemistry I	4
POLS 206	American National Government	3
American history (p.)		3
General electives ²		6
Semester Credit Hours		16
Spring		
POLS 207	State and Local Government	3
American history (p.)		3
Language, philosophy and culture (p.)		3
General electives ²		6
Semester Credit Hours		15

Third Year

Fall		
PHLT 302	Foundations of Public Health ³	3
PHLT 303	Social Context of Population Health ³	3
PHLT 304	Biological Basis of Public Health Diseases & Disorders ³	3
PHLT 310	Public Health Writing ³	1
PHLT 313	Health Care and Public Health System ³	3
PHLT 316	Public Health Data Management and Assessment ³	3
Semester Credit Hours		16
Spring		
PHLT 305	Epidemiology in Public Health ³	3
PHLT 311	Narrative Approach to Public Health ³	1
PHLT 330	The Environment and Public Health ³	3
PHLT 410	Public Health Communication ³	3

PHLT 412	Health Advocacy and Policy ³	3
Semester Credit Hours		13

Fourth Year**Fall**

PHLT 411	Project Management in Public Health ³	3
PHPM 605	Introduction to Health Policy and Management ³	3
SOPH 601	Health Behavior ^{3,4}	3
SOPH 602	Health Policy and Management ^{3,4}	3
SOPH 603	Epidemiology ^{3,4}	3
Semester Credit Hours		15

Spring

PHLT 441	Strategies for Population Health Improvement ³	3
PHPM 614	Strategic Planning and Marketing ³	3
PHPM 623	Health Care Financial Management I ³	3
PHPM 625	Management Strategies and Principles for Public Health Organizations ³	3
PHPM 640	Health Policy and Politics ³	3
Semester Credit Hours		15

Summer

PHLT 307	Public Health in the Global Context ³	3
PHPM 684	Practicum ^{3,4}	3
Semester Credit Hours		6

Fifth Year**Fall**

PHLT 336	Health Disparities and Diversity in Society ³	3
PHLT 445	Applications of Public Health ³	3
PHLT 481	Seminar ³	1
PHPM 633	Health Law and Ethics ³	3
PHPM 661	Introduction to Health Economics ³	3
PHPM elective ⁵		3
Semester Credit Hours		16

Spring

SOPH 680	Public Health Capstone ^{3,4}	3
Directed electives ^{3,6}		3
PHPM elective ⁵		6
Semester Credit Hours		12
Total Semester Credit Hours		150

¹ Cannot use both ENGL 103 and ENGL 104.² Chosen in consultation with BSPH academic advisor. Select from any 100-499 course.³ Must make a grade of C or better.⁴ These 15 hours will be used towards both the BS and MPH degree in Public Health.⁵ PHPM elective options includes courses from PHPM or other SPH departments may be taken. For courses outside SPH, please get approval from the departmental advisor.⁶ A list of approved courses that fulfill the directed elective hours is available below. Courses that constitute the major are those offered by the School of Public Health and those approved for public health

studies electives. Additional courses may be available. Students must check with their academic advisor.

Directed Electives

Public Health (PHLT) directed electives are courses that are specifically approved for the curriculum. A student must select 3 semester credit hours from the following list of approved courses in consultation with their academic advisor. Directed Electives must have a letter grade of C or better.

Code	Title	Semester Credit Hours
ACCT 209	Survey of Accounting Principles	3
BESC 314	Pathogens, the Environment and Society	3
BESC 401	Bioenvironmental Microbiology	3
BICH 303	Elements of Biological Chemistry	3
BICH 410	Comprehensive Biochemistry I	3
BICH 411	Comprehensive Biochemistry II	3
BICH 412	Biochemistry Laboratory I	1
BIOL 206	Introductory Microbiology	4
BIOL 319	Integrated Human Anatomy and Physiology I	4
BIOL 320	Integrated Human Anatomy and Physiology II	4
BIOL 351	Fundamentals of Microbiology	4
CHEM 120	Fundamentals of Chemistry II	4
CHEM 227	Organic Chemistry I	3
CHEM 228	Organic Chemistry II	3
CHEM 237	Organic Chemistry Laboratory	1
CHEM 238	Organic Chemistry Laboratory	1
ENTO 210	Global Public Health Entomology	3
ENTO 423	Medical Entomology	2
ENTO 427	Medical Entomology Laboratory	1
ENTO 431/ FIVS 431	The Science of Forensic Entomology	3
ENTO 432/ FIVS 432	Applied Forensic Entomology	1
FINC 409	Survey of Finance Principles	3
GENE 301	Comprehensive Genetics	3
GENE 302	Principles of Genetics	3
GENE 310	Principles of Heredity	3
GENE 312	Comprehensive Genetics Laboratory	1
GENE 314	Principles of Genetics Laboratory	1
GENE 320/ BIMS 320	Biomedical Genetics	3
HLTH 210	Introduction to the Discipline	3
HLTH 221	Safety	3
HLTH 231	Healthy Lifestyles	3
HLTH 240	Computer Technology in Health and Kinesiology	3
HLTH 331	Community Health	3
HLTH 334	Women's Health	3

HLTH 335	Human Diseases	3	PHLT 491	Research	0-4
HLTH 342/ PHLT 342	Human Sexuality	3	PHYS 201	College Physics	4
HLTH 353/ PHLT 353	Drugs and Society	3	PHYS 202	College Physics	4
HLTH 354/ PHLT 354	Medical Terminology for the Health Professions	3	STAT 301	Introduction to Biometry	3
HLTH 403/ PHLT 403	Consumer Health	3	STAT 302	Statistical Methods	3
HLTH 405/ PHLT 405	Rural Health	3	STAT 303	Statistical Methods	3
HLTH 410	Worksite Health Promotion	3	URPN 370	Health Systems Planning	3
HLTH 429	Environmental Health	3	URPN 371	Environmental Health Planning and Policy	3
NUTR 202	Fundamentals of Human Nutrition	3	VIBS 407/ NRSC 407	Core Ideas in Neuroscience	2
NUTR 222	Nutrition for Health and Health Care	3	VTPB 221	Great Diseases of the World	3
NUTR 320/ FSTC 320	Understanding Obesity - A Social and Scientific Challenge	3	VTPB 409	Introduction to Immunology	3
PBSI 225	Lifespan Development	3	VTPP 425	Pharmacology	3
PBSI 235	Introduction to Behavioral and Cognitive Neuroscience	3	The program includes a total of 165 hours which up to 15 hours may be applied toward both the Bachelor of Science in Public Health and the Master of Public Health in Health Policy and Management.		
PBSI 306	Psychological Disorders	3			
PBSI 307	Developmental Psychology	3	Approval of degree plan does not guarantee access to courses. Students must satisfy prerequisites, and some courses (writing intensive classes included) are available to majors only. It is the responsibility of the student to ascertain whether there are any restrictions or prerequisites for courses in their degree plan.		
PHIL 111	Contemporary Moral Issues	3			
PHIL 251	Introduction to Philosophy	3	Public Health - 5-Year Bachelor of Science and Master of Public Health in Health Behavior		
PHIL 480	Medical Ethics	3			
PHLT 301	Public Health Concepts	1	This program provides students with the ability to provide programmatic health solutions at the individual and community level.		
PHLT 306	Border Health	3			
PHLT 308	Comparative Global Health Systems	3	The Bachelor of Science (BS) in Public Health and Master of Public Health (MPH) in Health Behavior 5-year combined program is more than a means to produce next-level Public Health practitioners. It will deliver a graduate who can not only immediately impact the field of Public Health, but also deliver someone with a well-rounded understanding of the role that Public Health plays in medicine, nursing, allied or other health professions.		
PHLT 331	Occupational Safety and Health I	3			
PHLT 332	Occupational Safety and Health II	3	The undergraduate component of the program is based on a philosophy of health promotion and disease prevention, to improve the quality of life of individuals, families, and communities through education and program intervention. The BS in Public Health discipline focuses on four areas:		
PHLT 333	Accident Investigation	3			
PHLT 334	Fire Safety and Workplace Hazards	3	- the multiple determinants of health, including biological, environmental, sociocultural, health service, and economic factors, - identification of scientific data, tools of informatics, and other information for identifying factors that both foster and hinder the health and well-being of individuals and communities, - addressing major local, state, national, and global health challenges, and - designing public health approaches and interventions that improve health outcomes, population health, and well-being.		
PHLT 335	Hazardous Materials	3			
PHLT 370	Broad Street Learning Community II	3	The MPH in Health Behavior teaches students how to analyze public health problems using social and behavioral sciences and how to		
PHLT 413	Public Health Informatics	3			
PHLT 414	Applications of Epidemiology in Public Health	3			
PHLT 415	Emergency Management in Public Health	3			
PHLT 416	Public Health Leadership and Ethics	3			
PHLT 426/ MKTG 443	The Business of Healthcare	3			
PHLT 432	Human Factors and Ergonomic Health and Safety	3			
PHLT 433	Industrial Inspections and Audit Techniques	3			
PHLT 434	Project Cost Benefit and Economics	3			
PHLT 436	Infectious Disease in the Developing World: Risks, Challenges, and Solutions	3			
PHLT 470	Global Public Health Systems and Practice Experiences	1-3			
PHLT 485	Directed Studies	1-4			
PHLT 489	Special Topics In...	1-4			

develop, plan, and evaluate effective programs and policies to address these problems.

The MPH in Health Behavior prepares students to:

- analyze the determinants of health at individual, community, and societal levels and the systems in which these factors operate.
- conceptualize and implement appropriate interventions to improve health outcomes and improve quality of life.
- apply behavioral theories, concepts, and tools in addressing health problems in different populations and at different levels.
- judge appropriate quantitative and qualitative methods at various stages of health promotion program development, implementation, and evaluation.
- develop and defend communication materials to inform policymakers and community members.
- apply program management principles and tools to develop a program management plan, organize resources and work, and address frequently encountered problems.

The graduate MPH component is a non-thesis degree program with culminating experiences as part of the degree requirements. Students will participate in a practicum demonstrating overall public health problem-solving skills and complete a rigorous capstone class.

The coursework for this program will qualify students to sit for the Certified Health Education Specialist (CHES (<https://www.nchec.org/ches/>)) and the Certified in Public Health (CPH (<https://www.nbphe.org/>)) exams.

Program Requirements

The following is a suggested schedule that includes the required courses for the combination BS and MPH in Public Health-Health Promotion & Community Health Sciences. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year

Fall		Semester Credit Hours
BIOL 111	Introductory Biology I	4
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
Select one of the following:		3
MATH 140	Mathematics for Business and Social Sciences	
MATH 142	Business Calculus	
MATH 147	Calculus I for Biological Sciences	
MATH 148	Calculus II for Biological Sciences	

MATH 151	Engineering Mathematics I	
MATH 152	Engineering Mathematics II	
MATH 168	Finite Mathematics	
MATH 171	Calculus I	
MATH 172	Calculus II	
PHIL 240	Introduction to Logic	
STAT 201	Elementary Statistical Inference	
Social and behavioral sciences (p. 31)		3
Semester Credit Hours		13

Spring

BIOL 112	Introductory Biology II	4
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
Select one of the following:		3

MATH 140	Mathematics for Business and Social Sciences	
MATH 142	Business Calculus	
MATH 147	Calculus I for Biological Sciences	
MATH 148	Calculus II for Biological Sciences	
MATH 151	Engineering Mathematics I	
MATH 152	Engineering Mathematics II	
MATH 168	Finite Mathematics	
MATH 171	Calculus I	
MATH 172	Calculus II	
PHIL 240	Introduction to Logic	
STAT 201	Elementary Statistical Inference	
Creative arts (p.)		3
Semester Credit Hours		13

Second Year

Fall		
CHEM 119	Fundamentals of Chemistry I	4
POLS 206	American National Government	3
American history (p.)		3
General electives ²		6

Semester Credit Hours		16
Spring		
POLS 207	State and Local Government	3
American history (p.)		3
Language, philosophy and culture (p.)		3
General electives ²		6
Semester Credit Hours		15

Third Year

Fall		
PHLT 302	Foundations of Public Health ³	3
PHLT 303	Social Context of Population Health ³	3

PHLT 304	Biological Basis of Public Health Diseases & Disorders ³	3
PHLT 310	Public Health Writing ³	1
PHLT 313	Health Care and Public Health System ³	3
PHLT 316	Public Health Data Management and Assessment ³	3
Semester Credit Hours		16
Spring		
PHLT 305	Epidemiology in Public Health ³	3
PHLT 311	Narrative Approach to Public Health ³	1
PHLT 330	The Environment and Public Health ³	3
PHLT 411	Project Management in Public Health ³	3
PHLT 412	Health Advocacy and Policy ³	3
Directed electives ^{3,4}		3
Semester Credit Hours		16
Fourth Year		
Fall		
HBEH 603	Social and Behavioral Determinants of Health ³	3
PHLT 441	Strategies for Population Health Improvement ³	3
SOPH 601	Health Behavior ^{3,5}	3
SOPH 602	Health Policy and Management ^{3,5}	3
SOPH 603	Epidemiology ^{3,5}	3
Semester Credit Hours		15
Spring		
HBEH 605	Applied Research Methods ³	3
HBEH 610	Community Organization and Assessment ³	3
HBEH 611	Program Planning ³	3
PHLT 410	Public Health Communication ³	3
PHLT 445	Applications of Public Health ³	3
PHLT 481	Seminar ³	1
Semester Credit Hours		16
Summer		
HBEH 637	Principles of Health Program Management ³	3
HBEH 684	Practicum ^{3,5}	3
Semester Credit Hours		6
Fifth Year		
Fall		
HBEH 613	Program Evaluation ³	3
PHLT 307	Public Health in the Global Context ³	3
PHLT 336	Health Disparities and Diversity in Society ³	3
HPCH elective ⁶		6
Semester Credit Hours		15
Spring		
SOPH 680	Public Health Capstone ^{3,5}	3
HPCH elective ⁶		6
Semester Credit Hours		9
Total Semester Credit Hours		150

¹ Cannot use both ENGL 103 and ENGL 104.² Chosen in consultation with BSPH academic advisor. Select from any 100-499 course.³ Must make a grade of C or better.⁴ A list of approved courses that fulfill the directed elective hours is available below. Courses that constitute the major are those offered by the School of Public Health and those approved for public health studies electives. Additional courses may be available. Students must check with their academic advisor.⁵ These 15 hours will be used towards both the BS and MPH degree in Public Health.⁶ HPCH elective options include courses from HPCH or other SPH departments may be taken. For courses outside SPH, please get approval from the department advisor.

Directed Electives

Public Health (PHLT) directed electives are courses that are specifically approved for the curriculum. A student must select 3 semester credit hours from the following list of approved courses in consultation with their academic advisor. Directed Electives must have a letter grade of C or better.

Code	Title	Semester Credit Hours
ACCT 209	Survey of Accounting Principles	3
BESC 314	Pathogens, the Environment and Society	3
BESC 401	Bioenvironmental Microbiology	3
BICH 303	Elements of Biological Chemistry	3
BICH 410	Comprehensive Biochemistry I	3
BICH 411	Comprehensive Biochemistry II	3
BICH 412	Biochemistry Laboratory I	1
BIOL 206	Introductory Microbiology	4
BIOL 319	Integrated Human Anatomy and Physiology I	4
BIOL 320	Integrated Human Anatomy and Physiology II	4
BIOL 351	Fundamentals of Microbiology	4
CHEM 120	Fundamentals of Chemistry II	4
CHEM 227	Organic Chemistry I	3
CHEM 228	Organic Chemistry II	3
CHEM 237	Organic Chemistry Laboratory	1
CHEM 238	Organic Chemistry Laboratory	1
ENTO 210	Global Public Health Entomology	3
ENTO 423	Medical Entomology	2
ENTO 427	Medical Entomology Laboratory	1
ENTO 431/ FIVS 431	The Science of Forensic Entomology	3
ENTO 432/ FIVS 432	Applied Forensic Entomology	1
FINC 409	Survey of Finance Principles	3
GENE 301	Comprehensive Genetics	3
GENE 302	Principles of Genetics	3
GENE 310	Principles of Heredity	3
GENE 312	Comprehensive Genetics Laboratory	1
GENE 314	Principles of Genetics Laboratory	1

GENE 320/ BIMS 320	Biomedical Genetics	3
HLTH 210	Introduction to the Discipline	3
HLTH 221	Safety	3
HLTH 231	Healthy Lifestyles	3
HLTH 240	Computer Technology in Health and Kinesiology	3
HLTH 331	Community Health	3
HLTH 334	Women's Health	3
HLTH 342/ PHLT 342	Human Sexuality	3
HLTH 335	Human Diseases	3
HLTH 353/ PHLT 353	Drugs and Society	3
HLTH 354/ PHLT 354	Medical Terminology for the Health Professions	3
HLTH 403/ PHLT 403	Consumer Health	3
HLTH 405/ PHLT 405	Rural Health	3
HLTH 410	Worksite Health Promotion	3
HLTH 429	Environmental Health	3
NUTR 202	Fundamentals of Human Nutrition	3
NUTR 222	Nutrition for Health and Health Care	3
NUTR 320/ FSTC 320	Understanding Obesity - A Social and Scientific Challenge	3
PBSI 225	Lifespan Development	3
PBSI 235	Introduction to Behavioral and Cognitive Neuroscience	3
PBSI 306	Psychological Disorders	3
PBSI 307	Developmental Psychology	3
PHIL 111	Contemporary Moral Issues	3
PHIL 251	Introduction to Philosophy	3
PHIL 480	Medical Ethics	3
PHLT 301	Public Health Concepts	1
PHLT 306	Border Health	3
PHLT 308	Comparative Global Health Systems	3
PHLT 331	Occupational Safety and Health I	3
PHLT 332	Occupational Safety and Health II	3
PHLT 333	Accident Investigation	3
PHLT 334	Fire Safety and Workplace Hazards	3
PHLT 335	Hazardous Materials	3
PHLT 370	Broad Street Learning Community II	3
PHLT 413	Public Health Informatics	3
PHLT 414	Applications of Epidemiology in Public Health	3
PHLT 415	Emergency Management in Public Health	3
PHLT 416	Public Health Leadership and Ethics	3
PHLT 426/ MKTG 443	The Business of Healthcare	3
PHLT 432	Human Factors and Ergonomic Health and Safety	3

PHLT 433	Industrial Inspections and Audit Techniques	3
PHLT 434	Project Cost Benefit and Economics	3
PHLT 436	Infectious Disease in the Developing World: Risks, Challenges, and Solutions	3
PHLT 470	Global Public Health Systems and Practice Experiences	1-3
PHLT 485	Directed Studies	1-4
PHLT 489	Special Topics In...	1-4
PHLT 491	Research	0-4
PHYS 201	College Physics	4
PHYS 202	College Physics	4
STAT 301	Introduction to Biometry	3
STAT 302	Statistical Methods	3
STAT 303	Statistical Methods	3
URPN 370	Health Systems Planning	3
URPN 371	Environmental Health Planning and Policy	3
VIBS 407/ NRSC 407	Core Ideas in Neuroscience	2
VTPB 221	Great Diseases of the World	3
VTPB 409	Introduction to Immunology	3
VTPP 425	Pharmacology	3

The program includes a total of 165 hours which up to 15 hours may be applied toward both the Bachelor of Science in Public Health and the Master of Public Health in Health Promotion & Community Health Sciences.

Approval of degree plan does not guarantee access to courses. Students must satisfy prerequisites, and some courses (writing intensive classes included) are available to majors only. It is the responsibility of the student to ascertain whether there are any restrictions or prerequisites for courses in their degree plan.

Public Health - 5-year Bachelor of Science and Master of Public Health in Occupational Safety and Health

This program prepares students with a well-rounded understanding of the specific roles that Occupational Safety and Health play in medicine, nursing, population health, and other health professions

The Bachelor of Science in Public Health and Masters in Public Health in Occupational Safety and Health combined program delivers graduates who immediately impact workplace health and safety.

The undergraduate component of this program is based on a philosophy of workplace health promotion and proactive prevention of illness, to improve the quality of life of individuals, families, and communities through education and program intervention. The BSPH discipline focuses on four areas:

- the determinants of health, including biological, environmental, sociocultural, health service, and economic factors,

- identification of scientific data, tools of informatics, and other information for identifying factors that both foster and hinder the health and well-being of individuals and communities,
- addressing major local, state, national, and global health challenges, and
- designing public health approaches and interventions that improve health outcomes, population health, and well-being.

The MPH in Occupational Safety and Health focuses on evaluating and providing interventions to reduce risk of injury and illness using ergonomics, human factors, and wellness for future, current and past workers.

The MPH in Occupational Safety and Health prepares students to:

- Evaluate occupational health risk in work settings.
- Implement theoretical models relevant to Occupational Health risk evaluation in the lab or field.
- Appraise experimental designs to appropriately address specific research questions in the field of Occupational Health.
- Synthesize knowledge of analytical techniques with theoretical models in Occupational Health to solve field problems.
- Develop and defend research plans appropriate for industrial or academic audience.

The graduate MPH component is a non-thesis degree program with culminating experiences as part of the degree requirements. Students will participate in a practicum demonstrating overall public health problem-solving skills and complete a rigorous capstone class.

- Students must complete a minimum of two required MPH Core classes prior to taking SOPH 680 Public Health Capstone.

The coursework for this program will qualify students to be able to sit for the Certified Health Education Specialist (CHES (<https://www.nchec.org/ches/>)) exam and the Certified in Public Health (CPH (<https://www.nbphe.org/>)) exams.

Program Requirement

The following is a suggested schedule that includes the required courses for the combination BS and MPH in Public Health-Occupational Safety and Health. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year

Fall		Semester Credit Hours
BIOL 111	Introductory Biology I	4
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	

Select one of the following:		3
MATH 140	Mathematics for Business and Social Sciences	
MATH 142	Business Calculus	
MATH 147	Calculus I for Biological Sciences	
MATH 148	Calculus II for Biological Sciences	
MATH 151	Engineering Mathematics I	
MATH 152	Engineering Mathematics II	
MATH 168	Finite Mathematics	
MATH 171	Calculus I	
MATH 172	Calculus II	
PHIL 240	Introduction to Logic	
STAT 201	Elementary Statistical Inference	
Social and behavioral sciences (p. 31)		3

Semester Credit Hours

13

Spring

BIOL 112	Introductory Biology II	4
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition ¹ or Composition and Rhetoric	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
Select one of the following:		3
MATH 140	Mathematics for Business and Social Sciences	
MATH 142	Business Calculus	
MATH 147	Calculus I for Biological Sciences	
MATH 148	Calculus II for Biological Sciences	
MATH 151	Engineering Mathematics I	
MATH 152	Engineering Mathematics II	
MATH 168	Finite Mathematics	
MATH 171	Calculus I	
MATH 172	Calculus II	
PHIL 240	Introduction to Logic	
STAT 201	Elementary Statistical Inference	
Creative arts (p.)		3

Semester Credit Hours

13

Second Year

Fall		
CHEM 119	Fundamentals of Chemistry I	4
POLS 206	American National Government	3
American history (p.)		3
General electives ²		6
Semester Credit Hours		16

Spring

POLS 207	State and Local Government	3
American history (p.)		3
Language, philosophy and culture (p. 28)		3

General electives² 6**Semester Credit Hours 15****Third Year****Fall**

PHLT 302	Foundations of Public Health ³	3
PHLT 303	Social Context of Population Health ³	3
PHLT 304	Biological Basis of Public Health Diseases & Disorders ³	3
PHLT 310	Public Health Writing ³	1
PHLT 313	Health Care and Public Health System ³	3
PHLT 316	Public Health Data Management and Assessment ³	3

Semester Credit Hours 16**Spring**

PHLT 305	Epidemiology in Public Health ³	3
PHLT 311	Narrative Approach to Public Health ³	1
PHLT 330	The Environment and Public Health ³	3
PHLT 411	Project Management in Public Health ³	3
PHLT 412	Health Advocacy and Policy ³	3
Directed electives ^{3,4}		3

Semester Credit Hours 16**Fourth Year****Fall**

PHEO 678	Occupational Biomechanics ³	3
PHLT 441	Strategies for Population Health Improvement ³	3
SOPH 601	Health Behavior ^{3,5}	3
SOPH 602	Health Policy and Management ^{3,5}	3
SOPH 603	Epidemiology ^{3,5}	3

Semester Credit Hours 15**Spring**

PHEO 640	Industrial Hygiene ³	3
PHEO 655	Human Factors ³	3
PHEO 679	Ergonomics of the Upper Extremities ³	3
PHLT 410	Public Health Communication ³	3
PHLT 445	Applications of Public Health ³	3
PHLT 481	Seminar ³	1

Semester Credit Hours 16**Summer**

PHEO 684	Practicum ^{3,5}	3
PHEO elective ⁶		3

Semester Credit Hours 6**Fifth Year****Fall**

PHEO 618	Occupational Safety ³	3
PHEO 630	Environmental/Occupational Diseases ³	3
PHEO 682	Industrial and System Safety ³	3
PHLT 307	Public Health in the Global Context ³	3
PHEO elective ⁶		3

Semester Credit Hours 15**Spring**

PHEO 645	Health and Safety at Hazardous Waste Sites ³	3
PHLT 336	Health Disparities and Diversity in Society ³	3
SOPH 680	Public Health Capstone ^{3,5}	3

Semester Credit Hours 9**Total Semester Credit Hours 150**¹ Cannot use both ENGL 103 and ENGL 104.² Chosen in consultation with BSPH academic advisor. Select from any 100-499 course.³ Must make a grade of C or better.⁴ A list of approved courses that fulfill the directed elective hours is available below. Courses that constitute the major are those offered by the School of Public Health and those approved for public health studies electives. Additional courses may be available. Students must check with their academic advisor.⁵ These 15 hours will be used towards both the BS and MPH degree in Public Health.⁶ PHEO elective options include courses from PHEO or other SPH departments may be taken. For courses outside SPH, please get approval from the departmental advisor.

Directed Electives

Public Health (PHLT) directed electives are courses that are specifically approved for the curriculum. A student must select 18 semester credit hours from the following list of approved courses in consultation with their academic advisor. Directed Electives must have a letter grade of C or better.

Code	Title	Semester Credit Hours
ACCT 209	Survey of Accounting Principles	3
BESC 314	Pathogens, the Environment and Society	3
BESC 401	Bioenvironmental Microbiology	3
BICH 303	Elements of Biological Chemistry	3
BICH 410	Comprehensive Biochemistry I	3
BICH 411	Comprehensive Biochemistry II	3
BICH 412	Biochemistry Laboratory I	1
BIOL 206	Introductory Microbiology	4
BIOL 319	Integrated Human Anatomy and Physiology I	4
BIOL 320	Integrated Human Anatomy and Physiology II	4
BIOL 351	Fundamentals of Microbiology	4
CHEM 120	Fundamentals of Chemistry II	4
CHEM 227	Organic Chemistry I	3
CHEM 228	Organic Chemistry II	3
CHEM 237	Organic Chemistry Laboratory	1
CHEM 238	Organic Chemistry Laboratory	1
ENTO 210	Global Public Health Entomology	3
ENTO 423	Medical Entomology	2
ENTO 427	Medical Entomology Laboratory	1

ENTO 431/ FIVS 431	The Science of Forensic Entomology	3	PHLT 413	Public Health Informatics	3
ENTO 432/ FIVS 432	Applied Forensic Entomology	1	PHLT 414	Applications of Epidemiology in Public Health	3
FINC 409	Survey of Finance Principles	3	PHLT 415	Emergency Management in Public Health	3
GENE 301	Comprehensive Genetics	3	PHLT 416	Public Health Leadership and Ethics	3
GENE 302	Principles of Genetics	3	PHLT 426/ MKTG 443	The Business of Healthcare	3
GENE 310	Principles of Heredity	3	PHLT 432	Human Factors and Ergonomic Health and Safety	3
GENE 312	Comprehensive Genetics Laboratory	1	PHLT 433	Industrial Inspections and Audit Techniques	3
GENE 314	Principles of Genetics Laboratory	1	PHLT 434	Project Cost Benefit and Economics	3
GENE 320/ BIMS 320	Biomedical Genetics	3	PHLT 436	Infectious Disease in the Developing World: Risks, Challenges, and Solutions	3
HLTH 210	Introduction to the Discipline	3	PHLT 470	Global Public Health Systems and Practice Experiences	1-3
HLTH 221	Safety	3	PHLT 485	Directed Studies	1-4
HLTH 231	Healthy Lifestyles	3	PHLT 489	Special Topics In...	1-4
HLTH 240	Computer Technology in Health and Kinesiology	3	PHLT 491	Research	0-4
HLTH 331	Community Health	3	PHYS 201	College Physics	4
HLTH 334	Women's Health	3	PHYS 202	College Physics	4
HLTH 342/ PHLT 342	Human Sexuality	3	STAT 301	Introduction to Biometry	3
HLTH 335	Human Diseases	3	STAT 302	Statistical Methods	3
HLTH 353/ PHLT 353	Drugs and Society	3	STAT 303	Statistical Methods	3
HLTH 354/ PHLT 354	Medical Terminology for the Health Professions	3	URPN 370	Health Systems Planning	3
HLTH 403/ PHLT 403	Consumer Health	3	URPN 371	Environmental Health Planning and Policy	3
HLTH 405/ PHLT 405	Rural Health	3	VIBS 407/ NRSC 407	Core Ideas in Neuroscience	2
HLTH 410	Worksite Health Promotion	3	VTPB 221	Great Diseases of the World	3
HLTH 429	Environmental Health	3	VTPB 409	Introduction to Immunology	3
NUTR 202	Fundamentals of Human Nutrition	3	VTPP 425	Pharmacology	3
NUTR 222	Nutrition for Health and Health Care	3	The program includes a total of 165 hours which up to 15 hours may be applied toward both the Bachelor of Science in Public Health and the Master of Public Health in Occupational Safety and Health. Approval of degree plan does not guarantee access to courses. Students must satisfy prerequisites, and some courses (writing intensive classes included) are available to majors only. It is the responsibility of the student to ascertain whether there are any restrictions or prerequisites for courses in their degree plan.		
NUTR 320/ FSTC 320	Understanding Obesity - A Social and Scientific Challenge	3			
PBSI 225	Lifespan Development	3			
PBSI 235	Introduction to Behavioral and Cognitive Neuroscience	3	Health Behavior - Minor The health behavior minor is designed for students who want to develop knowledge in health behavior-related topics and engage in courses which complement or enhance the myriad of degree programs available at Texas A&M University. Some courses offered in the health behavior minor meet the International and Cultural Diversity or Cultural Discourse requirements for core curriculum graduation requirements. To declare the Health Behavior Minor, students must have a minimum GPA of 2.0, at least 12 graded hours at Texas A&M and fewer than 90 credit hours. Requirements must be met at the time of application.		
PBSI 306	Psychological Disorders	3			
PBSI 307	Developmental Psychology	3			
PHIL 111	Contemporary Moral Issues	3			
PHIL 251	Introduction to Philosophy	3			
PHIL 480	Medical Ethics	3			
PHLT 301	Public Health Concepts	1			
PHLT 306	Border Health	3			
PHLT 308	Comparative Global Health Systems	3			
PHLT 331	Occupational Safety and Health I	3			
PHLT 332	Occupational Safety and Health II	3			
PHLT 333	Accident Investigation	3			
PHLT 334	Fire Safety and Workplace Hazards	3			
PHLT 335	Hazardous Materials	3			
PHLT 370	Broad Street Learning Community II	3			

Applicants are reviewed by a committee following the posting of grades by the University and admitted on a competitive basis.

Program Requirements

Code	Title	Semester Credit Hours
PHLT 302	Foundations of Public Health	3
PHLT 303	Social Context of Population Health	3
PHLT 336	Health Disparities and Diversity in Society	3
Select two of the following:		6
PHLT 305	Epidemiology in Public Health	
PHLT 307	Public Health in the Global Context	
PHLT 330	The Environment and Public Health	
PHLT 342/ HLTH 342	Human Sexuality ¹	
PHLT 360	Women's Health ¹	
PHLT 403/ HLTH 403	Consumer Health	
Or other pre-approve PHLT courses		
Total Semester Credit Hours		15

¹ Course meets International and Cultural Diversity or Cultural Discourse graduation requirements.

Must make a grade of C or better in each course.

Occupational Safety and Health - Minor

Students with a minor in Occupational Safety and Health minor are prepared to recognize factors that make a workplace unsafe and learn how to reduce risks for everyone.

The Occupational Safety and Health minor consists of upper-level Public Health coursework that should be selected in consultation with a School of Public Health Undergraduate Academic Advisor.

Students applying for an OCSH minor must have a 3.0 or better overall GPA. Students are required to meet a minimum cumulative GPA of 3.0 or better in their minor coursework. Proper classification is required for the course level taken and any minor course prerequisites must be met.

Program Requirements

Code	Title	Semester Credit Hours
PHLT 331	Occupational Safety and Health I	3
PHLT 333	Accident Investigation	3
PHLT 432	Human Factors and Ergonomic Health and Safety	3
PHLT 434	Project Cost Benefit and Economics	3
Select one of the following:		3
PHLT 330	The Environment and Public Health	
PHLT 332	Occupational Safety and Health II	

PHLT 415	Emergency Management in Public Health	
Total Semester Credit Hours		15

Minimum of 15 hours required.

Minimum of 6 hours at 300- to 400-level.

Minimum 2.0 TAMU GPA and a completed minor form filed in the Public Health Studies advising office.

Public Health Studies - Minor

The Public Health Studies minor consists of selected upper-level Public Health coursework. Students are encouraged to select courses in consultation with a School of Public Health Undergraduate Academic Advisor.

Students with a minor in Public Health are prepared to: understand factors influencing health in individuals, communities and populations; contribute to society as citizens armed with the knowledge and skills to promote the common good; promote healthier lifestyles and environments; and contribute to the implementation of programs and interventions.

Program Requirements

Code	Title	Semester Credit Hours
PHLT 302	Foundations of Public Health	3
PHLT 303	Social Context of Population Health	3
PHLT 305	Epidemiology in Public Health	3
PHLT 330	The Environment and Public Health	3
PHLT 300-499 (p. 1201)		3
Total Semester Credit Hours		15

Minimum 15 hours required.

Minimum of 6 hours at 300- to 400-level.

Minimum 2.0 TAMU GPA and a completed minor form filed in the Public Health Studies advising office.

COLLEGE OF VETERINARY MEDICINE AND BIOMEDICAL SCIENCES

Administrative Officers

Dean - John R. August, MS, MRCVS, BVetMed

Executive Associate Dean - Ramesh Vemulapalli, PhD, MVSc, BVSc

Associate Dean for Professional Programs - Karen Cornell, PhD, DVM

Associate Dean for Research and Graduate Studies - Michael Criscitiello, PhD, MS

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Associate Dean for Undergraduate Education - James D. Herman, PhD, DVM, MS

Associate Dean for Administration at VERO in Canyon - Susan Eades, PhD, DVM

Associate Dean for Hospital Administration - Stacy Eckman, DVM

Associate Dean for Global One Health - Gerald Parker, PhD, DVM, MS

General Statement

The College of Veterinary Medicine and Biomedical Sciences consists of five academic departments: Veterinary Integrative Biosciences, Veterinary Large Animal Clinical Sciences, Veterinary Pathobiology, Veterinary Physiology and Pharmacology, and Veterinary Small Animal Clinical Sciences. Each department is administered by a department head, who is responsible to the Dean of Veterinary Medicine and Biomedical Sciences for all programs assigned or developed in the department, including teaching, research, outreach, and service.

The College provides a professional doctoral program in veterinary medicine, a bachelors program in biomedical sciences, and graduate level programs including master's and doctoral degrees in several biomedical science disciplines.

A Veterinary Medical Teaching Hospital and Field Service Clinic are operated within the college to provide clinical laboratories for the veterinary medical educational program.

An extensive research program in animal health and disease is conducted by the faculty and staff of the college, and a substantial number of the teaching faculty members are engaged in research. The faculty makes research information available to the students in the classroom and laboratories in a timely manner.

An outreach program carries research information to veterinarians, animal owners, and others in the state and nation with the least possible delay.

The typical land-grant institutional mandate of teaching, research, patient care and service provides the organizational framework necessary to meet the dynamics in the ever-changing field of veterinary medicine.

Graduate programs leading to the Master of Science (Non-Thesis and Thesis Options) and Doctor of Philosophy degrees are available through a College of Veterinary Medicine and Biomedical Sciences umbrella

Graduate Program focused in four training tracks (Biomedical Genomics and Bioinformatics, Diagnostics and Therapeutics, Infection, Immunity and Epidemiology, and Physiology and Developmental Biology). The Department of Veterinary Integrative Biosciences offers a Science and Technology Journalism MS program and a Veterinary Epidemiology and Public Health MS program. Clinical specialty training programs are also available to provide effective training in the areas of professional specialization. The Interdisciplinary Faculty of Toxicology, a MS and PhD granting program composed of faculty from five colleges, is administratively housed in the College of Veterinary Medicine and Biomedical Sciences.

Majors

College of Veterinary Medicine and Biomedical Sciences

- Bachelor of Science in Biomedical Sciences (p. 801)
- Bachelor of Science in University Studies, Biomedical Sciences Concentration (p. 805)

Minors

College of Veterinary Medicine and Biomedical Sciences

- Biomedical Sciences Minor (p. 804)

Certificates

Department of Veterinary Physiology and Pharmacology

- Biomedical Research Certificate (p. 811)

Masters

College of Veterinary Medicine and Biomedical Sciences

- Master of Science in Biomedical Sciences (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/veterinary-medicine-biomedical-sciences/interdepartmental/biomedical-sciences-ms/>)
- Master of Science in Science Technology Journalism (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/veterinary-medicine-biomedical-sciences/interdepartmental/science-technology-journalism-ms/>)
- Master of Science In Veterinary Public Health-Epidemiology (VPHE) and Doctor of Veterinary Medicine (VTMD) Combined Degree Program (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/veterinary-medicine-biomedical-sciences/interdepartmental/ms-vphe-dvm-vtmd/>)

Department of Veterinary Integrative Biosciences

- Master of Science in Veterinary Public Health - Epidemiology (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/veterinary-medicine-biomedical-sciences/veterinary-integrative-biosciences/veterinary-public-health-epidemiology-ms/>)

- Master of Science In Veterinary Public Health - Epidemiology (VPHE) and Doctor of Veterinary Medicine (VTMD) Combined Degree Program (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/veterinary-medicine-biomedical-sciences/interdepartmental/ms-vphe-dvm-vtmd/>)

Doctoral

College of Veterinary Medicine and Biomedical Sciences

- Doctor of Philosophy in Biomedical Sciences (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/veterinary-medicine-biomedical-sciences/interdepartmental/biomedical-sciences-phd/>)

Professional

College of Veterinary Medicine and Biomedical Sciences

- Doctor of Veterinary Medicine in Veterinary Medicine (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/veterinary-medicine-biomedical-sciences/interdepartmental/dvm/>)

Biomedical Sciences - BS

Biomedical sciences are the interventional applied life sciences that connect clinical, service, and research experiences to improve human, animal, and environmental health.

This degree is offered on both the College Station campus and at the Texas A&M Higher Education Center in McAllen, Texas. Our mission is to educate and prepare students to catalyze the improvement of human, animal, and environmental health through innovation, discovery, and global service and outreach. The program both emphasizes versatility in the biological and medical sciences, and prioritizes a One Health approach to education through courses that emphasize the interconnectedness of human, animal, and environmental health; while bringing together students with interest in medical careers that impact all three. A highly effective counseling program assists the students with the development of an individualized approach and course package that orients and prepares the students for entry into the medical, allied health field or graduate program of their choice. Such an approach enhances their educational experiences, improves their placement in professional and graduate programs, and facilitates their entry into the biomedical science job market.

Biomedical Sciences graduates enter professional programs in human medicine, veterinary medicine, dentistry, osteopathy, podiatry, optometry, and pharmacy. Some become medical technologists, physician assistants, nurses, and laboratory and research technicians. Others pursue radiation technology, hospital administration, and a wide variety of health-related fields. Many Biomedical Sciences students continue their education in graduate schools and specialize in various biology- and medicine-related disciplines. Other graduates are employed by clinical practices, industrial companies, government agencies, private foundations, public schools, colleges and certain aspects of business. Positions are available in pharmaceutical and drug marketing, research equipment manufacture and sales, food safety, biomedical research, disease control, zoonoses and epidemiology, laboratory animal care, zoo and aquatic animal supervision, health-related inspection and regulatory work. The BS in Biomedical Sciences is also awarded to students who

complete the three year Early Admission Option to Professional Schools and one year of professional school.

A complete list of BIMS courses can be found in the course descriptions section of the catalog.

Program Requirements

First Year		Semester Credit Hours
Fall		
BIMS 101	Introduction to Biomedical Sciences	1
BIOL 111	Introductory Biology I ¹	4
CHEM 119	Fundamentals of Chemistry I ¹	4
Mathematics (p. 27) ^{1,2}		3
Social and behavioral sciences (p. 31)		3
Semester Credit Hours		15
Spring		
BIOL 112	Introductory Biology II ¹	4
CHEM 120	Fundamentals of Chemistry II ¹	4
Select one of the following: ¹		3
ENGL 103	Introduction to Rhetoric and Composition	
ENGL 104	Composition and Rhetoric	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
Mathematics (p. 27) ^{1,2}		3
Semester Credit Hours		14
Second Year		
Fall		
BIMS 250	Professionalism, Skill Development, Career Exploration, and Ethical Conduct in BIMS	1
CHEM 257	Organic Chemistry I - Structure and Function ¹	4
PHYS 201	College Physics ¹	4
Community Health / Environmental Health ³		2
Creative arts (p. 30)		3
Semester Credit Hours		14
Spring		
CHEM 258	Organic Chemistry II - Reactivity and Applications ¹	4
PHYS 202	College Physics ¹	4
Community Health / Environmental Health ³		2
American history (p. 30) ⁴		3
Language, philosophy and culture (p. 28)		3
Semester Credit Hours		16
Third Year		
Fall		
BICH 409 or BICH 410	Principles of Biochemistry or Comprehensive Biochemistry I	3
BIMS 320/ GENE 320	Biomedical Genetics	3
POLS 206	American National Government	3
Select one of the following:		4

BIMS 402/ VIBS 402	Anatomy	
BIOL 319	Integrated Human Anatomy and Physiology I ⁵	
VIBS 446	Functional Anatomy of Domestic Animals	
General electives ⁶		3

Semester Credit Hours 16

Spring

BIOL 320 or VTPP 423	Integrated Human Anatomy and Physiology II ⁵ or Applied Biomedical Physiology I	4
POLS 207	State and Local Government ¹	3
VTPB 409	Introduction to Immunology	3
Select one of the following:		3
BIMS 303	Research Methodologies and Experimental Design in Biomedical Sciences	
BIMS 491	Research	
VIBS 491	Research	
VLCS 491	Research	
VTPB 491	Research	
VTPP 491	Research	
VSCS 491	Research	
Communication (p. 27)		3

Semester Credit Hours 16

Fourth Year

Fall

STAT 302 or STAT 312	Statistical Methods ⁷ or Statistics for Biology	3
VTPP 427 or VTPP 405	Applied Biomedical Physiology II or Systemic Veterinary Physiology	3
American history ⁴		3
Directed electives ⁸		6

Semester Credit Hours 15

Spring

BIMS 499	Biomedical Sciences Capstone Experience	1
VTPB 425	Biomedical Microbiology	3
Directed electives ⁸		10

Semester Credit Hours 14

Total Semester Credit Hours 120

¹ Common Body of Knowledge Courses (CBK) must be completed with a grade of C or better. All CBK courses must be complete prior to advancing to the third and fourth year upper-division requirements.

² Complete 6-8 hours of mathematics core courses as follows:

- Select one of the following: MATH 142, MATH 147, MATH 151, MATH 171. This is a CBK course and must be completed with a grade of C or better.
- Select one of the following: MATH 140, MATH 148, MATH 150, MATH 152, MATH 172, STAT 201

³ A minimum of 4 total credits are required. Select from the following: VIBS 111, VTPB 221, VIBS 210, BIMS 110, VIBS 222, VTPP 330, VIBS 413.

⁴ HIST 105 and HIST 106 are recommended, however students may choose from other American History core courses.

⁵ Anatomy and Physiology Sequence: Students who select BIOL 319, MUST take BIOL 320 as second part of sequence. Consult an advisor for permissible course sequencing.

⁶ Select any course 100-499 except MATH 102-104 (p. 1135); only 1 credit KINE 199 may be used.

⁷ Students who complete STAT 201 in Mathematics core must take STAT 312.

⁸ A list of approved courses that fulfill the directed elective hours is available below and on the BIMS Program website. Please consult a BIMS advisor for specific questions.

When satisfying the required 16 hours of BIMS directed electives and 3 hours of general electives: Any combination of variable credit 285, 291, 484, 485, and/or 491 courses may not exceed 9 credit hours.

BIMS 484 on its own or in combination with other variable credit courses may not exceed 6 total credit hours. Any combination of 289/489 courses may not exceed 9 credit hours. Restrictions will be enforced by the BIMS academic advising office.

A minimum of two courses designated to fulfill the university's writing and oral communication graduation requirement.

All students are required to complete 3 hours of International and Cultural Diversity (p. 49) credit (ICD) and 3 hours of Cultural Discourse (p. 48) (CD) credits. A course satisfying a core category, a college department requirement, or a free elective can be used to satisfy this requirement. Select in consultation with academic advisor.

Directed Electives

Biomedical Science (BIMS) directed electives are courses that are specifically approved for the curriculum. A student must select at least 16 semester credits from the following list of approved courses. The list of approved BIMS directed electives will also be available on the BIMS Program website:

Code	Title	Semester Credit Hours
ANSC 107	General Animal Science	3
ANSC 108	General Animal Science Laboratory	1
ANSC 210	Companion Animal Science	3
ANSC 318	Animal Feeds and Feeding	3
ANSC 320	Animal Nutrition and Feeding	3
ANSC 303/ NUTR 303	Principles of Animal Nutrition	3
ANSC 326/ FSTC 326	Food Bacteriology	3
ANSC 327/ FSTC 327	Food Bacteriology Lab	1
BICH 412	Biochemistry Laboratory I	1
BICH 414	Biochemical Techniques I	2
BICH 431/ GENE 431	Molecular Genetics	3
BICH 432/ GENE 432	Laboratory in Molecular Genetics	2
BIMS 101	Introduction to Biomedical Sciences	1
BIMS 110	One Health in Action	1
BIMS 125	Animals in Society	1

BIMS 201	Introduction to Phenotypic Expression in the Context of Human Medicine	2	VIBS 222	Great Poisonings of the World	3
BIMS 250	Professionalism, Skill Development, Career Exploration, and Ethical Conduct in BIMS	1	VIBS 243	Introductory Mammalian Histology	2
BIMS 289	Special Topics in...	1-4	VIBS 277	Essential Neuroscience - From Molecules to Nervous Systems	3
BIMS 291	Research	0-4	VIBS 285	Directed Studies	0-4
BIMS 303	Research Methodologies and Experimental Design in Biomedical Sciences	3	VIBS 289	Special Topics in...	1-4
BIMS 380	Equine-Assisted Activities and Therapies - Best Practices	3	VIBS 305	Biomedical Anatomy	4
BIMS 405/ GENE 405	Mammalian Genetics	3	VIBS 310	Biomedical Writing	1
BIMS 421/ GENE 421	Advanced Human Genetics	3	VIBS 311	Biomedical Explorations through Narrative	1
BIMS 481	Seminar	1	VIBS 343	Histology	4
BIMS 484	Internship	0-3	VIBS 401/ NRSC 401	Developmental Neurotoxicology	3
BIMS 485	Directed Studies	0-4	VIBS 407/ NRSC 407	Core Ideas in Neuroscience	2
BIMS 489	Special Topics in...	1-4	VIBS 408	Neuroscience and Religion	3
BIMS 491	Research	0-4	VIBS 411	Tumor Cell Biology and Carcinogenesis	3
BIMS 499	Biomedical Sciences Capstone Experience	1	VIBS 413	Introduction to Epidemiology	3
BIOL 401	Critical Writing in Biology	1	VIBS 422	Endocrine Toxicology	4
BIOL 402	Communicating Biological Research to the Public	1	VIBS 424/ VTPB 424	Biomedical Neuroendocrinology and Endocrine Disorders	3
BIOL 403	Medical Narratives	1	VIBS 426/ ENTO 426	Methods in Vector-Borne Disease Ecology	3
COMM 370	Health Communication	3	VIBS 443	Biology of Mammalian Cells and Tissues	4
ENTO 208	Veterinary Entomology	2	VIBS 445	Learning and Applying Peer Teaching Principles in Biomedical Anatomy	3
ENTO 209	Veterinary Entomology Laboratory	1	VIBS 446	Functional Anatomy of Domestic Animals	4
ENTO 210	Global Public Health Entomology	3	VIBS 447	Neurophysiology of Music	2
ENTO 423	Medical Entomology	2	VIBS 450	Mammalian Functional Neuroanatomy	4
ENTO 425	Disease Ecology	3	VIBS 456	Science in Cinema and Society	3
ENTO 427	Medical Entomology Laboratory (co-requisite for ENTO 423)	1	VIBS 485	Directed Studies	0-4
ENTO 431/ FIVS 431	The Science of Forensic Entomology	3	VIBS 489	Special Topics in...	1-4
ENTO 432/ FIVS 432	Applied Forensic Entomology	1	VLCS 422	Equine Disease and Epidemiology	3
MKTG 443/ PHLT 426	The Business of Healthcare	3	VLCS 485	Directed Studies	0-4
NUTR 222	Nutrition for Health and Health Care	3	VLCS 491	Research	1-4
POSC 454	Animal Welfare	3	VSCS 485	Directed Studies	0-4
URPN 370	Health Systems Planning	3	VSCS 491	Research	1-4
VIBS 111	Biodefense, Biosecurity and Bioterrorism	1	VTPB 212	Genetics in the News	3
VIBS 201/ NRSC 201	History of Neuroscience	1	VTPB 221	Great Diseases of the World	3
VIBS 204	Fundamentals of Food Toxicology and Safety	3	VTPB 285	Directed Studies	0-4
VIBS 210	Twenty-first Century Global One Health	1	VTPB 289	Special Topics in...	1-4
VIBS 211	Twenty-first Century Biological Threats	1	VTPB 301/ RWF 309	Wildlife Diseases	3
			VTPB 303	Medical Communication in the International Community	3
			VTPB 407	Advanced Veterinary Microbiology Laboratory	1-3
			VTPB 408	Clinical Microbiology	3
			VTPB 409	Introduction to Immunology	3

VTPB 410	Cell Mechanisms of Disease	3
VTPB 411	One Health and Tropical Ecology	3
VTPB 415	Immunogenetics and Comparative Immunology	3
VTPB 426	Biomedical Microbiology Laboratory	1
VTPB 438	Biomedical Virology	3
VTPB 460	Mammalian Cell Pathobiology	3
VTPB 485	Directed Studies	0-4
VTPB 487	Biomedical Parasitology	4
VTPB 489	Special Topics in...	1-4
VTPP 123	Foundations of Physiology	3
VTPP 207	Methodologies of Physiology Education Research	3
VTPP 208	Analysis and Evaluation of Physiology Education	3
VTPP 223	Design of Experiments for Physiology Research	3
VTPP 224	In Vitro Experimentation in Physiology Research	3
VTPP 234	Design of Models for Physiology Research	3
VTPP 235	Analysis and Validation of Models for Physiology Research	3
VTPP 281	Seminar	4
VTPP 285	Directed Studies	0-4
VTPP 289	Special Topics in...	1-4
VTPP 291	Research	0-4
VTPP 330	Biomedical Toxicology	3
VTPP 401/ BMEN 400	History of Human and Veterinary Medicine in Europe	4
VTPP 404	Food Toxicology and Safety	3
VTPP 420	Applied Pharmacology	2
VTPP 423	Applied Biomedical Physiology I	4
VTPP 425	Pharmacology	3
VTPP 427	Applied Biomedical Physiology II	3
VTPP 438	Analysis of Genomic Signals	3
VTPP 444	Practicum in Biomedical Research	3
VTPP 452	Fetal and Embryo Physiology	3
VTPP 481	Seminar	4
VTPP 485	Directed Studies	0-4
VTPP 489	Special Topics in...	1-4
VTPP 491	Research	0-4

Biomedical Sciences - Minor

The Biomedical Sciences minor consists of coursework related to and directed toward the understanding of health and disease.

Students are encouraged to select courses in consultation with an academic advisor.

Students applying for a BIMS minor must meet with an advisor to declare the minor. Successful completion of the minor will be certified by a degree audit in Howdy during the semester of the student's graduation.

The minor will be recognized after graduation on the student's transcript, but not on the student's diploma.

Requirements to apply for a BIMS minor:

- Must have a 2.0 Texas A&M GPA
- Must have completed CHEM 119 with a minimum grade of C if taken at Texas A&M or a minimum grade of B if taken at a community college
- Must be declared before 75 hours are completed

Program Requirements

A selection from among the following courses will constitute a minor field of study. The following 15 hours of coursework is required. Proper classification must be met for the course level being taken. A minimum of 9 hours must be 3/400-level coursework.

Code	Title	Semester Credit Hours
BIMS 320/ GENE 320	Biomedical Genetics	3
VTPB 221	Great Diseases of the World	3
Directed electives ¹		
Select 9 hours from the following:		9
BIMS 380	Equine-Assisted Activities and Therapies - Best Practices	
BIMS 405/ GENE 405	Mammalian Genetics	
BIMS 421/ GENE 421	Advanced Human Genetics	
BIMS 484	Internship	
BIMS 485	Directed Studies	
BIMS 489	Special Topics in...	
BIMS 491	Research	
VIBS 343	Histology	
VIBS 401/ NRSC 401	Developmental Neurotoxicology	
VIBS 407/ NRSC 407	Core Ideas in Neuroscience	
VIBS 411	Tumor Cell Biology and Carcinogenesis	
VIBS 413	Introduction to Epidemiology	
VIBS 422	Endocrine Toxicology	
VIBS 424/ VTPP 424	Biomedical Neuroendocrinology and Endocrine Disorders	
VIBS 426/ ENTO 426	Methods in Vector-Borne Disease Ecology	
VIBS 450	Mammalian Functional Neuroanatomy	
VIBS 485	Directed Studies	
VIBS 489	Special Topics in...	
VLCS 422	Equine Disease and Epidemiology	
VLCS 485	Directed Studies	
VSCS 485	Directed Studies	
VTPB 301/ RWF 309	Wildlife Diseases	

VTPB 303	Medical Communication in the International Community
VTPB 407	Advanced Veterinary Microbiology Laboratory
VTPB 408	Clinical Microbiology
VTPB 409	Introduction to Immunology
VTPB 410	Cell Mechanisms of Disease
VTPB 411	One Health and Tropical Ecology
VTPB 415	Immunogenetics and Comparative Immunology
VTPB 421	Infectious Diseases of Humans and Animals
VTPB 438	Biomedical Virology
VTPB 460	Mammalian Cell Pathobiology
VTPB 485	Directed Studies
VTPB 487	Biomedical Parasitology
VTPB 489	Special Topics in...
VTPP 323	Physiology of Domestic Animals
VTPP 330	Biomedical Toxicology
VTPP 401/ BMEN 400	History of Human and Veterinary Medicine in Europe
VTPP 404	Food Toxicology and Safety
VTPP 420	Applied Pharmacology
VTPP 424/ VIBS 424	Biomedical Neuroendocrinology and Endocrine Disorders
VTPP 425	Pharmacology
VTPP 438	Analysis of Genomic Signals
VTPP 452	Fetal and Embryo Physiology
VTPP 485	Directed Studies
VTPP 489	Special Topics in...
VTPP 491	Research

Total Semester Credit Hours **15**

¹ Directed Electives are taken in consultation with a Biomedical Sciences Academic Advisor.

Students must maintain a minimum GPA of 2.000 in this minor area.

University Studies

The College of Veterinary Medicine and Biomedical Sciences offers a degree in University Studies with a Biomedical Sciences Concentration. A University Studies degree differs from a traditional "major" in that it consists of a concentration and two minors of 15-18 hours each.

The degree program offers a number of unique features:

- **Foundational knowledge:** The biomedical sciences concentration provides students with a firm grasp of the basic aspects of biomedical sciences including biology, chemistry, and biochemistry.
- **Interdisciplinary study:** Students pursue two minors that involve coursework in other Texas A&M colleges and departments. Students are encouraged to identify minors that complement the biomedical sciences concentration and reflect their individual interests and strengths.

- **Flexibility for the future:** Students who earn this degree find they have flexible options after graduation since they are prepared to pursue a wide range of careers and graduate programs.

The University Studies degree format was created to provide students the flexibility to combine areas of study that are of special interest. The careers pursued by University Studies-Biomedical Sciences graduates are as varied and diverse as the students who pursue the degree.

Majors

- Bachelor of Science in University Studies, Biomedical Sciences Concentration (p. 805)

University Studies - BS, Biomedical Sciences Concentration

This program provides a flexible biomedical foundation, allowing tailored interdisciplinary study and preparing students for multiple career and graduate opportunities.

Students who earn a Bachelor of Science (BS) in University Studies with a concentration in Biomedical Sciences, are able to tailor their undergraduate coursework to align with future personal and career objectives. Specific requirements, course offerings, and restrictions exist for this degree.

The degree program offers a number of unique features:

- **Foundational knowledge:** The biomedical sciences concentration provides students with a firm grasp of the basic aspects of biomedical sciences including biology, chemistry, and biochemistry.
- **Interdisciplinary study:** Students pursue two minors that involve coursework in other Texas A&M colleges and departments. Students are encouraged to identify minors that complement the biomedical sciences concentration and reflect their individual interests and strengths.
- **Flexibility for the future:** Students who earn this degree find they have flexible options after graduation since they are prepared to pursue a wide range of careers and graduate programs.

The University Studies degree format was created to provide students the flexibility to combine areas of study that are of special interest.

Program Requirements

First Year

Fall		Semester Credit Hours
BIMS 101	Introduction to Biomedical Sciences	1
BIOL 111	Introductory Biology I	4
CHEM 119	Fundamentals of Chemistry I	4
Mathematics ^{1,2}		3-4
Social and behavioral sciences (p. 31)		3
Semester Credit Hours		15
Spring		
BIOL 112	Introductory Biology II	4
CHEM 120	Fundamentals of Chemistry II	4
Select one of the following:		3
ENGL 103	Introduction to Rhetoric and Composition	

ENGL 104	Composition and Rhetoric	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
Mathematics ^{1,2}		3-4
Semester Credit Hours		14
Second Year		
Fall		
Select one of the following:		4
CHEM 227	Organic Chemistry I	
& CHEM 237	and Organic Chemistry Laboratory	
CHEM 257	Organic Chemistry I - Structure and Function	
American history (p. 30) ³		3
Creative arts (p. 30)		3
Government/Political science (p. 31) ³		3
Directed electives ⁴		3
Semester Credit Hours		16
Spring		
BIMS 250	Professionalism, Skill Development, Career Exploration, and Ethical Conduct in BIMS	1
American history (p. 30) ³		3
Government/Political science (p. 31) ³		3
Language, philosophy and culture (p. 28)		3
Directed electives ⁴		4
Semester Credit Hours		14
Third Year		
Fall		
VTPB 421	Infectious Diseases of Humans and Animals	3
Directed electives ⁴		3
General electives ⁵		9
Semester Credit Hours		15
Spring		
BIMS 320/ GENE 320	Biomedical Genetics	3
Communication (p. 27)		3
Directed electives ⁴		3
General electives ⁵		6
Semester Credit Hours		15
Fourth Year		
Fall		
General electives ⁵		15
Semester Credit Hours		15
Spring		
Directed electives ⁴		3
General electives ⁵		13
Semester Credit Hours		16
Total Semester Credit Hours		120

¹ Complete 6-8 hours of mathematics core courses as follows:
 • Select one of the following: MATH 142, MATH 147, MATH 151, MATH 171.

• Select one of the following: MATH 140, MATH 148, MATH 150, MATH 152, MATH 172, STAT 201.

² Must make a grade of C or better.

³ Completion of four semesters of upper-level ROTC may be substituted for 3 hours of American history and 3 hours of political science.

⁴ Select from ANSC 107, ANSC 108, ANSC 210, ANSC 303/NUTR 303, ANSC 318, ANSC 320, ANSC 326/FSTC 326, ANSC 327/FSTC 327; BICH 409, BICH 410, BICH 411, BICH 412, BICH 414, BICH 431/ GENE 431, BICH 432/GENE 432; BIMS 101, BIMS 110, BIMS 125, BIMS 201, BIMS 250, BIMS 289, BIMS 291, BIMS 303, BIMS 380, BIMS 402/VIBS 402, BIMS 405/GENE 405, BIMS 421/GENE 421, BIMS 481, BIMS 484, BIMS 485, BIMS 489, BIMS 491, BIMS 499; BIOL 401, BIOL 402, BIOL 403; CHEM 258; COMM 370; ENTO 208, ENTO 209, ENTO 210, ENTO 423, ENTO 425, ENTO 427, ENTO 431/ FIVS 431, ENTO 432/FIVS 432; MKTG 443/PHLT 426; NUTR 222; POSC 454; URPN 370; VIBS 111, VIBS 201/NRSC 201, VIBS 204, VIBS 210, VIBS 211, VIBS 222, VIBS 243, VIBS 277, VIBS 285, VIBS 289, VIBS 305, VIBS 310, VIBS 311, VIBS 343, VIBS 401/NRSC 401, VIBS 407/NRSC 407, VIBS 408, VIBS 411, VIBS 413, VIBS 422, VIBS 424/VTPP 424, VIBS 426/ENTO 426, VIBS 443, VIBS 445, VIBS 446, VIBS 447, VIBS 450, VIBS 456, VIBS 485, VIBS 489, VIBS 491; VLCS 422, VLCS 485, VLCS 491; VSCS 485, VSCS 491; VTPB 212, VTPB 221, VTPB 285, VTPB 289, VTPB 301/RWFM 309, VTPB 303, VTPB 407, VTPB 408, VTPB 409, VTPB 410, VTPB 411, VTPB 415, VTPB 425, VTPB 426, VTPB 438, VTPB 460, VTPB 485, VTPB 487, VTPB 489, VTPB 491; VTPP 123, VTPP 207, VTPP 208, VTPP 223, VTPP 224, VTPP 234, VTPP 235, VTPP 281, VTPP 285, VTPP 289, VTPP 291, VTPP 330, VTPP 401/BMEN 400, VTPP 404, VTPP 405, VTPP 420, VTPP 423, VTPP 425, VTPP 427, VTPP 438, VTPP 444, VTPP 452, VTPP 481, VTPP 485, VTPP 489, VTPP 491.

⁵ Includes 30-36 hours used to satisfy the two minor requirements and 7-13 hours any 100-499 course not used elsewhere (except MATH 102); only 1 KINE 199 may be used in this area.

No more than 9 hours combined of 291, 285, 491, 485 may be included as part of the 120 total hours required by the degree plan. No more than 6 hours of BIMS 484 may be used. Restriction to be enforced by the BIMS advising office.

All students are required to complete 3 hours of International and Cultural Diversity (p. 49) credit (ICD) and 3 hours of Cultural Discourse (p. 48) (CD) credits. A course satisfying a core category, a college department requirement, or a free elective can be used to satisfy this requirement. Select in consultation with academic advisor.

Graduation requirements require two courses with the (UWRT) Writing Intensive or 1 course with the Writing Intensive (UWRT)/1 course Oral communication (UCRT) attribute. Consult your academic advisor for choices. These credits may come from the concentration field of study or the minor areas.

Students must complete 36 hours 300/400 level coursework in residency at TAMU.

Department of Veterinary Integrative Biosciences

Department website: <http://vetmed.tamu.edu/vibs/>

Interim Head: Christine M Budke

The Department of Veterinary Integrative Biosciences (VIBS) has a mission to educate the next generation of veterinarians and biomedical scientists and to conduct novel biomedically-oriented research that is integrative in scope, approach and methodology. VIBS training programs deliver quality learning experiences for undergraduate, graduate, and veterinary medical professional students, preparing them for contributions to society through professional service, scientific inquiry, communication in scholarly journals, and robust educational outreach programs developed within the department and in partnership with outside agencies and organizations. State-of-the-art research is conducted across a variety of interactive focus areas, each of which brings the expertise of multiple disciplines to bear on complex issues of societal importance and maximizes each student's and investigator's potential for interdisciplinary synergy. The department is comprised of faculty with specialties in anatomy, epidemiology/public health, genetics/genomics, neuroscience, reproductive biology, and Science and Technology Journalism (STJR). Many of the department faculty participate in University-wide training programs in Neuroscience, Reproductive Biology, Genetics, Biotechnology, and Ecology and Evolutionary Biology.

Faculty

Andersson, Leif B, Professor

Vet Integrative Biosciences

PHD, Swedish University of Agricultural Sciences, Uppsala, 1984

Arosh, Joe A, Professor

Vet Integrative Biosciences

DVM, University, Madras, India, 1985

PHD, Universite Laval, 2004

Banu, Sakhila K, Professor

Vet Integrative Biosciences

PHD, University of Madras, 2002

Barron, Chrissy, Instructional Assistant Professor

Vet Integrative Biosciences

DVM, Ross University, School of Veterinary Medicine, 2012

Budke, Christine M, Professor

Vet Integrative Biosciences

DVM, Purdue University, 2001

PHD, Philosophisch-Naturwissenschaftliche Fakultät der Universität Basel, 2004

Burghardt, Robert C, Senior Professor

Vet Integrative Biosciences

PHD, Wayne State University, 1976

Cai, James, Professor

Vet Integrative Biosciences

PHD, University of Hong Kong, 2006

Chaney, Kristin P, Clinical Professor

Vet Integrative Biosciences

DVM, Colorado State University, 2003

Curley, Kevin, Instructional Associate Professor

Vet Integrative Biosciences

PHD, Texas A&M University, 2012

Davis, Lauren K, Instructional Assistant Professor

Vet Integrative Biosciences

PHD, Texas A&M University, 2015

Dunham, Thomas Leigh, Lecturer

Vet Integrative Biosciences

PHD, University of Texas Southwestern Medical Center, 2023

Foley, Nicole M, Research Assistant Professor

Vet Integrative Biosciences

PHD, University College Dublin, 2017

Frank-Cannon, Tamy C, Clinical Associate Professor

Vet Integrative Biosciences

DVM, Texas A&M University, 1996

PHD, Texas A&M University, 2005

Gaddy, Dana, Professor

Vet Integrative Biosciences

PHD, Baylor College of Medicine, 1991

Gastel, Barbara J, Professor

Vet Integrative Biosciences

MD, Johns Hopkins University, 1978

Gorman, Courtney T, Lecturer

Vet Integrative Biosciences

MS, Texas A&M University, 2020

Hamer, Sarah A, Professor

Vet Integrative Biosciences

DVM, Michigan State University, 2011

PHD, Michigan State University, 2010

Hartberg, Yasha M, Instructional Assistant Professor

Vet Integrative Biosciences

PHD, Binghamton University, 2016

Hiney, Jill K, Research Assistant Professor

Vet Integrative Biosciences

PHD, Texas A&M University, 1996

Hoffman, Anton G, Clinical Professor

Vet Integrative Biosciences

DVM, Texas A&M University, 1986

PHD, Texas A&M University, 1992

Johnson, Gregory A, Professor

Vet Integrative Biosciences

PHD, University of Wyoming, 1997

Juarez, Jose, Research Assistant Professor

Vet Integrative Biosciences

PHD, Texas A&M University, 2021

Kneese, Dana A, Clinical Assistant Professor

Vet Integrative Biosciences

DVM, Texas A&M University, 2013

PHD, Texas A&M University, 2009

Ko, Gladys Y, Professor

Vet Integrative Biosciences

PHD, Kent State University, 1996

Levent, Gizem, Assistant Professor
Vet Integrative Biosciences
DVM, Ankara University, 2012
PHD, Texas A&M University, 2019

Li, Jianrong, Professor
Vet Integrative Biosciences
PHD, University of Hawaii at Manoa, 1997

Murphy, William J, Professor
Vet Integrative Biosciences
PHD, The University of Tulsa, 1997

Ndeffo Mbah, Martial Loth, Assistant Professor
Vet Integrative Biosciences
PHD, University of Cambridge, UK, 2010

Nghiem, Peter P, Associate Professor
Vet Integrative Biosciences
DVM, Texas A&M University, 2008
PHD, George Washington University, 2014

Norman, Keri N, Associate Professor
Vet Integrative Biosciences
PHD, Texas A&M University, 2010

O'Hara, Todd, Professor
Vet Integrative Biosciences
DVM, University of Wisconsin, 1992
PHD, Virginia Commonwealth University, 1988

Pine, Michelle D, Clinical Professor
Vet Integrative Biosciences
DVM, University of Missouri-Columbia, 1991
PHD, Texas A&M University, 2002

Powell-Pierce, Alexandra, Lecturer
Vet Integrative Biosciences
PhD, Texas A&M University, 2023

Raudsepp, Terje, Professor
Vet Integrative Biosciences
PHD, Swedish University of Agricultural Sciences, 1999

Rijnkels, Monique G, Research Associate Professor
Vet Integrative Biosciences
PHD, Leiden University, 1997

Ritter, Nicola L, Instructional Associate Professor
Vet Integrative Biosciences
PHD, Texas A&M University, 2014

Skow, Loren C, Senior Professor
Vet Integrative Biosciences
PHD, Texas A&M University, 1976

Srivastava, Vinod K, Research Associate Professor
Vet Integrative Biosciences
PHD, Avadh University, Faizabad, India, 1986

Tayce, Jordan D, Instructional Associate Professor
Vet Integrative Biosciences
DVM, Texas A&M University, 2008

Welsh, Jane, Professor
Vet Integrative Biosciences
PHD, London University, 1981

Wilson, Patrick, Clinical Associate Professor
Vet Integrative Biosciences
DVM, Washington State University, 1990

Yang, Junhua, Assistant Professor
Vet Integrative Biosciences
PHD, University, Hangzhou, China, 2015

Yeoman, Michelle S, Lecturer
Vet Integrative Biosciences
MS, Texas A&M University, 2013

Young, Colin R, Lecturer
Vet Integrative Biosciences
PHD, Kings College London, University of London, 1977

Department of Veterinary Pathobiology

The Department of Veterinary Pathobiology (VTPB) focuses on advancing animal and human health through innovative research, preparing next-generation veterinary and biomedical professionals and scientists through impactful teaching, and supporting animal health care through expert clinical laboratory service. Protecting the health of animals and humans requires understanding the causes of disease, biological mechanisms of disease, and the body's defense mechanisms against disease. Expertise in VTPB spans infectious diseases, pathology, biomedical genetics, and cell biology. VTPB research strengths are in the areas of infectious diseases and immunology, antimicrobial resistance and stewardship, genetics of disease susceptibility and resistance, and wildlife ecosystems and conservation genetics. VTPB faculty members teach courses in undergraduate, graduate, and veterinary medicine professional programs. Instruction at the undergraduate level includes courses in biomedical microbiology, virology, and parasitology, introduction to immunology, mechanisms of disease, biomedical genetics, poultry diseases, and great diseases of the world. VTPB faculty members also provide high-impact research and other experiential learning opportunities to undergraduate students, including study abroad programs into South Africa and Costa Rica. Students learn to investigate the mechanisms of health and disease at the molecular, cellular, organismal, or population levels.

Faculty

Adams, Leslie Garry, Senior Professor
Veterinary Pathobiology
DVM, Texas A&M University, 1964
PHD, Texas A&M University, 1968

Arenas, Angela M, Associate Professor
Veterinary Pathobiology
DVM, La Salle University, Colombia, 2002
PHD, Texas A&M University, 2007

Brightsmith, Donald J, Professor
Veterinary Pathobiology
PHD, Duke University, 1999

Bryan, Laura K, Clinical Associate Professor
Veterinary Pathobiology
DVM, University of Georgia, 2011
PHD, Texas A&M University, 2018

Chu, Candice, Assistant Professor
Veterinary Pathobiology
DVM, National Taiwan University, 2013
PHD, Texas A&M University, 2018

Clubb, Fred J, Clinical Professor
Veterinary Pathobiology
DVM, Auburn University, 1971
PHD, University of Alabama at Birmingham, 1983

Cook, Walter E, Clinical Professor
Veterinary Pathobiology
DVM, University of California at Davis, 1994
PHD, University of Wyoming, 1999

Criscitiello, Michael F, Professor
Veterinary Pathobiology
PHD, University of Miami, 2003

Dabral, Neha, Clinical Assistant Professor
Veterinary Pathobiology
BVSc, Govind Ballabh Pant University of Agriculture and Technology,
2008
PHD, Purdue University, 2014

Davis, Brian W, Assistant Professor
Veterinary Pathobiology
PHD, Texas A&M University, 2013

Derr, James N, Professor
Veterinary Pathobiology
PHD, Texas A&M University, 1990

Dindot, Scott V, Professor
Veterinary Pathobiology
PHD, Texas A&M University, 2003

Farkas, Tibor, Associate Professor
Veterinary Pathobiology
DVM, University of Veterinary Medicine Budapest Hungary, 1988

Galloway-Pena, Jessica, Assistant Professor
Veterinary Pathobiology
PHD, University of Texas, 2013

Giaretta, Paula Roberta, Clinical Assistant Professor
Veterinary Pathobiology
PHD, Texas A&M University, 2019

Gomes Verocai, Guilherme, Associate Professor
Veterinary Pathobiology
BVetMed, Rio de Janeiro Rural Federal University, 2005
PhD, University of Calgary, Canada, 2015

Hamer, Sarah A, Professor
Veterinary Pathobiology
DVM, Michigan State University, 2011
PHD, Michigan State University, 2010

Hokamp, Jessica, Clinical Associate Professor
Veterinary Pathobiology
DVM, Texas A&M University, 2008
PHD, Texas A&M University, 2016

Johnson, Mark C, Clinical Professor
Veterinary Pathobiology
DVM, Texas A&M University, 1988

Jones-Hall, Yava, Associate Professor
Veterinary Pathobiology
DVM, Tuskegee University, 2003
PHD, Michigan State University, 2011

Klima, Cassidy Lynn, Assistant Professor
Veterinary Pathobiology
PHD, University of Saskatchewan, 2015

Langsten, Kendall, Clinical Assistant Professor
Veterinary Pathobiology
DVM, University of Missouri, Columbia, 2017
PHD, Wake Forest University, 2024

Lawhon, Sara D, Professor
Veterinary Pathobiology
DVM, Texas A&M University, 1997
PHD, North Carolina State University, 2003

Logan, Linda L, Professor
Veterinary Pathobiology
DVM, Texas A&M University, 1976
PHD, University of California at Davis, 1987

Lupiani, Blanca M, Professor
Veterinary Pathobiology
PHD, University of Maryland-College Park, 1994

Mirhosseini, Negin, Instructional Assistant Professor
Veterinary Pathobiology
BVetM, Shahid Bahonar University, 2004
PHD, Texas A&M University College of Veterinary Medicine, 2011

Mulenga, Albert, Professor
Veterinary Pathobiology
PHD, Hokkaido University, 1999

Musser, Jeffrey M, Visiting Research Professor
Veterinary Pathobiology
DVM, Virginia Tech, 1989
PHD, North Carolina State University, 2000

Nabity, Mary B, Professor
Veterinary Pathobiology
DVM, Cornell University, 2002
PHD, Texas A&M University, 2010

Porter, Brian F, Clinical Professor
Veterinary Pathobiology
DVM, Texas A&M University, 1992

Rech, Raquel R, Clinical Associate Professor
Veterinary Pathobiology
DVM, Santa Catarina State University, 1999
PHD, Federal University of Santa Maria (UFSM), 2007

Reddy, Sanjay M, Professor
 Veterinary Pathobiology
 BVSc, Andhra Pradesh Agricultural University, India, 1986
 PHD, University of Maryland, College Park, 1994

Russell, Karen E, Professor
 Veterinary Pathobiology
 DVM, Virginia Tech, 1990
 PHD, North Carolina State University, 1997

Saleh, Meriam, Clinical Assistant Professor
 Veterinary Pathobiology
 PHD, Virginia Tech, 2017

Scott, H. Morgan, Professor
 Veterinary Pathobiology
 DVM, University of Saskatchewan, 1988
 PHD, University of Guelph, 1998

Seabury, Christopher M, Professor
 Veterinary Pathobiology
 PHD, Texas A&M University, 2004

Silkwood, Catherine, Instructional Associate Professor
 Veterinary Pathobiology
 PHD, Texas A&M University, 2015

Stranahan, Lauren W, Clinical Assistant Professor
 Veterinary Pathobiology
 DVM, North Carolina State University, 2016

Subash, Sarguru, Associate Professor
 Veterinary Pathobiology
 BVSc, Madras Veterinary College Tamil Nadu Veterinary and Animal
 Sciences University, 2005
 PHD, Michigan State University, 2011

Turner, Kenneth E, Lecturer
 Veterinary Pathobiology
 DVM, University of Pennsylvania, 1992

Valeris-Chacin, Robert, Assistant Professor
 Veterinary Pathobiology
 DVM, University of Zulul, Venezuela, 2001

Vemulapalli, Ramesh, Professor
 Veterinary Pathobiology
 BVSc, Andhra Pradesh Agricultural University, India, 1986
 PHD, University of Maryland, 1996

Wikander, Yvonne, Clinical Assistant Professor
 Veterinary Pathobiology
 DVM, Oregon State University, 1989

Yang, Zhilong, Professor
 Veterinary Pathobiology
 PHD, University of Nebraska-Lincoln, 2007

Department of Veterinary Physiology and Pharmacology

The Department of Veterinary Physiology and Pharmacology (VTPP) has a rich tradition of excellence in education, research and outreach that impacts both veterinary and human medicine. The department has

expertise in toxicology, reproductive science, cardiovascular biology, tissue regeneration and bone biology. In addition, VTPP is the home department for the undergraduate Biomedical Research Certificate (BRC) program, the largest undergraduate research experience program in the country.

The primary research focus areas within the department are extramurally funded, internationally renowned and significantly contribute to improving human and veterinary health. Extensive research collaborations with the Colleges of Agriculture and Life Sciences, Science, Engineering and Education and Human Development, as well as with the Texas A&M University Health Science Center, School of Public Health, Texas A&M AgriLife Research and the Texas A&M Engineering Experiment Station provide exceptional resources that enhance all departmental research efforts.

Our faculty, many of whom are leaders in their fields and key contributors to the scientific and educational literature, are also strong mentors that form the basis for a strong graduate and undergraduate research and education experience. Most importantly, they are accessible, focused and student-friendly with a deep understanding of the art and science of education and research.

Faculty

Aguilar, Yuriana, Assistant Professor
 Vet Physiology & Pharmacology
 PHD, University of California, Merced, 2016

Bailey, Murl, Senior Professor
 Vet Physiology & Pharmacology
 DVM, Texas A&M University, 1964
 PHD, Iowa State University, 1968

Blue-McLendon, Alice, Clinical Associate Professor
 Vet Physiology & Pharmacology
 DVM, Texas A&M University, 1989

Cavazos, Charity Caridad, Instructional Assistant Professor
 Vet Physiology & Pharmacology
 PHD, University of Oklahoma, 2016

Chiu, Weihsueh A, Professor
 Vet Physiology & Pharmacology
 PHD, Princeton University, 1998

Davis, Amanda R, Clinical Assistant Professor
 Vet Physiology & Pharmacology
 PHD, Texas A&M University, 2017

Dawson, Lindsay A, Assistant Professor
 Vet Physiology & Pharmacology
 PHD, Tulane University, 2014

Fajt, Virginia R, Clinical Professor
 Vet Physiology & Pharmacology
 DVM, Auburn University, 1995
 PHD, Iowa State University, 2000

Golding, Michael C, Professor
 Vet Physiology & Pharmacology
 PHD, Texas A&M University, 2003

Heaps, Cristine L, Professor
Vet Physiology & Pharmacology
PHD, University of Missouri at Columbia, 1999

Herman, James D, Clinical Professor
Vet Physiology & Pharmacology
DVM, Texas A&M University, 1989
PHD, Texas A&M University, 1995

Ivanov, Ivan V, Clinical Professor
Vet Physiology & Pharmacology
PHD, University of South Florida, 1999

Iyer, Srividhya, Assistant Professor
Vet Physiology & Pharmacology
PHD, Jawaharlal Nehru University, 2011

Joshi, Aditya, Associate Professor
Vet Physiology & Pharmacology
PHD, University of Texas Medical Branch, 2008

Laine, Glen A, Professor
Vet Physiology & Pharmacology
PHD, Texas A&M University, 1980

Long, Charles R, Professor
Vet Physiology & Pharmacology
PHD, University of Massachusetts, 1996

Lyons, Luke C, Clinical Assistant Professor
Vet Physiology & Pharmacology
PHD, Texas A&M University, 2018

Muneoka, Ken, Professor
Vet Physiology & Pharmacology
PHD, University of California at Irvine, 1983

Newell-Fugate, Anne E, Assistant Professor
Vet Physiology & Pharmacology
DVM, North Carolina State University, 2004
PHD, University of Illinois at Urbana-Champaign, 2012

Patterson, Carly A, Clinical Associate Professor
Vet Physiology & Pharmacology
DVM, University of Illinois, 2011

Phillips, Timothy D, Professor
Vet Physiology & Pharmacology
PHD, University of Southern Mississippi, 1975

Porter, Weston W, Professor
Vet Physiology & Pharmacology
PHD, Texas A&M University, 1997

Quick, Christopher M, Professor
Vet Physiology & Pharmacology
PHD, Rutgers University, 1999

Rahbar, Ellie, Associate Professor
Vet Physiology & Pharmacology
PHD, Texas A&M University, 2011

Rusyn, Ivan, Professor
Vet Physiology & Pharmacology
MD, Bogomolets National Medical University, Ukraine, 1994
PHD, University of North Carolina at Chapel Hill, 2000

Safe, Stephen H, Distinguished Professor
Vet Physiology & Pharmacology
PHD, University of Oxford, 1966

Stallone, John N, Professor
Vet Physiology & Pharmacology
PHD, University of Arizona, 1984

Stewart, Randolph H, Clinical Professor
Vet Physiology & Pharmacology
DVM, Texas A&M University, 1983
PHD, Texas A&M University, 1997

Suva, Larry J, Professor
Vet Physiology & Pharmacology
PHD, The University of Melbourne, 1992

Washburn, Shannon E, Clinical Professor
Vet Physiology & Pharmacology
DVM, Texas A&M University, 1994
PHD, Texas A&M University, 2010

Xu, Wei, Associate Professor
Vet Physiology & Pharmacology
PHD, Michigan State University, 2009

Yu, Ling, Research Associate Professor
Vet Physiology & Pharmacology
PHD, Nanjing Agricultural University, 2001

Certificates

- Biomedical Research Certificate (p. 811)

Biomedical Research - Certificate

The Biomedical Research Certificate will provide students the opportunity to gain advanced training in biomedical research.

Students in the Certificate Program will gain a broader understanding of the creation, evaluation, and dissemination of new knowledge while performing publishable original biomedical research within a research-intensive community. The Biomedical Research Certificate program includes engagement in inquiry-based research.

Program Requirements

Code	Title	Semester Credit Hours
VTPP 123	Foundations of Physiology	3
VTPP 444	Practicum in Biomedical Research	3
VTPP 491	Research ¹	6
Prescribed Elective Courses		6

Select one of the following:

VTPP 207 Methodologies of Physiology
& VTPP 208 Education Research
and Analysis and Evaluation of
Physiology Education

VTPP 223 Design of Experiments for
& VTPP 224 Physiology Research
and In Vitro Experimentation in
Physiology Research

VTPP 234 Design of Models for Physiology
& VTPP 235 Research
and Analysis and Validation of
Models for Physiology Research

Total Semester Credit Hours

18

¹ Two (three hour) courses are required for 6 hours total.

SCHOOL OF MILITARY SCIENCES

Administrative Officers

Commandant - Lieutenant General James W. Bierman Jr, USMC (Ret.)

General Statement

The School of Military Sciences is composed of three departments: Aerospace Studies, Military Science and Naval Science.

The University's commitment to providing highly skilled and disciplined leaders to the Armed Forces requires all students enrolled in ROTC programs at Texas A&M to be members of the Corps of Cadets.

All courses offered by the School of Military Sciences are accredited by the Texas A&M University. However, the credit granted for degree plans varies by college and often by department. For precise information, consult an academic advisor or department head.

Students not enrolled in an ROTC program may be permitted to take ROTC courses as electives with the advance approval of the professor of military science, the professor of aerospace studies, or the professor of naval science, as appropriate, and the concurrence of the head of the School of Military Sciences.

State law permits the substitution of 3 hours of history and 3 hours of political science for a student in the program of an approved senior ROTC unit. With the approval of the dean of the appropriate college, students successfully completing their required four semesters of upper-level ROTC curriculum will be deemed to have completed the equivalent of POLS 206 or POLS 207 plus HIST 105 or HIST 106 (or another appropriate course) for a total of 6 hours. Students pursuing teacher certification are not allowed to substitute ROTC credits for this requirement.

Undergraduate Studies' units have modified services available to students enrolled via distance education, at branch campuses, or at other instructional locations.

Departments

Aerospace Studies (p. 813)

Military Science (p. 813)

Naval Science (p. 815)

Minors

- Military Studies Minor (p. 816)

Department of Aerospace Studies

The Air Force Reserve Officer Training Corps (AFROTC) program at Texas A&M University is the largest in the United States and designed to prepare students to be commissioned officers in the United States Air Force and Space Force. AFROTC curriculum includes classroom instruction and hands-on activities.

The first two years include Aerospace Studies (AERS) 100- and 200-level courses with a focus on the culture and organization of the Air Force, followership, teamwork, and professionalism. Cadets attend class one hour per week and Leadership Lab two hours per week each semester.

These courses prepare cadets to lead as juniors and seniors and for selection to Field Training.

During their sophomore year, cadets may apply for continued enrollment for their junior and senior year. Competitive selection is limited to students of high moral character who are academically qualified, are physically fit, and have demonstrate aptitude and leadership potential.

Cadets selected to continue in AFROTC enlist into the Air Force Reserve and sign a contract with the government agreeing to complete the course and, upon graduation, accept a commission as an officer in the United States Air Force or Space Force. They also must agree to serve on active duty for no less than four years after being commissioned or ten years after completion of flying training if selected for aviation. Continuing cadets must attend Field Training during the summer months typically between the sophomore and junior years.

AERS 300- and 400-level courses focus on critical thinking, effective supervision and feedback, communication, leadership, ethics, joint operations, national security affairs, military justice system, and air and space competencies. Junior and senior attend class three hours per week and Leadership Lab two hours per week during each semester.

Leadership Laboratory includes practical instruction conducted within the framework of an organized cadet unit with a progression of experiences designed to develop each student's leadership potential. Leadership Laboratory involves a study of Department of the Air Force customs and courtesies, drill and ceremonies, physical fitness activities and Air Force and Space Force career opportunities. Students develop leadership skills in a supervised laboratory environment.

Students enrolled in the four-year program may compete for two- or three-year AFROTC scholarships. Four-year scholarships must be applied for during the senior year of high school. AFROTC scholarship students are eligible to receive tuition payment, textbook allowance, and monthly subsistence allowance. Contracted cadets receive a monthly subsistence allowance.

Upon completion of AFROTC and graduation from the University, students are commissioned as Second Lieutenants in the United States Air Force or Space Force. Instructors are active duty officers assigned to the University by the Department of the Air Force. Information about the AFROTC program may be obtained by contacting the Detachment or visiting the AFROTC website.

Department of Military Science

Overview

Military instruction has been conducted at Texas A&M University since its founding in 1876. In 1916, the Army Reserve Officers' Training Corps (ROTC) was formally established as a federal program and the Army ROTC program at Texas A&M University was one of the first nationally recognized programs. Army ROTC Cadets are proud members of the Texas A&M Corps of Cadets known as the "Guardians of Tradition" and the "Keepers of the Spirit" in Aggieland. Army ROTC cadets are leaders in a wide variety of university activities including student government, campus athletics, the Fightin' Texas Aggie Band, Ross Volunteer Company, Parsons Mounted Calvary and Fish Drill Team. Members of the Army ROTC Ranger Challenge Team are selected from the famed Rudder's Rangers student organization. The Texas A&M Ranger Challenge team has won multiple Army ROTC national competitions and

consistently places in the top five at the Sandhurst International Military Skills Competition competition held at U.S. Military Academy.

Army ROTC classes are electives preparing qualified cadets to earn a commission as a Second Lieutenant in the Army, Army National Guard, or US Army Reserve. The Army offers a variety of career fields to match a student's education and interests with virtually no restrictions on the field of study (except for General Studies). Army ROTC graduates who accept a commission may enter one of 18 full-time or part-time career fields such as the Corps of Engineers, Aviation, Military Intelligence, Infantry, Armor, Air Defense Artillery, Field Artillery, Cyber, Signal, Finance, Chemical, Military Police, Ordnance, Transportation, Quartermaster, Adjutant General Corps, Medical Service Corps, or Nursing.

Highly qualified cadets may apply for an education delay program to pursue advanced degrees in divinity, medical, or law. Qualified cadets may also attend formal military training including: Air Assault, Airborne Course, Sapper Leaders Course, Basic Military Mountaineering Course, Cold Weather Operations Course, Jungle Warfare Course, or Combat Diver Qualification Course.

Curriculum

Basic Course (100 and 200 level MLSC Curriculum)

Army ROTC curriculum for the 100- and 200- level courses is designed to provide college students with foundational military training while also preparing them for leadership roles in the U.S. Army. These courses focus on developing teamwork, physical fitness, military knowledge, and personal discipline. The outcome is a foundation for the more advanced 300- and 400 level courses that are part of the ROTC program.

Cadets develop and refine their leadership by participating in physical training, tactically focused leadership labs, and one field training exercise per semester. There is **NO** military obligation for participation in the Basic Course. Students who are not part of the Corps of Cadets and who do not desire a commission in the Army may take Basic Course classes for academic credit as a participating student but are not permitted to attend leadership labs or conduct physical training. Cadets who have not completed four semesters of Basic Course classes and desire a commission in the Army (cadets from other ROTC programs, transfer students, graduate students) may attend the 30-day Basic Camp at Fort Knox, Kentucky during the summer after their freshman or sophomore year. Basic Camp provides an immersive experience in basic Soldier skills and replaces Military Science 100-200 level Army ROTC requirements preparing those Cadets for acceptance to the Advance Course.

Advanced Course (300 and 400 level MLSC Curriculum)

The Advanced Course curriculum for Army ROTC is designed for cadets in their junior and senior years (300- and 400- level courses) and focuses on preparing them to become commissioned officers in the U.S. Army. This stage of the program emphasizes physical fitness, advanced leadership development, military tactics, decision-making under pressure, critical thinking, and the skills necessary to lead Soldiers in a wide variety of operational environments.

At the 300 level (Junior Year), cadets are expected to contract with Army ROTC and will generally assume a military service obligation. 300 level classes focus on military operations and tactics, include required physical training, and a leadership laboratory once a week. This intermediate level of instruction is designed for cadets to take on greater responsibilities and deepen their tactical expertise by preparing them for Cadet Summer Training (CST). CST is a 5-week, hands on, leadership evaluation event held at Fort Knox, Kentucky. Army ROTC Juniors from

across the United States seeking a commission in the U.S. Army attend CST after successfully passing their 300 level courses. Passing CST is a requirement for commissioning.

The 400 level (Senior Year) represents the final phase of the ROTC curriculum. Cadets are expected to take on even greater leadership roles, learn more complex military processes, and refine their thinking in preparation for commissioning as officers. As part of the required leadership laboratory, cadets in the 400 level curriculum are also assigned leadership roles within the Aggie Warrior Battalion responsible for planning, resourcing, and conducting training for the cadets in the 100-300 levels. This model is designed to prepare cadets to transition from college students to commissioned officers in the U.S. Army. Cadets will work with instructors in deciding which component (Active-Duty, Army Reserves, or Army National Guard) they will commission in, their selection of Army career fields, and begin preparing for their first duty assignment.

Qualified veterans may enroll directly into the ROTC Advanced Course. Veterans in the Advanced Program receive a tiered subsistence allowance of up to \$500 per month in addition to their veterans' benefits.

Stipends

All qualified cadets in the Army ROTC program who sign a commissioning contract receive a monthly subsistence allowance while a full time student (not during the summer, and prorated in August and May). Army ROTC cadets are also encouraged to take courses in strategic languages. Through the Army's Culture and Language Incentives Program, students can earn up to \$300 per credit hour for completing classes in qualifying languages.

Qualified students who join the Army National Guard or US Army Reserve, may participate in the Simultaneous Membership Program (SMP). This program allows student to train with local US Army Reserve or Army National Guard units while a cadet and earn approximately \$250 extra per month. The total dollar amount for SMP cadets can reach up to \$750 per month during their junior and senior years in Army ROTC. Tuition assistance paying between 75-100% of tuition costs is available through the U.S. Army Reserves and Texas Army National Guard.

Scholarships

The Army ROTC Scholarship program awards scholarships on a competitive basis to students entering Army ROTC as college freshmen. Qualified college students already enrolled in Army ROTC may compete for scholarships if federal funding is available. These scholarships pay the cost of tuition and required fees *or* room and board. Once a cadet is contracted with Army ROTC, they may qualify for the Texas A&M Patriot Scholarship through the Corps of Cadets. This additional scholarship covers remaining room and board fees (restrictions apply). Army ROTC Scholarship Cadets also receive a textbook allowance of \$600 per semester for the duration of the scholarship.

The U.S. Army Health Profession Scholarship Program (HPSP) offers a unique opportunity for financial support to cadets who desire to continue their education beyond their undergraduate work by enrolling in a program that leads to a professional degree in medicine, dentistry or veterinary medicine.

Contact

Texas A&M Army ROTC Staff and Cadre have a plethora of military and academic experience, and most have served multiple combat and

operational deployments. They are dedicated to developing academically superior and physically fit commissioned officers recognized as outstanding leaders of character for the U.S. Army Officer Corps. For more information on Army ROTC programs, contact the Military Science Department and the Recruiting Operations Officer at (979) 845-2814 or at armyrotc@corps.tamu.edu.

Department of Naval Science

Mission

The Naval ROTC Unit at Texas A&M University provides qualified young men and women the opportunity to learn the mission of the Naval Services and pursue a commission as an officer in the United States Navy or United States Marine Corps. The Naval ROTC Unit operates as the Department of Naval Science at Texas A&M and is one of the largest Naval ROTC Units in the United States. Graduates from our program can be found serving around the world. Officers commissioned as Ensigns in the United States Navy have the option, based on physical and aptitude qualification, to serve in the Aviation (Pilot or Naval Flight Officer), Surface Warfare (Conventional or Nuclear), Nuclear Submarine, or Special Warfare (SEAL or Explosive Ordnance Disposal) communities. Officers commissioned as Second Lieutenants in the United States Marine Corps can serve in one of more than 36 military operational specialties in three categories including Aviation (Pilot or Naval Flight Officer), Combat Arms (Infantry, Artillery, Assault Amphibians, Combat Engineers, etc.), or Combat Service Support (Logistics, Supply, Communication, Finance, etc.).

Naval ROTC students may participate fully in all aspects of university life. This includes serving in positions with Student Government or the Memorial Student Center, belonging to campus clubs and service organizations, or participating in religious, social, professional or personal interest organizations.

Scholarships

The Naval ROTC program provides numerous scholarship opportunities for qualified individuals who are seeking a commission upon graduation as an officer in either the United States Navy or United States Marine Corps. The four-year Naval ROTC scholarship program is a nationally competitive program. High school students seeking a four-year Navy or Marine Corps Option Naval ROTC scholarship may apply as early as the spring of their junior year in high school, and should apply no later than December of their senior year in high school. College freshmen with less than 30 college credit hours may also apply for the 4-year Naval ROTC scholarship during the fall of their freshman year. If awarded the scholarship, it would come into effect during the fall of their sophomore year. The Naval ROTC scholarship pays for all tuition, most university fees, some uniform fees, and provides the student with a monthly stipend and a semester book allowance. Three- and two-year scholarships with the same benefits listed above are available for qualifying students who apply while enrolled as NROTC students at Texas A&M. The four-year national scholarship application can be found at www.nrotc.navy.mil (<https://www.nrotc.navy.mil/>).

College Program

Students without NROTC scholarships that desire to commission into the Navy or Marine Corps are Basic College Program Students. Basic College Program students are guided by the same goals as the NROTC Scholarship students; to include meeting the respective service physical requirements, maintaining a required minimum GPA, and possessing

the aptitude and motivation for service above self. The Basic College Program exists to provide students the opportunity to learn about the United States Navy and United States Marine Corps and provide an alternate means for a commission for those not on scholarship. Basic College Program students can apply for a two-year or three-year Navy or Marine Corps Option Naval ROTC scholarship. Students who do not qualify for a scholarship but still desire a commission in the Navy can apply for acceptance into the College Program (Advanced Standing). The College Program (Advanced Standing) begins during the junior year and pays a monthly stipend, but does not pay for tuition and fees. All NROTC students are provided Naval Science textbooks, which are returned at the end of each semester, at no cost.

Naval Science Students

Students who join the Texas A&M Corps of Cadets are required to participate with an ROTC for a minimum of three semesters. Students who choose to join the Naval ROTC, but do not intend to pursue a commission into the Navy or Marine Corps are considered Naval Science Students. They are required to take a Naval Science (NVSC) class and attend specified Leadership Laboratories. They are not required to do physical fitness with the NROTC or be advised by a military advisor.

Leadership

All Scholarship and College Program (Basic and Advanced Standing) NROTC students are also members of the Texas A&M Midshipman Battalion, an organization providing distinct training and leadership opportunities for students pursuing Navy and Marine Corps commissions. This training is accomplished through the NROTC's physical fitness program and leadership laboratory. Associated with each Naval Science class and conducted every Tuesday afternoon, Leadership Laboratory is a combination of classroom study and practical hands-on application that exposes the students to many facets of the Navy and Marine Corps and provides them the opportunity to develop their leadership skills.

Academic Requirements

Academic requirements vary by program, but all freshmen and sophomore Naval ROTC students must take a Naval Science (NVSC) class each fall and spring semester. These courses provide a basic understanding of the Navy and Marine Corps organization and mission; address the concepts of leadership, ethics, and management; and provide a basic understanding of the history of American sea power and the evolution of warfare throughout the ages. All Scholarship and College Program (Advanced Standing) students continue to take Naval Science courses during their junior and senior year. These courses cover additional topics such as navigation, weapons systems, amphibious warfare and leadership and ethics for the junior officer. All students on scholarship or College Program (Advanced Standing) can choose from any major offered by Texas A&M. Students who are recipients of the NROTC scholarship Navy option, must also complete two courses of calculus and two courses of physics, regardless of major.

Summer Cruise

Scholarship students receive four to six weeks of additional training every summer with operational Navy and Marine Corps units around the world. Between the freshman and sophomore years, students receive orientation training with naval aviation, surface combatant, submarine and Marine Corps units. Between the sophomore and junior years, Navy Option students experience the life of enlisted sailors aboard ships and submarines and Marine Option students experience the life of enlisted

marines with Marine units in the field. For the final training session between the junior and senior years, all Scholarship and College Program (Advanced Standing) students receive service-specific training in final preparation for commissioning. Navy Option students are assigned to aviation units, surface combatants or submarines depending upon their qualifications and desires and receive hands-on training working closely with qualified junior officers. Marine Option students attend Officer Candidate School at Quantico, VA where they are screened, trained and evaluated in an intense, competitive environment alongside other Marine Option students from around the country. Students participating in summer cruises are provided government travel, medical and dental care, commissary and exchange privileges, and are paid for the duration of the training.

Commissioning

Upon graduation, qualified Naval ROTC Marine Option Scholarship students receive commissions as Second Lieutenants in the United States Marine Corps and serve a minimum of four years of active duty. Qualified Naval ROTC Navy Option Scholarship students receive commissions as Ensigns in the United States Navy and serve a minimum of five years of active duty. Qualified Naval ROTC College Program (Advanced Standing) Navy Option students receive commissions as Ensigns in the United States Navy and serve a minimum of three years of active duty. Those Navy Option graduates who are academically qualified and accepted to graduate school in certain disciplines may apply for active duty deferments to complete their post-graduate education.

NROTC Staff

The staff of the Naval Science Department is dedicated to producing officers of the highest quality for the United States Navy and United States Marine Corps. All instructors are active duty Navy or Marine Corps officers and senior enlisted personnel assigned to the University by the United States Navy or United States Marine Corps. In addition, they work with the Corps of Cadets and act as military advisors to the Companies/Outfits within the naval regiment. This group of highly trained professionals places specific emphasis on the academic and professional development of every student assigned. Additional information about the Naval ROTC program at Texas A&M University can be obtained by calling the Department at (979) 845-1775, or by visiting the Texas A&M Naval ROTC website.

Military Studies - Minor

The School of Military Sciences offers a minor in Military Studies. This minor is available to all Texas A&M students; ROTC or Corps of Cadets participation is not required. All students desiring to enroll in the Military Studies minor should visit <https://tx.ag/corpsacademics> (<https://tx.ag/corpsacademics/>) or email academics@corps.tamu.edu to request more information.

Program Requirements

The Military Studies minor requires 18 hours. Nine hours must be completed in approved upper-level Aerospace Studies, Military Science, or Naval Science courses with an additional 9 hours from approved university courses with a military-related focus. A minimum of 12 hours must be at the 300-400 level. A grade of C or higher is required if a course is to be counted towards the minor field. Minor programs are recognized on the transcripts after graduation, but not on the diploma. The student's college and/or major department determines the number of minor programs a student may seek and shall be responsible for advising after

the student receives signed approval from the Assistant Commandant for Academics and International Programs.

Code	Title	Semester Credit Hours
Military Science Courses ¹		
Select three of the following:		9
AERS 303	Leading People and Effective Communication I	
AERS 304	Leading People and Effective Communication II	
AERS 403	National Security Affairs, Leadership Responsibilities, and Commissioning Preparation I	
AERS 404	National Security Affairs, Leadership Responsibilities, and Commissioning Preparation II	
MLSC 321	Adaptive Leadership and Tactical Operations I	
MLSC 322	Adaptive Leadership and Tactical Operations II	
MLSC 421	The Army Officer and the Profession of Arms I	
MLSC 422	The Army Officer and the Profession of Arms II	
NVSC 301	Navigation	
NVSC 303	Evolution of Warfare	
NVSC 320	Naval Ships Systems I: Engineering	
NVSC 401	Naval Ships Systems II: Weapons	
NVSC 402	Leadership and Ethics	
NVSC 404	Naval Operations and Seamanship	
NVSC 410	Fundamentals of Maneuver Warfare	
Non-Military Science Courses		
Select three of the following:		9
FINP 335	Financial Readiness	
GEOG 320	The Middle East	
GEOG 352/ GEOL 352	GNSS in the Geosciences	
GEOG 361	Remote Sensing in Geosciences	
GEOG 390	Principles of Geographic Information Systems	
GEOG 401	Political Geography	
GEOG 420	Geography of Terrorism	
GEOG 475	Advanced Topics in GIS (Geographic Information Systems)	
GEOL 352/ GEOG 352	GNSS in the Geosciences	
HIST 230	American Military History, 1609 to Present	
HIST 232	History of American Sea Power	
HIST 234	European Military History	
HIST 337	War and Society in Europe Since 1900	
HIST 348	Modern Middle East	
HIST 349/ ASIA 349	The Vietnam War/The American War	

HIST 350/ ASIA 350	World War II in Asia and the Pacific
HIST 353	Modern South Asia
HIST 357/ AFST 357	Out of Africa: The Black Diaspora and the Modern World
HIST 368	The Birth of the Republic, 1763-1820
HIST 371	America in the Gilded Age, 1877-1901
HIST 372	Reform, War and Normalcy: The United States, 1901-1929
HIST 373	The Great Depression and World War II
HIST 405	History of the Holocaust
HIST 406	The Era of the French Revolution and Napoleon, 1715-1815
HIST 412	Russia's Long Twentieth Century - The Soviet Experiment and Beyond
HIST 442	World War II
HIST 443	American Military History to 1901
HIST 444	American Military History Since 1901
HIST 452	The American Revolution
HIST 462	American Foreign Relations to 1913
HIST 463	American Foreign Relations Since 1913
HIST 464	International Developments Since 1918
HIST 475	Empires in History
NURS 412	Care of Mental Health Clients
NURS 421	Care of Community Health Clients
PHIL 315	Military Ethics
PHIL 331/ RELS 331	Philosophy of Religion
PHIL 332	Social and Political Philosophy
PHIL 381	Ethical Theory
POLS 229	Introduction to Comparative Politics
POLS 231	Introduction to World Politics
POLS 312	Ethnic Conflict
POLS 318	Theories of International Relations
POLS 326	Government and Politics of Eastern Europe
POLS 328	Globalization and Democracy
POLS 333	International Cooperation
POLS 335	International Conflict
POLS 338	Government and Politics of the Former Soviet Union
POLS 364	Global Political Thought
POLS 368	Latin American Legislatures
POLS 413	American Foreign Policy
POLS 415	Contemporary Issues in American Foreign Policy
POLS 429	Issues in World Politics
POLS 432	The Politics of European Union

POLS 439	Foreign Policy Decision Making
POLS 447	National Security Policy
SOCI 312	Population and Society
SOCI 317/ AFST 317	Racial and Ethnic Relations
SOCI 412	Political Sociology

¹ Minimum of 6 hours of School of Military Sciences courses (NVSC, AERS, and MLSC) must be at the 400 level.

TEXAS A&M UNIVERSITY AT GALVESTON

Administrative Officers

Col. Michael E. Fossum, USAFR (Ret.) - Chief Operating Officer, Texas A&M University at Galveston; Vice President, Texas A&M University; Superintendent, Texas A&M Maritime Academy

Dr. Debbie Thomas, Executive Associate Vice President for Academic Affairs and Chief Academic Officer, Texas A&M University at Galveston; Dean, College of Marine Sciences and Maritime Studies; Associate Provost, Texas A&M University

Dr. Pete van Hengstum - Interim Associate Vice President for Research and Graduate Studies, Texas A&M University at Galveston; Associate Dean, College of Marine Sciences and Maritime Studies, Texas A&M Professor

Dr. Donna C. Lang - Executive Associate Dean, College of Marine Science and Maritime Studies, Texas A&M University Associate Vice President for Academic Operations, Texas A&M University at Galveston

Ms. Susan Hernandez Lee - Associate Vice President for Finance and Compliance Officer

Mr. Grant W. Shallenberger - Associate Vice President for Administration and Auxiliary Services

Dr. Todd Sutherland - Associate Vice President for Student Affairs and Assistant Superintendent of Cadets

General Statement

Texas A&M University at Galveston, a branch campus of Texas A&M University, houses the College of Marine Sciences and Maritime Studies, selected programs of the College of Engineering and the Texas A&M Maritime Academy. The College of Marine Sciences and Maritime Studies offers ocean-oriented academic degrees, research, continuing education, and public service in marine science, engineering, business, transportation and liberal arts. Degrees are awarded from Texas A&M University. Ocean voyages, sailing in Galveston Bay, beachfront experiments and independent study complement the rigorous classroom experience at Texas A&M University at Galveston. In addition to its academic programs, the Texas A&M Maritime Academy offers training programs leading to officer licensing in the U.S. Merchant Marine.

Texas A&M University at Galveston is located near the mouth of Galveston Bay with close access to the Gulf of America. Most instructional programs are taught at the 130-acre Mitchell Campus on Pelican Island (with housing for 1,400+ students). The training ship serves as a floating classroom, laboratory and dormitory for annual sea term training of the U.S. Maritime Service cadets. During the regular school year, the ship is berthed at Pelican Island and provides valuable dockside laboratory facilities for instruction in the practical aspects of the maritime curricula.

Courses of Study

The College of Marine Sciences and Maritime Studies provides undergraduate degree programs in Marine Biology (MARB), Marine Sciences (MARS), Marine Engineering Technology (MARR), Marine Transportation (MART), Marine Fisheries (MARF), Maritime

Business Administration (MARA), Maritime Studies (MAST), Coastal Environmental Science and Society, and University Studies (USGA) (with concentrations in Oceans and One Health; and Tourism and Coastal Community Development). A 5-year program is offered to allow Coastal Environmental Science and Society majors to complete the Master of Marine Resources Management (MARM) degree, combining their senior year of the undergraduate program with the first year of MARM. A similar 5-year program is offered to allow Maritime Business Administration majors to complete the Master of Maritime Business Administration and Logistics (MMAL) in addition to the bachelor's degree program in a total of 5 years. All students complete the University Core Curriculum requirements set by Texas A&M University to ensure a broad-based education.

The College of Engineering offers the first year engineering program as well as degrees in Computer Science, Environmental Engineering, Interdisciplinary Engineering, Multidisciplinary Engineering Technology and Ocean Engineering in residence on the Galveston campus.

The College of Marine Sciences and Maritime Studies offers advanced degrees including MS (thesis or non-thesis) and PhD in Marine Biology, a thesis and non-thesis Master of Marine Resource Management degree, a thesis and non-thesis Master of Maritime Business Administration and Logistics degree and a PhD in Marine and Coastal Management and Science.

Texas A&M University at Galveston is fully accredited as a branch campus of Texas A&M University by the Southern Association of Colleges and Schools Commission on Colleges. Marine Engineering Technology is accredited by the Engineering Technology Accreditation Commission of ABET and the license option programs of the Texas A&M Maritime Academy including are certified by the U.S. Coast Guard.

Texas A&M University Maritime Academy Corps of Cadets

Texas A&M University at Galveston houses the Texas A&M Maritime Academy, one of six state maritime academies in the U.S., preparing graduates for licensing as officers in the United States Merchant Marine. This program provides an opportunity for students to learn how to operate and maintain an ocean-going vessel. In addition to classroom and field training during the regular school year, students will sail aboard a training vessel or appropriate commercial placement during three sea terms to gain practical experience in seamanship, navigation and operations. At the conclusion of the program, cadets test to become licensed as officers in the U.S. Merchant Marine and may seek employment in the field of marine transportation as a licensed Third Mate or Third Assistant Engineer. Please see the Texas A&M Maritime Academy (<https://www.tamug.edu/corps/>) website for more information.

The NROTC Program offers men and women an opportunity to qualify for a commission in the Navy while attending Texas A&M University at Galveston. All NROTC students are required to participate in the Texas A&M Maritime Academy Corps of Cadets. Any student may join the NROTC Program either as a National Scholarship winner or as a non-subsidized college program student. Applications for National Scholarships can be obtained through a Navy recruiting office before the submission deadline of January 30 of the year for which the student is applying.

Mission Statement

Texas A&M University at Galveston is a special-purpose institution of higher education for undergraduate and graduate instruction in marine and maritime studies in science, engineering and business and for research and public service related to the general field of marine resources. The institution is under the management and control of the Board of Regents of The Texas A&M University System, with degrees offered under the name and authority of Texas A&M University at College Station.

Research Programs

Faculty, post-doctoral fellows, research staff, and students are actively involved in research throughout the world. Research is conducted under the direction of more than 50 faculty members with funding from federal, state, private and university sources including the National Science Foundation, National Oceanic and Atmospheric Administration, National Aeronautics and Space Administration, Department of the Interior, National Institutes of Health, Department of Energy, Environmental Protection Agency, Texas General Land Office, Texas Commission on Environmental Quality, Texas Parks and Wildlife Department, CONACYT, Consortium for Ocean Leadership, Texas Institute of Oceanography and Research Development Fund. Externally funded research expenditures were over \$4.1 million. Total research expenditures were over \$5.6 million. Research encompasses both the basic and applied aspects of fields such as marine biology, oceanography, coastal/ocean engineering, marine geology, marine policy and management, environmental studies, conservation, business, admiralty law and coastal zone management. Research is focused largely in the areas of coastal and beach processes (e.g., physical profiling of coastal regions and erosion processes and control), marine life studies (e.g., marine mammal, fish, shellfish, algae and sea turtle biology and ecology), bay and estuary ecosystems (e.g., wetlands management and toxic contaminant analysis), geochemical cycling in marine/aquatic/atmospheric systems and offshore/deep water environments. Many of the faculty researchers hold dual graduate appointments in multiple Texas A&M University departments. Undergraduate students have many opportunities to participate in research, such as the Texas Institute of Oceanography Undergraduate Student Research Program, working as student workers and technicians on funded research programs, taking independent study classes or participating in the Undergraduate Research Scholars Program. Undergraduate students may work in the laboratory and at field sites throughout the world, participate in research cruises, present results at local, national and international meetings, and serve as authors on publications

General Information (p. 823)

Faculty

Acero-Schertzer, Carmen E, Instructional Assistant Professor
Foundational Sciences
PHD, University of Miami, 1996

Adjei, Francis, Instructional Assistant Professor
Foundational Sciences
PHD, University of Texas at Dallas, 2017

Adyasari, Dini, Assistant Professor
Marine and Coastal Environmental Science
PHD, University of Bremen, 2019

Afenyo, Mawuli, Assistant Professor
Maritime Business Administration
PHD, Memorial University of Newfoundland, 2017

Aleyasin, Sobhan, Visiting Lecturer
Marine Engineering Technology
PHD, University of Manitoba, 2019

Allen, Jonathon, Assistant Professor of the Practice
Maritime Transportation
BS, U.S. Merchant Marine Academy, 2014

Alvarado-Bremer, Jaime, Professor
Marine Biology
PHD, University of Toronto, 1994

Amon, Rainer, Professor
Marine and Coastal Environmental Science
PHD, The University of Texas at Austin, 1995

Armitage, Anna, Professor
Marine Biology
PHD, University of California at Los Angeles, 2003

Aronson, Carl Lawrence, Instructional Assistant Professor
Foundational Sciences
PHD, University of Michigan at Ann Arbor, 1999

Atassi, Sami H, Instructional Assistant Professor
Maritime Studies
PHD, Indiana University Bloomington, 2023

Baker, Robert K, Professor of the Practice
Maritime Business Administration
MBA, University of Houston, 1983

Ballingall, Timothy, Instructional Assistant Professor
Maritime Studies
PHD, Texas Christian University, 2021

Barrows, Timothy, Assistant Professor of the Practice
Maritime Transportation
BS, Texas A&M University at Galveston, 2017

Bodson, Bruce R, Lecturer
Marine and Coastal Environmental Science
JD, South Texas College of Law, 1993

Boudreaux, Lowell A, Instructional Professor
Maritime Business Administration
MML, Texas A&M University at Galveston, 2017
MBA, Lamar University, 1996

Boulahouache, Chaouki, Instructional Associate Professor
Foundational Sciences
PHD, Syracuse University, 2002

Brody, Samuel D, Professor
Marine and Coastal Environmental Science
PHD, University of North Carolina, 2002

Brown, Philip R, Associate Professor
Foundational Sciences
PHD, Texas A&M University, 2000

Bömer Galvão, Cassia, Associate Professor
Maritime Business Administration
PHD, Pontificia Universidade Catolica, 2017

Caesar, Divine Livingstone, Assistant Professor
Maritime Business Administration
PHD, University of Tasmania, 2016

Caton, Amy J, Instructional Associate Professor
Maritime Studies
MLS, University of North Texas, 2012

Ciminello, Vito J, Instructional Professor
Maritime Business Administration
MBA, Northwestern University, 1979

Coleman, Gerard T, Professor of the Practice
Marine Engineering Technology
MS, The George Washington University, 1996

Corte, Guilherme, Assistant Professor
Marine Biology
PHD, State University of Campinas, 2016

Cresswell, Jacquelyn N, Visiting Lecturer
Marine Biology
PHD, Texas A&M University, 2019

Davidson, Dillon, Assistant Professor of the Practice
Maritime Transportation
MIA, Texas A&M University, 2024

Davis, Randall W, Professor
Marine Biology
PHD, University of California at San Diego, 1980

Davlasheridze, Meri, Associate Professor
Marine and Coastal Environmental Science
PHD, Pennsylvania State University, 2013

Dellapenna, Timothy M, Professor
Marine and Coastal Environmental Science
PHD, The College of William & Mary, 1999

DiGeorgio-Lutz, JoAnn, Professor
Maritime Studies
PHD, University of North Texas, 1993

Dobberstine, Jim, Visiting Lecturer
Marine Biology
MS, University of Houston-Clear Lake, 2007

Domsky, Darren K, Associate Professor
Maritime Studies
PHD, York University, 2006

Du, Jiabi, Assistant Professor
Marine and Coastal Environmental Science
PHD, College of William and Mary, 2017

Earle, Thomas, Associate Professor
Maritime Studies
PHD, Rice University, 2017

Echols, Katherine E, Instructional Professor
Maritime Studies
PHD, University of Houston, 2015

Edenfield, George, Professor of the Practice
Maritime Transportation
MA, American Military University, 2013

Falvo, Kathryn R, Assistant Professor
Maritime Studies
PHD, Pennsylvania State University, 2018

Faris, Joseph Basam, Associate Professor of the Practice
Maritime Transportation
BS, Texas A&M University at Galveston, 2011

Fathi, Nima, Assistant Professor
Marine Engineering Technology
PHD, University of New Mexico, 2017

Fazioli, Andrea L, Assistant Professor of the Practice
Maritime Transportation
BS, Texas A&M University at Galveston, 1994

Fertitta Woods, Kelli, Instructional Assistant Professor
Maritime Business Administration
JD, South Texas College of Law, 2013

Foroughirad, Vivienne, Assistant Professor
Marine Biology
PHD, Duke University, 2019

Furth, Brett H, Instructional Assistant Professor
Maritime Studies
PHD, Texas A&M University, 2015

Galan, Jhenny F, Instructional Professor
Foundational Sciences
PHD, University of Connecticut, 2006

Galvan Mandujano, Martha C, Lecturer
Maritime Studies
PHD, The University of Oklahoma, 2015

Gard, Joel, Visiting Instructional Assistant Professor
Foundational Sciences
PHD, University of Houston, 2023

Gillespie, Patrick Joesph, Assistant Professor of the Practice
Maritime Transportation
BS, Ferris State University, 2009

Griffitts, Joshua Todd, Assistant Professor of the Practice
Maritime Transportation
BS, Texas A&M University, 2017

Gurtu, Amulya, Professor
Maritime Business Administration
PHD, Toronto Metropolitan University, 2014

Hala, David, Associate Professor
Marine Biology
PHD, Brunel University, 2007

Hammady Brho, Mazen, Assistant Professor
Maritime Business Administration
PHD, University of North Texas, 2018

Haney, Adam D, Instructional Associate Professor
Maritime Studies
MA, Texas A&M University Commerce, 2014

Hark, John F, Senior Lecturer
Maritime Business Administration
BS, Texas A&M University, 1989

Hochman, Mona E, Senior Lecturer
Marine Biology
MS, University of Maryland, 2000

Jazairy, Amer, Assistant Professor
Maritime Business Administration
PHD, KTH Royal Institute of Technology, 2020

Jonkman, Sebastiaan, Research Professor
Marine and Coastal Environmental Science
PHD, Delft University of Technology, 2007

Josvoll, Kristin K, Instructional Associate Professor
Maritime Studies
MA, Johns Hopkins University, 2015

Kaiser, Karl, Professor
Marine and Coastal Environmental Science
PHD, University of South Carolina, 2009

Kang, Cong X, Associate Professor
Foundational Sciences
PHD, The University of Texas at Austin, 1999

Kates, Cindy, Lecturer
Maritime Studies
EDD, University of South Dakota, 2000
MMU, University of South Dakota, 1995

Khan, Irfan, Assistant Professor
Marine Engineering Technology
PHD, Carnegie Mellon University, 2018

Kieffer, Kristi R, Associate Professor of the Practice
Maritime Transportation
BS, Texas A&M University at Galveston, 2012

Kieffer, Stephen A, Lecturer
Maritime Transportation
BS, Arizona State University, 1987

Kitchen, Sheila, Assistant Professor
Marine Biology
PHD, Oregon State University, 2016

Kress, Lisa M, Lecturer
Maritime Studies
MFA, University of Houston, 2001

Labonté, Jessica, Associate Professor
Marine Biology
PHD, University of British Columbia, 2013

Lamphere, Jenna A, Assistant Professor
Maritime Studies
PHD, University of Tennessee Knoxville, 2016

Ledford, Chris, Instructional Associate Professor
Maritime Studies
MS, Texas A&M University at Corpus Christi, 2003

Liu, Hui, Associate Professor
Marine Biology
PHD, University of Alaska Fairbanks, 2006

Luxemburg, Leon A, Associate Professor
Foundational Sciences
PHD, Texas A&M University, 1987

MATICH, PHILIP, Instructional Associate Professor
Marine Biology
PHD, Florida International University, 2014

Mark, Samuel E, Professor
Maritime Studies
PHD, Texas A&M University, 2000

Marshall, Christopher, Professor
Marine Biology
PHD, University of Florida, 1997

McQueen, Vanicha, Associate Professor of the Practice
Marine Engineering Technology
BS, US Merchant Marine Academy, 1988

Miglietta, Maria P, Associate Professor
Marine Biology
PHD, Duke University, 2005

Moore, Andrew L, Assistant Professor of the Practice
Marine Engineering Technology
MS, Texas Tech University, 2018

Morrison, Robert Dean, Professor of the Practice
Maritime Business Administration
PHD, University of Texas Rio Grande Valley, 2015
PHD, Indiana State University, 2008

Moser, Melanie J, Instructional Professor
Marine and Coastal Environmental Science
PHD, University of Houston, 1977

Murray, Ny'Eshia N, Assistant Professor of the Practice
Maritime Transportation
BS, Texas A&M University at Galveston, 2012

Musgrove, Liz, Instructional Assistant Professor
Maritime Studies
MA, University of North Texas, 2005

Mykoniatas, Nikolaos, Instructional Associate Professor
Maritime Business Administration
PHD, The Pennsylvania State University, 2013

Nair, Radhika P, Instructional Associate Professor
Foundational Sciences
PHD, University of Nevada, 2009

Nealon, Bill H, Lecturer
Maritime Studies
MED, Lamar University, 2018

Nelick, Timothy F, Senior Professor
Maritime Transportation
BS, Texas A&M University at Galveston, 1987

Nwabueze, Uchenna M, Instructional Professor
Maritime Business Administration
PHD, Sheffield Hallam University, City Campus, 1995

Nyakiti, Luke, Instructional Associate Professor
Marine Engineering Technology
PHD, Texas Tech University, 2008

Nyman, Elizabeth A, Associate Professor
Maritime Studies
PHD, Florida State University, 2010

Ottman, Rebecca D, Assistant Professor
Maritime Studies
PHD, Indiana University Bloomington, 2021

Park, Kyeong, Professor
Marine and Coastal Environmental Science
PHD, College of William and Mary, 1993

Peterlin, John G, Associate Professor of the Practice
Maritime Transportation
BS, United States Merchant Marine Academy, 1976

Petersen, Lene H, Instructional Associate Professor
Marine Biology
PHD, Memorial University of New Foundland, 2010

Pintacuda, Jesse C, Lecturer
Maritime Studies
BS, Texas A&M University at Galveston, 2008

Potier, Paul A, Professor of the Practice
Marine Engineering Technology
PHD, Prairie View A&M University, 2012

Presswood, Phillip H, Instructional Assistant Professor
Maritime Studies
MA, University of Houston at Clear Lake, 2011

Qiu, Lin, Instructional Associate Professor
Foundational Sciences
PHD, University of Alabama, 2006

Quigg, Antonietta S, Professor
Marine Biology
PHD, Monash University, 2000

Rantschler, James O, Instructional Assistant Professor
Foundational Sciences
PHD, University of Alabama, 2003

Reeves, Adam, Assistant Professor of the Practice
Marine Engineering Technology
BS, Massachusetts Maritime Academy, 1993

Retchless, David P, Associate Professor
Marine and Coastal Environmental Science
PHD, Pennsylvania State University, 2015

Rodrigue, Jean-Paul, Professor
Maritime Business Administration
PHD, Université de Montréal, 1994

Rodriguez, Andrea, Assistant Professor of the Practice
Maritime Transportation
BS, Texas A&M University at Galveston, 2013

Roelke, Daniel L, Professor
Marine Biology
PHD, Texas A&M University, 1997

Rooker, Jay R, Professor
Marine Biology
PHD, The University of Texas at Austin, 1997

Ross, Ashley D, Associate Professor
Marine and Coastal Environmental Science
PHD, Texas A&M University, 2010

Roth, Augusta D, Professor of the Practice
Maritime Transportation
DBA, Walden University, 2018

Schulze, Anja, Professor
Marine Biology
PHD, University of Victoria, Canada, 2001

Schwarz, John R, Senior Professor
Marine Biology
PHD, Rensselaer Polytechnic Institute, 1972

Schwehr, Kathleen A, Instructional Assistant Professor
Foundational Sciences
PHD, Texas A&M University, 2004

Shah Esmaeili, Yasmina, Visiting Assistant Professor
Marine Biology
PHD, State University of Campinas, 2023

Shrestha, Khim Raj, Instructional Assistant Professor
Foundational Sciences
PHD, Syracuse University, 2015

Slatton, Katie J, Instructional Associate Professor
Maritime Studies
MED, University of Montevallo, 2003

Smith, Christopher Wayne, Instructional Assistant Professor
Marine and Coastal Environmental Science
PHD, University of Georgia, 2019

Steichen, Jamie L, Instructional Associate Professor
Marine Biology
PHD, Texas A&M University, 2013

Takir, Driss, Visiting Lecturer
Marine and Coastal Environmental Science
PHD, University of Tennessee, 2013

Tian, Guanyu, Assistant Professor
Marine Engineering Technology
PHD, University of Central Florida, 2022

Townsend, Grace L, Instructional Associate Professor
Foundational Sciences
MS, University of Houston at Clear Lake, 1983

Traber, Daniel S, Professor
Maritime Studies
PHD, University of Houston, 2000

Vechan, Ryan J, Associate Professor of the Practice
Maritime Transportation
JD, University of Houston, 2014

Verma, Alok, Professor
Marine Engineering Technology
PHD, Old Dominion University, 2005

Viser, Victor J, Instructional Associate Professor
Maritime Studies
PHD, Temple University, 1995

Wang, Zhaojun, Assistant Professor
Marine and Coastal Environmental Science
PHD, University of Delaware, 2021

Warren, Jesse T, Lecturer
Foundational Sciences
MS, University of Houston at Clear Lake, 2005

Weaver, Stephen R, Assistant Professor of the Practice
Maritime Transportation
BS, Texas A&M University at Galveston, 2017

Wells, Robert J, Professor
Marine Biology
PHD, Louisiana State University, 2007

Williams, Sara S, Senior Lecturer
Maritime Studies
BS, Texas A&M University, 2000

Wolski, Chris, Adjunct Professor of Law
Maritime Business Administration
MBA, University of Maryland Global Campus, 2018

Yi, Eunjeong, Professor
Foundational Sciences
PHD, University of Houston, 2003

de Avillez, André Rosenbaum, Visiting Lecturer
Maritime Studies
PHD, The Pennsylvania State University, 2016

van Hengstum, Peter J, Professor
Marine and Coastal Environmental Science
PHD, Dalhousie University, Canada, 2011

College

College of Marine Sciences and Maritime Studies (p. 849)

Programs

Interdisciplinary

- Bachelor of Science in Computer Science (p. 638)
- Bachelor of Science in Environmental Engineering (p. 630)
- Bachelor of Science in Interdisciplinary Engineering (p. 693)
- Bachelor of Science in Multidisciplinary Engineering Technology, Electro Marine Engineering Technology Track (p. 659)
- Bachelor of Science in Ocean Engineering (p. 705)

General Information

General Information

General Information for Galveston Students

General Academics Major (GACD)

The General Academics major at Texas A&M University at Galveston is to be utilized by continuing students who are not able to immediately enter their major of choice. A student must have completed at least one semester at TAMUG prior to entering the General Academics major. Interested students must complete the General Academics Change of Major Application by the designated deadline in order to be reviewed for potential entry to GACD. Review criteria for entry to the major will include the student's ability to meet the minimum requirements to enter into their intended major in one to two semester(s), as well as review of any previous academic or honor code issues. Students admitted to the General Academics major have two (2) semesters to work toward entry to their major of choice; an extension of one additional semester will be considered on a case-by-case basis.

For additional information, visit the General Academics Major website (<https://www.tamug.edu/cals/gacd/>).

Academic Deficiency

Any GPA below 2.0 at Texas A&M University at Galveston is considered academically deficient; this applies to term GPA, major GPA, and cumulative GPA. At the conclusion of each academic term, all students with a deficient GPA will be reviewed. Depending on the severity of their case, and extenuating circumstances when relevant, the student will be placed into one of the following categories:

- Probation One – Students placed on Probation One are able to fully continue within their program, but must show consistent progress towards regaining good standing. Failure to show consistent academic progress, per terms set by the academic department, could result in the student being moved to another deficiency category.
- Probation Two – Students placed on Probation Two are able to fully continue within their academic program, but must meet additional probationary terms as well as showing consistent progress towards regaining good standing. These terms include completion of the Academic Coaching and Success program, as well as remediation as deemed appropriate by the academic department. Failure to meet the full terms of probation and/or to show consistent academic progress, per terms set by the academic department, could result in the student being moved to another deficiency category.
- Departmental Suspension – Students placed on Departmental Suspension will not be able to continue within their academic program. Any classes that student has registered for will be dropped,

and they will not be able to register for additional classes until they have successfully applied and been accepted into a new major. Admission to another major is not guaranteed.

- Campus Suspension – Students placed on Campus Suspension will not be able to continue at Texas A&M University at Galveston for a minimum of one (1) full semester. During that time, the student is required to develop an action plan addressing the specific issues causing their academic difficulty. After the semester suspension concludes, the student is eligible to reapply to the campus; readmission is not guaranteed.
- University Suspension – Students placed on University Suspension will not be able to continue at Texas A&M University for a minimum of 12 months. Following the completion of the 12-month suspension, the student may apply for readmission; readmission is not guaranteed.

For additional information, contact the Seibel Learning Center at (409) 741-4343.

Academic Calendar

Texas A&M University and Texas A&M University at Galveston Calendar

All dates and times are subject to change.

2025 Summer Term I

May 12	Monday. Graduation application opens for all students planning to graduate in August 2025.
May 23	Friday, 5 p.m. Last day to register for first term semester classes. Refer to Student Business Services for tuition and fee due dates.
May 26	Monday. Memorial Day - No classes. Faculty and Staff Holiday.
May 27	Tuesday. First day of first term classes. Refer to Student Business Services for the Refund Policy for Withdrawals and Dropped Courses.
May 30	Friday. Last day for adding/dropping first term classes. Official census date for first term classes.
June 16	Monday, 5 p.m. Last day for all students to drop courses with no penalty for the first term (Q-drop). Last day to change Kinesiology 198/199 grade type for the first term. Last day to officially withdraw from the University for the first term.
June 19	Thursday. Juneteenth Emancipation Day - No classes. Faculty and Staff Holiday.
June 24	Tuesday. Undergraduate deadline to submit a request for change of curriculum.
June 30	Monday. Last day of first term classes.
July 1	Tuesday. First term final examinations.
July 4	Friday. Independence Day - No classes. Faculty and Staff Holiday. Midsummer break at Bush School Washington, D.C. site.

July 7	Monday. First term final grades due at noon. Grades will be available for viewing in Howdy after 5 p.m.
July 11	Friday. Last day to apply online for all degrees to be awarded in August 2025 without a late fee.
July 23	Wednesday. Summer 2025 Degree Candidates: Degree Requirement Verification (DRV) deadline per Student Rule 14.2.
August 5	Tuesday. Last day to apply for all degrees to be awarded in August.
August 8	Friday. Noon. Grades due for degree candidates. Grades will be available for viewing in Howdy after 5 p.m. 5 p.m. Last day for August undergraduate degree candidates to apply for Tuition Rebate in Howdy.
August 9	Saturday. Commencement and Commissioning for degrees in College Station and Galveston. Additional details will be posted on graduation.tamu.edu as they become available.
August 13	Wednesday. Undergraduate change of curriculum period begins. See Student Rule 5.1.

All dates and times are subject to change.

2025 Summer Term II

May 12	Monday. Graduation application opens for all students planning to graduate in August 2025.
June 24	Tuesday. Undergraduate deadline to submit a request for change of curriculum.
July 1	Tuesday. Last day to register for second term classes. Refer to Student Business Services for tuition and fee due dates.
July 2	Wednesday. First day of second summer term classes.
July 4	Friday. Independence Day. Faculty and staff holiday. No classes.
July 8	Tuesday, 5 p.m. Last day for adding/dropping courses for the second term. Official census date for the second term.
July 11	Friday. Last day to apply online for all degrees to be awarded in August 2025 without a late fee.
July 23	Wednesday, 5 p.m. Last day for all students to drop courses with no penalty (Q-drop) for the second term. Last day to change Kinesiology 198/199 grade type for the second term. Last day to officially withdraw from the University for the second term.
August 5	Tuesday. Last day of second term classes. Last day to apply for all degrees to be awarded in August.
August 6	Wednesday. Second term final examinations for all students.
August 8	Friday.

	Noon. Grades due for degree candidates. Grades will be available for viewing in Howdy after 5 p.m.
	5 p.m. Last day for August undergraduate degree candidates to apply for Tuition Rebate in Howdy.
August 8-9	Friday - Saturday. Commencement and Commissioning for degrees in College Station and Galveston. Additional details will be posted on graduation.tamu.edu as they become available.
August 12	Tuesday, noon. Final grades for second term classes due. Grades will be available for viewing in Howdy after 5 p.m.
August 13	Wednesday. Undergraduate change of curriculum period begins. See Student Rule 5.1.

All dates and times are subject to change.

2025 10-Week Summer Semester

May 12	Monday. Graduation application opens for all students planning to graduate in August 2025.
May 23	Friday, 5 p.m. Last day to register for 10-week semester classes. Refer to Student Business Services for tuition and fee due dates.
May 26	Monday. Memorial Day. Faculty and Staff holiday. No classes.
May 27	Tuesday. First day of 10-week classes. Refer to Student Business Services for the Refund Policy for Withdrawals and Dropped Courses.
May 30	Friday. Last day for adding/dropping 10-week classes. Official census date for 10-week classes.
June 2	Monday. First day of classes at the Bush School Washington, D.C. site.
June 19	Thursday. Juneteenth Emancipation Day. Faculty and Staff Holiday. No classes.
June 24	Tuesday. Undergraduate deadline to submit a request for change of curriculum.
June 30-July 4	Monday-Friday. Midsummer break at the Bush School Washington, D.C. site.
July 1	Tuesday. No 10-week classes.
July 4	Friday. Independence Day. Faculty and staff holiday. No classes.
July 11	Friday. Last day to apply online for all degrees to be awarded in August 2025 without a late fee.
July 17	Thursday, 5 p.m. Last day for all students to drop courses with no penalty (Q-drop) for 10-week classes. Last day to officially withdraw from the University for 10-week classes.
July 23	Wednesday. Summer 2025 Degree Candidates: Degree Requirement Verification (DRV) deadline per Student Rule 14.2.
July 28	Monday. No classes held at the Bush School Washington, D.C. site.
July 29	Tuesday. Last day of classes at the Bush School Washington, D.C. site.
July 30-31	Wednesday-Thursday. Bush School Washington, D.C. site final examinations.

August 5	Tuesday. Last day of 10-week classes.
	Last day to apply for all degrees to be awarded in August.
August 6-7	Wednesday - Thursday. 10-week final examinations for all students.
August 8	Friday. Noon. Grades due for degree candidates. Grades will be available for viewing in Howdy after 5 p.m. 5 p.m. Last day for August undergraduate degree candidates to apply for Tuition Rebate in Howdy.
August 8-9	Friday - Saturday. Commencement and Commissioning for degrees in College Station and Galveston. Additional details will be posted on graduation.tamu.edu as they become available.
August 12	Tuesday, noon. Final grades for 10-week classes due. Grades will be available for viewing in Howdy after 5 p.m.
August 13	Wednesday. Undergraduate change of curriculum period begins. See Student Rule 5.1.

All dates and times are subject to change.

2025 Fall Semester

August 11	Monday. Graduation application opens for all students planning to graduate in December 2025.
August 13	Wednesday. Undergraduate change of curriculum period begins. See Student Rule 5.1.
August 22	Friday, 5 p.m. Fall semester open registration ends. Late registration and course add/drop period begins.
August 25	Monday. First day of fall semester classes.
August 29	Friday. Last day for adding/dropping courses for the fall semester.
September 1	Monday. Labor Day. Faculty and Staff Holiday. No classes.
September 10	Wednesday. Fall official census date.
September 22	Monday. Undergraduate deadline to submit a request for change of curriculum.
September 26	Friday. Last day to apply for all degrees to be awarded in December without a late fee.
September 30	Tuesday. Undergraduate degree plan approval deadline. See Student Rule 1.9.
October 13	Monday, noon. Mid-semester grades due.
October 13-14	Monday-Tuesday. Fall break. No classes.
November 5	Wednesday. Last day to apply online for December 2025 graduation.
November 6-21	Thursday-Friday. Preregistration for 2026 spring semester.
November 11	Monday. Veterans Day. No classes held at the Bush School Washington, DC site.
November 18	Tuesday. Bonfire 1999 Remembrance Day.
November 19	Wednesday, 5 p.m. Last day for all students to drop courses with no penalty (Q-drop). Last day to change Kinesiology 198/199 grade type for fall 2025.

	Last day to officially withdraw from the University. Fall 2025 Degree Candidates: Degree Requirement Verification (DRV) deadline per Student Rule 14.2.
November 26	Wednesday. Reading day. No classes.
November 27-28	Thursday-Friday. Thanksgiving holiday. Faculty and Staff holiday. No classes.
December 8	Monday. Last day of fall semester classes. Last day to apply for all degrees to be awarded in December.
	No regular course examinations (except for laboratory and one-hour courses).
December 9	Tuesday. Redefined day for students at the Bush School Washington, DC site.
December 9-10	Tuesday - Wednesday. Reading days. No classes.
December 10	Wednesday. Reading Day for Bush School Washington, DC site.
December 11-12, 15-16	Thursday-Friday, Monday-Tuesday. Fall semester final examinations for all students.
December 17	Wednesday. 5 p.m. Last day for December undergraduate degree candidates to apply for Tuition Rebate (https://aggie.tamu.edu/graduation/tuition-rebate) in Howdy. 6 p.m. Grades due for degree candidates. Grades will be available for viewing in Howdy after 10 p.m.
	Commencement and Commissioning for all degrees in College Station (tentative). Additional details will be posted on https://registrar.tamu.edu/graduation (https://registrar.tamu.edu/graduation/) as they become available.
December 18	Thursday. Commencement and Commissioning for all degrees in College Station. Additional details will be posted on https://registrar.tamu.edu/graduation (https://registrar.tamu.edu/graduation/) as they become available.
December 19	Friday. Commencement and Commissioning for all degrees in College Station (tentative). Additional details will be posted on https://registrar.tamu.edu/graduation (https://registrar.tamu.edu/graduation/) as they become available. Commencement and Commissioning - All degrees in Galveston.
December 22	Monday, noon. Final grades for all students due. Grades will be available for viewing in Howdy after 5 p.m.
December 23	Tuesday. Undergraduate change of curriculum period begins. See Student Rule 5.1.
December 24-January 1	Wednesday-Thursday. Faculty and Staff holiday.

All dates and times are subject to change.

2026 Spring Semester

December 22	Monday. Graduation application opens for all students planning to graduate in May 2026.
January 9	Friday, 5 p.m. Spring semester open registration ends. Late registration and course add/drop period begins.
January 12	Monday. First day of spring semester classes.

January 16	Friday. Last day for adding/dropping courses for the spring semester.
January 19	Monday. Martin Luther King, Jr. Day. Faculty and Staff holiday. No classes.
January 28	Wednesday. Spring official census date.
February 9	Monday. Undergraduate deadline to submit a request for change of curriculum.
February 13	Friday. Last day to apply for all degrees to be awarded in May without a late fee.
February 16	President's Day observed. No classes. Bush School Washington, D.C. site.
March 2	Monday, noon. Mid-semester grades due.
March 9-13	Monday-Friday. Spring break. No classes.
March 12-13	Thursday-Friday. Faculty and Staff Holiday.
March 25	Wednesday. Last day to apply for spring 2026 graduation online.
March 26 - April 10	Thursday -Friday. Preregistration for the 2026 summer and fall semesters.
April 3	Friday. Reading day. No classes. Does not apply to clinical placements for the School of Nursing.
April 14	Tuesday, 5 p.m. Last day for all students to drop courses with no academic penalty (Q-drop). Last day to change KINE 198/199 Grade Type for spring 2026.
	Last day to officially withdraw from the University. Spring 2026 Degree Candidates: Degree Requirement Verification (DRV) deadline per Student Rule 14.2.
April 21	Tuesday. Muster. Campus ceremony.
April 27	Monday. No regular course examinations (except for laboratory and one-hour courses).
April 28	Tuesday. Redefined day. Students attend their Friday classes. Does not apply to programs offered by the College of Nursing. Redefined day. Students attend their Monday classes. Bush School Washington, D.C. site.
	Last day of spring semester classes. No regular course examinations (except for laboratory and one-hour courses). Last day to apply for all degrees to be awarded in May.
April 29	Wednesday. Reading day. No classes.
April 30-May 1, May 4-5	Thursday-Friday, Monday-Tuesday. Spring semester final examinations for all students.
May 6	Wednesday. 5 p.m. Last day for May undergraduate degree candidates to apply for Tuition Rebate in Howdy. 6 p.m. Grades for degree candidates due. Grades will be available for viewing in Howdy after 10 p.m.
May 7-9	Thursday - Saturday. Commencement and Commissioning for all degrees in College Station – additional details will be posted on https://registrar.tamu.edu/graduation (https://registrar.tamu.edu/graduation/) as they become available.

May 11 Monday, noon. Final grades for all students due. Grades will be available for viewing in Howdy after 5 p.m.

May 12 Tuesday. Undergraduate change of curriculum period begins. See Student Rule 5.1.

All dates and times are subject to change.

2026 Summer Term I

May 11 Monday. Graduation application opens for all students planning to graduate in August 2026.

May 22 Friday, 5 p.m. Last day of open registration for first term semester classes.

May 25 Monday. Memorial Day. Faculty and Staff holiday. No classes.

May 26 Tuesday. First day of first term classes.

May 29 Friday.

Last day for adding/dropping first term classes.

Official census date for first term classes.

June 15 Monday, 5 p.m.

Last day for all students to drop courses with no penalty for the first term (Q-drop).

Last day to change Kinesiology 198/199 grade type for the first term.

Last day to officially withdraw from the University for the first term.

June 19 Friday. Juneteenth Emancipation Day. Faculty and staff holiday. No classes.

June 23 Tuesday. Undergraduate deadline to submit a request for change of curriculum.

June 29 Monday. Last day of first term classes.

June 30 Tuesday. First term final examinations.

July 6 Monday. First term final grades due at noon. Grades will be available for viewing in Howdy after 5 p.m.
Last day to apply online for all degrees to be awarded in August 2026 without a late fee.

Last day to apply online for all certificates to be awarded in August 2026.

July 21 Tuesday. August 2026 Degree Candidates: Degree Requirement Verification (DRV) deadline (<https://aggie.tamu.edu/graduation/degree-requirement-verification> (<https://aggie.tamu.edu/graduation/degree-requirement-verification/>)) per Student Rule 14.2.

August 4 Tuesday. Last day to apply for all degrees to be awarded in August.

August 7 Friday. Commencement and Commissioning - All degrees in Galveston.

Noon. Grades due for degree candidates. Grades will be available for viewing in Howdy after 5 p.m.

5 p.m. Last day for August undergraduate degree candidates to apply for Tuition Rebate in Howdy.

August 8 Saturday. Commencement and Commissioning for degrees in College Station. Additional details will be posted on <https://registrar.tamu.edu/graduation> (<https://registrar.tamu.edu/graduation/>) as they become available.

August 12 Wednesday. Undergraduate change of curriculum period begins. See Student Rule 5.1.

All dates and times are subject to change.

2026 Summer Term II

May 11 Monday. Graduation application opens for all students planning to graduate in August 2026.

June 23 Tuesday. Undergraduate deadline to submit a request for change of curriculum.

June 30 Tuesday. Last day to register for second term classes. Refer to Student Business Services for tuition and fee due dates.

July 1 Wednesday. First day of second summer term classes.

July 6 Monday. Last day to apply online for all degrees to be awarded in August 2026 without a late fee.

Last day to apply online for all certificates to be awarded in August 2026.

July 8 Tuesday, 5 p.m.

Last day for adding/dropping courses for the second term.

Official census date for the second term.

July 21 Tuesday, 5 p.m.

Last day for all students to drop courses with no penalty (Q-drop) for the second term.

Last day to change Kinesiology 198/199 grade type for the second term.

Last day to officially withdraw from the University for the second term.

Summer 2026 Degree Candidates: Degree Requirement Verification (DRV) deadline per Student Rule 14.2.

August 4 Tuesday.

Last day of second term classes.

5 p.m. Last day for August undergraduate degree candidates to apply for Tuition Rebate (<https://aggie.tamu.edu/graduation/tuition-rebate> (<https://aggie.tamu.edu/graduation/tuition-rebate/>)) in Howdy.

August 5 Wednesday. Second term final examinations for all students.

August 7 Friday. Commencement and Commissioning - All degrees in Galveston.

Noon. Grades due for degree candidates. Grades will be available for viewing in Howdy after 5 p.m.

5 p.m. Last day for August undergraduate degree candidates to apply for Tuition Rebate in Howdy.

August 8 Saturday. Commencement and Commissioning for degrees in College Station. Additional details will be posted on <https://registrar.tamu.edu/graduation> (<https://registrar.tamu.edu/graduation/>) as they become available.

August 11 Tuesday, noon. Final grades for second term classes due. Grades will be available for viewing in Howdy after 5 p.m.

August 12 Wednesday. Undergraduate change of curriculum period begins. See Student Rule 5.1.

All dates and times are subject to change.

2026 10-Week Summer Semester

May 11	Monday. Graduation application opens for all students planning to graduate in August 2026.
May 22	Friday, 5 p.m. Last day to register for 10-week semester classes. Refer to Student Business Services for tuition and fee due dates.
May 25	Monday. Memorial Day. Faculty and Staff holiday. No classes.
May 26	Tuesday. First day of 10-week classes.
May 29	Friday. Last day for adding/dropping 10-week classes. Official census date for 10-week classes.
June 19	Thursday. Juneteenth Emancipation Day. Faculty and Staff Holiday. No classes.
June 23	Tuesday. Undergraduate deadline to submit a request for change of curriculum.
June 29-July 3	Monday-Friday. Midsummer break at the Bush School Washington, D.C. site.
June 30	Tuesday. No 10-week classes. Does not apply to undergraduate Nursing courses.
July 6	Monday. Last day to apply online for all degrees to be awarded in August 2026 without a late fee. Last day to apply online for all certificates to be awarded in August 2026.
July 15	Wednesday, 5 p.m. Last day for all students to drop courses with no penalty (Q-drop) for 10-week classes. Last day to officially withdraw from the University for 10-week classes.
July 21	Wednesday. Summer 2026 Degree Candidates: Degree Requirement Verification (DRV) deadline per Student Rule 14.2.
July 23	Thursday. Last day of classes for Bush School Washington, DC site.
July 29-30	Wednesday-Thursday. Bush School Washington, D.C. site final examinations.
August 4	Tuesday. Last day of 10-week classes. Last day to apply for all degrees to be awarded in August.
August 5-6	Wednesday - Thursday. 10-week final examinations for all students.
August 7	Friday. Commencement and Commissioning - All degrees in Galveston. Noon. Grades due for degree candidates. Grades will be available for viewing in Howdy after 5 p.m. 5 p.m. Last day for August undergraduate degree candidates to apply for Tuition Rebate in Howdy.
August 8	Saturday. Commencement and Commissioning for degrees in College Station. Additional details will be posted on https://registrar.tamu.edu/graduation (https://registrar.tamu.edu/graduation/) as they become available.

August 11	Tuesday, noon. Final grades for 10-week classes due. Grades will be available for viewing in Howdy after 5 p.m.
August 12	Wednesday. Undergraduate change of curriculum period begins. See Student Rule 5.1.

All dates and times are subject to change.

Admission

Admission to Texas A&M University at Galveston

Admission into Texas A&M University at Galveston (TAMUG) requires a separate application from Texas A&M University at College Station. Applicants may apply for admission to any program on the Galveston campus at www.applytexas.org (<https://www.applytexas.org/>), and freshman may apply on www.commonapp.org (<https://www.commonapp.org/>). The SAT or the ACT admission examinations are acceptable. Students should submit scores to Texas A&M University Galveston at (Code 6835 for SAT and Code 6592 for ACT). Scores will only be accepted directly from the College Board or ACT.

Admission to the Texas A&M Maritime Academy (TAMMA) requires an additional application. Acceptance to an academic program by the Office of Admissions does not constitute admission to the TAMMA and U.S. Maritime Service License Option Program. Full information regarding TAMMA application and required documents are located at Prospective Cadets - Texas A&M Galveston, TX (tamug.edu) (<https://www.tamug.edu/corps/pages/Prospective-Cadets/prospective-cadets.html>)

To obtain an information packet or schedule a campus visit, call toll free at 1-87-SEAAGGIE, write Office of Admissions, Texas A&M University at Galveston, P.O. Box 1675, Galveston, TX 77553-1675, or visit www.tamug.edu/admissions (<http://www.tamug.edu/admissions/>).

Admission Statement and Policy on Individuals with Disabling Conditions

Texas A&M University at Galveston has a strong institutional commitment to the principle of diversity in all areas. In that spirit, admission to Texas A&M University and any of its sponsored programs is open to all qualified individuals. Texas A&M does not discriminate on the basis of an individual's disability and complies with Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act (ADA) as amended in its admissions, accessibility, treatment and employment of students in its programs and activities. Services and facilities are available to students with disabilities. Individuals should contact the Office of Student Affairs if they have special needs before they commit to enrollment.

Applying for Admission

Students can apply for undergraduate admission to any Texas public university by using the ApplyTexas Application. You may access the appropriate application from the ApplyTexas application website: www.applytexas.org (<https://www.applytexas.org/>). Freshmen admissions applications are also available on Common App: www.commonapp.org (<https://www.commonapp.org/>).

The admission guidelines presented here are for admission to the Spring, Summer or Fall 2026 semester. While they are the best guide available, admission criteria are subject to change. The TAMU Galveston website (www.tamug.edu (<http://www.tamug.edu>)) contains the admission policies and procedures in effect for 2026 admission.

The application for Spring 2026, Summer 2026 and Fall 2026 will be available at ApplyTexas beginning August 1, 2025.

Types of Admission and Application Calendars

At the Time of Application	Term	Opening Date	Closing Date
Freshman			
An applicant who: • is a citizen or permanent resident of the United States or qualifies for Texas residency. • is a degree-seeking applicant and is without college credit ¹ or • is still in high school, with or without college credit	Spring 2026	Aug 1, 2025	Dec 1, 2025
	Fall 2026	Aug 1, 2025	May 1, 2026
Transfer			
An applicant who: • is a citizen or permanent resident of the United States or qualifies for Texas residency • is a degree-seeking applicant • has graduated from high school or equivalent • has enrolled in a post-secondary institution after graduation from high school • does not have a bachelor's degree • does not qualify for readmission	Spring 2026	Aug 1, 2025	Dec 1, 2025
	Summer 2026	Jan 1, 2026	May 1, 2026
	Fall 2026	Jan 1, 2026	Jul 1, 2026
International Freshman			

An applicant who: • is not a citizen or permanent resident of the United States (or applicant for permanent residency) and does not qualify for Texas residency • after high school graduation has never enrolled at a university as an undergraduate degree-seeking student	Spring 2026	Aug 1, 2025	Oct 15, 2025
	Fall 2026	Aug 1, 2025	Dec 1, 2025
International Transfer			
An applicant who: • is not a citizen or permanent resident of the United States (or applicant for permanent residency) and does not qualify for Texas residency • is an applicant seeking a bachelor's degree • has graduated from high-school or equivalent • has enrolled in a post-secondary institution, and • is not eligible for readmission (has never enrolled at Texas A&M University as an undergraduate degree-seeking student).	Spring 2026	Aug 1, 2025	Oct 15, 2025
	Summer/Fall 2026	Jan 1, 2026	Mar 1, 2026
Readmission			

An applicant who: • is a former degree-seeking Texas A&M undergraduate student (including an international student) • does not have a bachelor's degree	Spring 2026	Aug 1, 2025	Jan 1, 2026
	Summer 2026	Jan 1, 2026	May 1, 2026
	Fall 2026	Jan 1, 2026	Jul 31, 2026
• did not officially register for the previous semester (excluding summer sessions) at Texas A&M Readmission does not include applicants whose only previous enrollment at Texas A&M has been as a non-degree student.			

Postbaccalaureate Undergraduate

An applicant who: • has a bachelor's degree	Spring 2026	Aug 1, 2025	Dec 1, 2025
	Summer 2026	Jan 1, 2026	May 1, 2026
• wishes to pursue a second undergraduate degree	Fall 2026	Jan 1, 2026	Jul 1, 2026

Non-degree Undergraduate

An applicant who: • does not wish to pursue a degree at Texas A&M • wishes to take specific undergraduate coursework	Summer 2026	Jan 1, 2026	May 1, 2026

Required Immunizations

- Texas Education Code (TEC) 51.9192 requires all entering students (under the age of 22) to provide evidence of vaccination against bacterial meningitis received within the last 5 years or a signed affidavit declining the vaccine at least 10 days prior to the start of classes for any given semester. Learn more about bacterial meningitis at Admitted Students - Texas A&M

Galveston, TX (tamug.edu) (<https://www.tamug.edu/admissions/AdmittedStudents.html#Checklist>).

Guidelines for Requesting Application Fee Waivers

Fee waivers are not available for international students.

Freshman Waivers

Applicants who qualify for federally funded free/reduced lunch programs may qualify for a fee waiver. Students must certify their eligibility on the application. Please see our admissions website, Freshman Admissions - Texas A&M Galveston, TX (tamug.edu) (<https://www.tamug.edu/admissions/Prospective-Students/Freshman.html>), for additional information relating to fee waivers. *Checking the fee waiver box on the application will not satisfy the fee waiver requirement.*

Transfer or Readmit Waivers

To request a fee waiver, please provide your Student Aid Report (SAR), which you will find within your current FAFSA or a copy of an award letter from your current institution. The documents can be uploaded through the Applicant Information System (<https://applicant.tamu.edu/?s=gw>) (AIS) portal, faxed to (409) 740-4731 or provided by U.S. mail. *Checking the fee waiver box on the application will not satisfy the fee waiver requirement.*

All fee waiver request documents may be mailed to the following address:

Texas A&M University at Galveston
Office of Admissions
P.O. Box 1675
Galveston, TX 77553-1675

Credit by Examination

Information concerning credit by examination may be obtained from the Center for Academic Learning Support staff by calling (409) 741-4343. For information regarding current procedures for accepting credit, please visit the Center for Academic Learning Support - Texas A&M Galveston, TX (tamug.edu) (<https://www.tamug.edu/cals/>).

Gateway Program

The Galveston Gateway Program helps incoming students become fully prepared for their academic program. Students will be selected for the Gateway Program during initial review of their application for admission to the University; any student offered provisional admission through the Gateway Program is required to satisfactorily complete the program in order to gain full admission to the University.

Galveston Gateway students begin at TAMUG for the Summer II term and complete preparatory coursework, some of which will apply towards their major. At the conclusion of the summer term, students who have met the terms of the program will continue as full students in good standing for the fall term. Students who do not meet the terms of the program will be reviewed for possible continuation on probation or full suspension.

For additional information, contact the Center for Academic Learning Support at (409) 741-4343.

Entry to a Major – College of Engineering

Freshmen in General Engineering, Engineering at Galveston, or Engineering Academy programs have a common first year engineering curriculum to allow time for students to learn about the engineering degree granting majors. It is recognized that in most cases students are not made aware of all of our engineering majors while in high school. Students are introduced to the different engineering majors in the first

year engineering courses. Students are encouraged to leverage additional resources, including the career center, faculty, as well as advisors to get career advice. Students must complete the following courses in at least two semesters before applying to an engineering major: two engineering courses, two math courses, and two science courses in the freshman year engineering curriculum. Exceptions will be made as needed for students entering with credit for the required courses. The entry-to-a-major process is designed for students to take ownership of their future to identify at least three majors that are a good match for their career goals and academic performance. The entry-to-a-major process is designed to place students in the highest rank major possible based upon capacity and student performance. Students are encouraged to enter a major as early as possible. Students in the General Engineering and Engineering at Galveston programs must be in a major by the end of their third semester in engineering. Students in the Engineering Academy program must be in a major by the end of their fourth semester in engineering.

Transfer students are admitted directly to a degree granting major through the admissions process.

Tuition and Fees

Tuition and Fees for Texas A&M University at Galveston

Payment of Tuition and Fees

Students must meet all financial obligations to the University by their due dates to avoid late penalties, regardless of timing of payment assistance (scholarships, loans, tuition assistance, etc.). Failure to pay amounts owed may result in blocked access to online course material, cancellation of the student's registration, and their being barred from future enrollment. Students who wish to pay fees in installments can select the payment plan option in the bill payment suite (<https://billpay.tamu.edu>).

- Payments to Student Business Services may be in the form of cashier's check, personal check, or money order payable to Texas A&M University at Galveston (or TAMUG). All checks and money orders are accepted subject to final payment. Cash is not accepted at the Cashier's booth.
- Visa, Discover, Mastercard and American Express credit cards and E-checks are accepted for tuition and fee payments over the website via the Howdy Portal/ My Finance Tab. Convenience fees will be charged for online credit card transactions.

No tuition and fee statements will be mailed. Notices of amounts owed should be obtained through the Howdy Portal/ My Finance Tab.

Students may choose to pay tuition and fees in installments. Students on the installment plan will receive notification through their University email account that the fee statement is available to view on line and when each installment payment is due and payable. In addition, students will be notified through this medium when any changes have occurred to their tuition and fee statement and if and when they have a refund available. All financial aid or loans must be accepted before being applied toward the student's account.

Late Payment Penalty

There are severe penalties for failure to pay student account balances and installments by their specified due dates. If a payment is delinquent when a semester ends, the student will be blocked and may not receive

credit for academic work performed. Students will not be readmitted to the University until all past due balances, including late charges, are paid. A late fee will be assessed for each payment not received on or before it is due. If a student is removed from the rolls of the University or is withdrawn or blocked for failure to pay amounts owed the University, a reinstatement fee of \$200 will be assessed in addition to any other late fees or penalties already incurred and must be paid before the student will be reinstated. Current due dates can be found at the Student Business Services website, <https://sbs.tamu.edu>.

Late Registration Fees

Students who register on or after the first day of classes are assessed a late registration fee of \$100. Students who register after the official census date (12th class day for fall and spring, 4th day for summer) are assessed a late registration fee of \$200. Students who add classes after the official census date are assessed a late fee of \$50. Note: Penalties, late registration and late add fees also apply to students who are required to re-enroll because their registrations were cancelled for nonpayment.

Registrations are subject to cancellation and/or financial penalties if sufficient payment is not received before 5:00p.m. on the semester due date.

Use of Collection agencies and Credit Bureau

If amounts become past due, the University reserves the right to report the account to the Credit Bureau. This will also initiate internal collection efforts and could cause the University to employ an outside collection agency to collect the debt. If any collection efforts must be made, the student will be required to reimburse the University for the fees of any collection agency, which may be based on a percentage at a maximum of 30% of the debt, and all costs and expenses, including reasonable attorney's fees the University incurs in such collection efforts.

Cancelling Registration

Once students have registered for classes, they must select one course of action from the following to remain in good standing with the University:

- pay all amounts due by the specified due date.
- use online registration to drop all classes prior to the first day of classes.
- initiate the withdrawal process online in Howdy to begin the process to withdraw from the University after the first day of classes.

Following this procedure is especially important for students who have been awarded scholarships or financial aid since the aid may automatically pay tuition and fees and cause the registration to be held even though the student has decided not to attend. Failure to request cancellation of an unwanted registration may result in grades of F or I in all courses for the semester. The student will be required to reimburse the University for scholarships and other financial aid applied to their account and will be held responsible for paying all fees for the semester, regardless of whether they attended classes.

Cancellation for Nonpayment of Tuition and Fees

The University reserves the right to cancel registrations not paid by their due date, or the official census date for a semester or summer term, to comply with state laws requiring payment of tuition and fees, to free the classroom spaces for other students, and to ensure the most efficient use of university resources.

One Time Only Fees

Housing Application (not refundable)	\$ 75.00
Freshman New Student Conference Fee (not refundable)	\$ 225.00
New Transfer Student Conference Fee (not refundable)	\$ 153.00
General Property Deposit (refundable)	\$ 100.00

Housing and Meal Plans

With limited exception, all undergraduate students enrolled in more than nine credit hours are required to reside in campus housing (if available), unless residing in Albatross or Polaris Halls, and are required to purchase a meal plan. Information concerning a request to live off-campus can be obtained at <https://www.tamug.edu/cll/PoliciesProcedures.html>. Any student living off campus at the beginning of the semester who adds enough hours to require living on campus must pay for room and board for the entire semester. Residence hall fees are included in the fee schedules at <https://www.tamug.edu/cll/HousingOptions.html#Pricing>. In certain cases, single room housing is offered. The fee for that room is the normal rate plus 50%.

Upon admission to the University, students who will be living on campus must submit a \$75 housing application fee to reserve their spot in the residence halls. A waiver for the housing application may be submitted. To do so, the student should submit the housing application with an attached letter stating reasons for the waiver request. In order to be considered, the student must have a FAFSA submitted to TAMUG. The waiver request can be emailed to c1l@tamug.edu or mailed to TAMUG Campus Living and Learning, P.O. Box 1675, Galveston, TX, 77553-1675.

Students requesting to downgrade their meal plans during the semester have until the Census Date (identified on the academic calendar) to make any changes and the cost of those changes will adhere to the University's refund schedule. Downgrades can only be made if the student is not already on the minimum required plan. In order to add or upgrade a meal plan, please do so by 7 weeks from the start of the semester. All changes must be made through the Dining Services Office at (409) 740-4508.

Meal Plan Fees: <https://mealplans.tamu.edu/> (<https://mealplans.tamu.edu/>)

Tuition and Fees: Texas Resident and Non-Texas Resident (Both undergraduate and graduate)

Tuition and fees can be found at <https://tuition.tamu.edu/galveston> (<https://tuition.tamu.edu/galveston/>). The student will need to know their chosen tuition plan for determination of tuition and fees.

Tuition and Fees: Texas A&M Maritime Academy Cadets

Cadets enrolled in MARB LO, MARS LO, MART, or MARR LO curricula pay a special tuition rate regardless of their state residency status (in-state or out-of-state). For more information regarding the License Option program, please visit <https://www.tamug.edu/corps/pages/Prospective-Cadets/prospective-cadets.html>.

Tuition and fees can be found at <http://tuition.tamu.edu/galveston/> (<https://tuition.tamu.edu/galveston/>). The Cadet's cohort will determine the applicable Tuition and Fees. NROTC Midshipmen, Drill

and Ceremonies Cadets, or International Cadets are not eligible for this special License Option tuition and must pay normal Texas Resident or Non-Resident as applicable.

Summer Sea Term

Cadets in the License Option Program must achieve the minimum sea service aboard ships required by the U.S. Coast Guard within four (4) years. In order to obtain federal financial aid, students must enroll in a minimum of six semester credit hours during the summer term. Cadets may meet this requirement by completing two additional semester credit hours by distance or by completing an additional course on campus. Either of these options will result in additional tuition expenses.

The Summer Sea Term expense for training aboard the Texas A&M Maritime Academy assigned training ship or a designated alternate ship includes tuition and fees plus a sea term (cruise) fee. There could be additional travel expenses to and from the ports plus lodging in addition to the cost of the sea term. The Summer Sea Term meal plan expense includes state and city tax of 8.25%. Final costs are shared with cadets during the preceding Spring Semester.

Other Expenses

This may include uniforms with an initial outlay of \$1,500, special training such as Fire Fighting School and incidentals.

Students who are dismissed or withdraw from a license-option degree plan after the semester begins will have fees adjusted to the appropriate resident or nonresident rate retroactive to the beginning of the semester.

License-option Cadets who are granted a leave of absence for the summer and who enroll in the onshore summer program at the Mitchell Campus instead of the summer sea term will pay license-option fees as appropriate for that period.

License-option Cadets must complete all required sea service within four (4) years.

Emergency Tuition and Fee Loans

Emergency tuition and fee loans are available to help students get through the crunch at fee payment time. Students can borrow up to the amount of their tuition and fees for a maximum term of 90 days in the Fall and Spring semester and 30 days in the Summer semester. The loan proceeds are applied directly to the student's account to cover current due charges. Students that anticipate their financial aid or some other third-party payment may be delayed are encouraged to pursue an emergency tuition and fees loan so they will not get dropped from their classes or incur additional fees. Students may apply for this loan in the Howdy Portal/ My Finances Tab.

Short-term loans are also available to pay optional fees, such as residence hall fees, meal plans, parking, etc. They can be repaid within 12 months. To qualify you must be registered for 6 hours in the fall or spring semester and 3 hours in the summer term and be clear of all past due loans and blocks.

Returned Payments

Any payment that is rejected by the paying bank, credit card company, or other financial institution is subject to returned item charges of \$30 or more. Rejected payments may also result in cancellation of the student's registration and additional late registration penalties.

Fees

Please note that not all fees listed below are relevant to all students.

Application Fee

Students who submit an application for undergraduate studies pay a \$75 fee. Students who submit an application for graduate studies pay a \$50 fee. International students pay a \$90 application fee

Distance Education Fee

\$46 per semester credit hour is assessed to students taking courses using distance education resources.

Field Trip Fees

A field trip fee ranging from \$15 to \$6,000 may be charged for courses that include field trips.

Diploma/Graduation Fee

A non-refundable fee of \$47.50 per degree sought is assessed the semester a student applies for graduation. This must be paid within the first 15 class days of the student's final semester. Late payment of the Graduation Fee will result in a \$50 late charge.

International Student Service Fee

International students who are not sponsored are assessed an \$85 fee each semester to defray administrative support costs.

Independent Study Abroad Fee

In the event that a student is planning to Study Abroad, this fee of \$100 is to cover services provided by the TAMU Education Abroad Office.

International Student Health Insurance

International students (students who are not U.S. Citizens or Lawful Permanent Residents of the United States) enrolled at Texas A&M are required to have health insurance. International students will be automatically enrolled in and charged for the System Student Health Insurance Plan (SSHIP) unless they apply for and are granted a waiver. Individually purchased plans from vendors other than the Texas A&M University System provider will not be eligible for a waiver of automatic enrollment in the SSHIP. This is to ensure that medical treatment will be available in the event of injury or illness during enrollment at the University. International students can receive more detailed information about this requirement by visiting <https://admissions.tamu.edu/resources/future-students/international-students/> (<https://admissions.tamu.edu/resources/future-students/international-students/>). Specific questions may be directed to International Student Services by emailing ISSS@tamu.edu.

General Property Deposit

A deposit of \$100 is required of every student to ensure the institution against losses, damages, and breakage for which the student is responsible, or to be used to offset in part amounts owed by the student to the institution. General deposits are returned to students, less any such amounts owed to the institution, within a reasonable period after the date of the student's graduation from the institution, not to exceed 180 days. The deposit retention period provides the University sufficient time to identify all amounts owed and to determine if the student intends to enroll in the semester or summer session immediately following the student's withdrawal or graduation or, if the student withdraws or graduates in the spring semester, in the next fall semester. If a student leaves the University without graduating or officially withdrawing,

they must submit a written request to Student Business Services to receive a refund of their deposit. Deposits for students that do not graduate, withdraw or otherwise request a refund remain on file for four years. Those deposits are forfeited to the University's General Deposit Scholarship Fund, after deducting any amounts owed the University.

Health Services Fee

This fee is required of all students enrolled in Galveston-based classes. This fee will finance health services provided by a local clinic in Galveston, and medical services on the summer training cruise.

Housing Application Fee

An application fee of \$75 is required as part of a completed housing application. Exact stipulations and details regarding the use and return of that deposit are listed within the contract signed with the application. A waiver for the housing application fee may be submitted. To do so, the student should submit the housing application with an attached letter stating reasons for the waiver request. In order to be considered, the student must have a current FAFSA on file with Financial Aid. The waiver request can be emailed to cll@tamug.edu or mailed to Campus Living and Learning, P.O. Box 1675, Galveston, TX, 77553-1675.

Identification Card Maintenance Fee

All students must have an identification card. This card is used in registration procedures, collection of fees, for dining hall privileges, etc. If the card is lost or stolen, a reissuing fee will apply.

Payment Plan Fee

A student who chooses to pay using the installment plan pays an installment payment service charge. This charge is non-refundable. You may add the installment plan by selecting the installment option through the online registration system at <https://howdy.tamu.edu> (<https://howdy.tamu.edu/>).

Laboratory Fees

A laboratory fee ranging from \$8 to \$30 is charged for each laboratory course each semester.

MMAL (Master of Maritime Administration and Logistics) and MMRM (Master of Marine Resources Management) Program Fee

This fee is required of all graduate students enrolled in the MMAL and MMRM program and assessed at \$750.00 for instate residents and \$1500 for non-residential per semester. The MMAL and MMRM program fee will be utilized to provide program administration and departmental operating costs in order to sustain a quality graduate program, as well as to provide for innovative growth.

Mail Service Fee

Limited availability exists for students residing in non-university owned or operated housing to rent a campus mailbox. The fee is \$20 per semester and \$20 per ten-week summer term. Inquiries should be directed to the Bookstore (409-740-4488). Students have mail services included as part of the University's room charge if they are residing in university owned housing.

Cadet Drug Test Fee

The Cadet Drug Test Fee is \$30 per semester and is required for all License-Option Cadets.

New Student Conference Fee - Graduate

The Graduate New Student Conference fee is required of all new graduate students enrolling in the fall or spring semesters and selected summer terms at the rate of \$50 per student. This fee supports the provision of advanced materials to accepted students and the activities and food during the orientation.

New Student Conference Fee - Undergraduate

The New Student Conference fee is required of all new freshmen students at the rate of \$225. New transfer students enrolling in fall or spring semesters and selected summer terms will be charged \$153 per student. This fee supports the provision of advanced materials to accepted students, the presentation of new student conferences (including some meals) and student activities.

Parking Permit

All students parking an automobile or motorcycle on the campus pay a fee of \$250 for the academic year (Fall, Spring, Summer). By request, prorated refunds can be issued for terms not used. Parking rates are subject to change each fiscal year.

Recreational Sports Fee

This mandatory fee will provide building maintenance and programming support for recreational sports facilities.

Student Center Complex Fee

The mandatory Student Center Complex Fee is required for all students. This fee will be used for the operation, maintenance, programming improvement and purchase of equipment for the student center complex and for the acquisition and construction of additions to the complex.

Supplementary Fee for Courses Attempted More than Twice

Certain courses that are attempted by a student more than twice at a public institution of higher education in Texas may not be reported for state funding. As a result, the institution must either pass the non-funded portion to all students, or charge a supplementary fee to the student who is repeating the course. Texas A&M has chosen to assess a supplementary fee to those students repeating a course more than twice. A student attempting certain courses more than twice at Texas A&M University will be subject to a supplementary fee of \$125 per semester credit hour (\$375 for a 3 hour course) for the repeated course, in addition to tuition and required fees associated with the course. The general criteria for determining which courses are subject to the supplementary fee are:

- A course is subject to the fee if a student has completed it twice at Texas A&M University with a grade of A, B, C, D, F, F* (academic dishonesty), S (satisfactory), U (unsatisfactory), I (incomplete), Q or W (authorized drop after the add/drop period), X (no grade submitted), or NG (administrative no grade).
- Courses identified by the University as repeatable for credit are not subject to the fee. The Three Peat Exclusion attribute is displayed under course attributes in the Schedule of Classes for each course identified as repeatable for credit.

Students will be notified at the time they register for a course that it has been taken twice at Texas A&M University and is subject to the supplementary fee.

Testing Administrative Fee

A \$50 per test fee will be used to pay for personnel to proctor credit-by-exams and TSI tests and to pay shipping costs to send tests to testing centers.

Texas A&M Maritime Academy Orientation Week Fee

The Texas A&M Maritime Academy Orientation Week (O-Week) Fee is \$43 and covers equipment and supplies needed during the Corps of Cadets O-Week. Meals for O-Week are a separate charge and will be added to the semester bill following O-Week.

University Advancement Fee

The variable University Advancement Fee is a required fee charged to all Texas A&M University students. The Advancement fee funds services such as advising, technology, library, and administrative services such as ID services, utilities, access to discounted software, and many services provided through Student Services.

University Authorized Tuition

This variable fee is assessed to compensate for occupancy, services, use, and/or availability of all or any of the property, buildings, structures, activities, operations, and other facilities of the campus.

Other Expenses

Textbooks and Supplies: The cost of textbooks and supplies will vary with the quality of items purchased and with the course of study pursued.

License Option Cadet Expenses: License-option Cadets must purchase uniforms with initial outfitting estimated at \$1,500. Other items such as caps, belt buckles, and name tags may be required to be purchased from the TAMUG Bookstore.

A Sports Pass which will allow a student to attend Texas A&M University home games may also be purchased at registration. Refunds are not allowed for individual games or games missed.

The University operates a bookstore that supplies textbooks, stationery, drawing instruments, toiletries, and other supplies. All merchandise is sold at retail prices prevailing in the area. Major credit cards are accepted in the bookstore.

Student Fiscal Appeals

If a student finds themselves in an issue related to the application of University Student Fiscal Policy, such as excess hours, please access the information under Student Forms at <https://sbs.tamu.edu/sbs-galveston/index.html> (<https://sbs.tamu.edu/sbs-galveston/>) for an explanation of the Student Fiscal Appeal Process and an application for appeal.

Scholarships

For entering students, including freshman, transfer, and domestic graduate students, all scholarships are awarded based on information from the ApplyTexas application for admissions, including information collected in the Scholarship section of the application. If any awards require additional information, those students that are deemed qualified based on the ApplyTexas will be notified. The priority deadline for incoming student scholarships is December 1st. The final deadline for the Freshman Terry Scholarship is January 24th. The deadline for the Levy Fellowship is January 1st.

For continuing students, the University Scholarship Application (<https://uwide.tamu.edu/>) is used for awarding institutional scholarships. In

order to receive a scholarship from Texas A&M University at Galveston for the upcoming school year, a student must complete the University Scholarship Application online by February 1st. Award recipients are primarily selected by a committee of faculty and staff from across the university who utilize this application and any other necessary supplemental information. In some cases, the selection is made directly by the donor of the scholarship funds

To view scholarships available, visit <https://www.tamug.edu/scholarships/index.html> (<https://www.tamug.edu/scholarships/>). For additional information, contact the Scholarship Office at scholarships@tamug.edu or 409-740-4500.

Scholarships & Financial Aid
Texas A&M University
P. O. Box 30016
College Station, TX 77842-3016
(979) 845-3236
financialaid@tamug.edu
<http://financialaid.tamug.edu> (<http://financialaid.tamug.edu/>)

For additional information regarding financial assistance and other scholarships available to International Students, please contact:

International Student and Scholar Services
110 Pavilion
Texas A&M University
1226 TAMU
College Station, TX 77843-1226
USA
(979) 845-1824
Fax (979) 862-4633
iss@tamug.edu
<http://iss.tamug.edu> (<http://iss.tamug.edu/>)

Tuition Insurance

Texas A&M University has teamed up with GradGuard™ (<https://gradguard.com/tuition/tamug/>) to offer optional tuition insurance to Aggie students and families. This protection strengthens our existing refund policy (<https://sbs.tamug.edu/billing-payments/withdrawing/>) and can provide reimbursement for tuition, housing, and other fees if a student withdraws for a covered medical reason at any time during the covered semester.

Maritime Academy

Texas A&M Maritime Academy

The Texas A&M Maritime Academy (TAMMA), formed in 1962, is a specialized, maritime education and training program within Texas A&M University at Galveston (TAMUG) where Academy Cadets complete a rigorous academic program with a regimented lifestyle. The Maritime Academy educates and trains professional U.S. Coast Guard-credentialed mariners, Navy Reserve Officer Training Corps (ROTC), as well as Drill and Ceremony cadets who carry on the maritime and military traditions of our campus while they pursue other career goals serving the needs of the State, the Nation and the global marketplace.

Admission to the Texas A&M Maritime Academy

Applicants to the Texas A&M Maritime Academy (TAMMA) must apply to the university and to TAMMA. Admission to the TAMU Galveston Campus does not guarantee admission to the TAMMA. In addition to the common application, ([Applytexas.org](http://applytexas.org)) prospective students must submit

an application to the TAMMA to one of the three programs embedded into the Corps of Cadets. Each individual programs has additional admissions requirements. Refer to the License Option, NROTC, and Drill and Ceremony program requirements found on the TAMMA website [3].

Due to program and professional requirements established in Federal law (*46 CFR Part 310*) by the U.S. Coast Guard (USCG) and the Maritime Administration (MARAD), the application for admission to TAMMA requires additional application elements detailed below.

- Evidence of the ability to meet the most current medical and physical standards established by USCG regulations. Applicants must apply to the USCG for a medical certificate. The medical and physical evaluation process includes a vision test, hearing test, general medical exam, and demonstration of physical ability [1]. License Option (LO) Cadets must demonstrate ability to meet USCG medical and physical standards within nine (9) months of enrollment. LO Cadets must continue to meet the USCG medical and physical standards throughout enrollment in an LO program. LO Cadets who fail to demonstrate ability to meet most current USCG medical and physical standards will be transferred out of the LO programs until the individual is able to meet the most current USCG medical and physical standards. Additional programs such as D&C and NROTC admission requirements can be found on the TAMMA website application page [3].
- Evidence that the Cadet or Midshipman is not a user of dangerous drugs. According to Federal regulations [2], TAMMA maintains a program for testing individuals for evidence of dangerous drug use. During O-Week, TAMMA will test entering freshmen and Cadets transferring into TAMMA for evidence of the use of dangerous drugs. In addition, TAMMA conducts random tests throughout the academic year. Any Cadet who tests positive for the use of dangerous drugs or refuses to be tested will be immediately suspended from the Corps and all LO courses and activities for a period of at least one (1) calendar year, depending upon the outcome of a Return-to-Duty process prescribed and monitored by the USCG. There is no guarantee that a Cadet who is suspended will be permitted to re-enroll in a LO program.
- A criminal background check.

Prospective Cadets may download a TAMMA application through the TAMMA website [3] for a complete detailed list of all admissions requirements.

License Option Graduation Requirements

TAMMA's Cadets may receive diplomas from Texas A&M University only after 1) successfully completing the courses of study in their academic degree plans, 2) successfully completing required sea service 3) passing a comprehensive professional examination administered by the USCG, and 4) demonstrating knowledge, understanding, and proficiency competencies required by the International Convention on Standards for Training, Certification and Watchkeeping (STCW).

The following degree plans offer a License Option:

- BS Marine Biology
- BS Marine Sciences
- BS Marine Engineering Technology
- BS Marine Transportation
- Any Graduate Program offered by TAMUG

All students enrolled in the Marine Transportation program are required to be in the LO program.

Cadets who select an LO degree plan must be motivated, honorable, and willing to experience the rigor and discipline of the regimental structure of the Corps of Cadets for the duration of their enrollment in the program.

License Option Requirements

In addition to the degree requirements contained in the Texas A&M at Galveston Students Rules and the University catalog, LO Cadets must complete the requirements to achieve a Merchant Mariner Credential (MMC)[4] issued by the USCG. The requirements for the MMC are determined by International conventions, Federal law and regulations, and policies established by the USCG and the Maritime Administration (MARAD). The requirements for an MMC are subject to change according to developments at the International Maritime Organization, Congressional action, the Federal rule-making process, and consultations between the USCG, MARAD, and the Maritime Academies.

The international convention with the most direct impact on TAMMA and the requirements for an MMC is the International Convention on Standards for Training, Certification and Watchkeeping for Seafarers (STCW Convention). The main purpose of the STCW Convention is to establish international agreement on training and education standards to promote safety of life and property at sea and the protection of the marine environment.

The STCW Convention establishes endorsements that LO Cadets must achieve in order to graduate and serve aboard commercial vessels in international trade. "Deck Cadets" must achieve the STCW international endorsement as Officer In Charge of a Navigation Watch (OICNW). "Engine Cadets" must achieve the STCW international endorsement as Officer In Charge of an Engineering Watch (OICEW).

LO Cadets must also pass each course required for the desired STCW Convention international endorsement with at least a C and demonstrate each of the required competencies contained in each course. Attendance in LO courses is mandatory.

LO Cadets, regardless of age, prior experience as a mariner, or prior military service must maintain membership in the Corps and complete all of the requirements of the LO program. The minimum period of training is three (3) years or six (6) full semesters as a full-time student. **All License Option Cadets and NROTC must participate in the Corps of Cadets until graduation.** Applicants who desire to transfer into TAMMA from other State or Federal Maritime Academies are encouraged to inquire regarding current policy and provide documentation regarding prior coursework, sea service, and conduct records from other Academies.

LO Cadets are required to attend all classes in each course required for the desired STCW Convention international endorsement. These courses are identified in the Texas A&M University Catalog. Unexcused absences are not permitted. All sea service must be achieved according to TAMMA's USCG-approved License Option programs.

Sea Service Requirements

Under Federal law all LO Cadets are required to complete 360 days of sea service. Cadets may achieve the required sea service through a combination of TAMMA-approved assignments aboard training vessels, commercial ships, military vessels, USCG-approved courses that employ simulators, watches aboard TAMMA's training vessel, and maintenance work. Cadets assigned to approved training vessels receive 1.5 days of sea service for each 1 day assigned. Cadets assigned to commercial or

government vessels receive 1 day of sea service for each 1 day assigned. All assignments must be approved by the Superintendent or delegate.

Corps of Cadets

The Corps of Cadets (Corps) focuses on leadership development and provides Cadets and Midshipmen enrolled in the Navy Reserve Officer Training Corps program (NROTC) a disciplined environment designed to prepare its members to become successful Merchant Marine or military officers.

Members of the Corps are required to attend formations, drills (including parades at College Station), stand announced and unannounced personnel and room inspections, participate in physical fitness activities, and perform other duties required by the *Corps Operations Manual* and *Sea Term manual (LO cadets)*.

TAMMA's Superintendent is responsible for TAMMA's administration and the operations of the Corps of Cadets. The Corps of Cadets includes

1) **License Option Cadets** (LO Cadets) who are studying and training to fulfill the professional requirements to become Merchant Marine Officers through TAMMA's USCG-approved training program. These Cadets enroll in TAMMA's License Option (LO) programs and must maintain membership in good standing in the Corps,

2) **Midshipmen** who meet the qualifications for acceptance into TAMUG's NROTC program. Midshipmen seek commissions in the U.S. Navy upon graduation. Midshipmen integrate fully into the Corps, and must complete all degree requirements as well as courses required by the Navy.

Students may join the NROTC program as National Four-Year Scholarship Winners or as non-subsidized college program applicants. Interested prospective Midshipmen may obtain information on the National Four-Year Scholarship program through any Navy recruiting office. The application deadline is January 15 of the year of admission. All NROTC scholarships cover the costs of tuition, fees, and uniforms. All scholarship- junior and senior-level Midshipmen receive a monthly allowance and are paid for summer training periods.

3) **Drill and Ceremony (D&C) Cadets** who desire the structure, rigor, leadership training, and camaraderie of membership in the Corps. D&C Cadets are full members of the Corps, must purchase all required uniforms, perform drills, stand formation, and participate in personal and room inspections. Drill and Ceremony cadets do not participate in summer sea term courses aboard the training ship. Each D&C Cadet will receive a certificate indicating voluntarily participation and membership in the TAMUG Corps of Cadets.

Corps members are encouraged to participate in on-campus sports, clubs and educational activities and may compete for places on the Hearn Honor Guard, the Drill Team, the Sea Aggie Band, and the Flag Color Guard.

Members of the Corps are generally required to live on campus in the state-of-the-art Texas A&M Maritime Academy Hall.

Standards of Conduct

In addition to the Texas A&M University at Galveston Student Rules and the Texas A&M University Rules the Corps operates according to rules and standards contained in the *Corps Operations Manual* and the *Cadet Instructions Manual*[5]. Among other things, these publications

establish mandatory uniform regulations, standards of dress, grooming, and discipline.

The Corps' conduct and discipline system, administered by the Commandant, is a method for assessing the aptitude and motivation of each corps member for becoming a mariner or military officer.

Corps members who violate the Corps' standards of conduct receive demerits and Cadets that consistently violate the Corps' standards of conduct may be suspended or dismissed from the Corps. Cadets enrolled in any of the LO programs must maintain membership in good standing in the Corps. LO Cadets who are dismissed or suspended from the Corps but who are permitted to remain at TAMUG may not enroll in LO courses and will be removed from the Corps housing. Cadets who are not Texas residents, will be required to pay to out-of-state tuition costs retroactively to the beginning of the term.

The Corps includes a special unit called "Victor Company". Victor Company is veterans of the U.S. Armed Services or individuals who are married and/or with dependents or over the age of 25 when first enrolled in TAMMA. The Victor Company Cadet Commander reports directly to the Commandant and Victor Company members follow all Corps regulations including watches and practical training aboard TAMMA's training vessel. Cadets in Victor Company are permitted to live off campus.

The Corps also includes International Cadets. With approval, international Cadets may pursue the LO education and training required to become Merchant Marine Officers and earn a degree from Texas A&M University. However, International Cadets are subject to U. S. immigration laws and may not take the USCG license exams. Instead, international Cadets receive a certificate of completion of their respective degree plans.

TAMMA will provide each Cadet accepted into the Corps a list of required uniform items along with procedures for purchasing uniforms. Entering Cadets should order uniforms as soon as they learn they have been accepted into the Corps.

TAMMA will issue uniforms during Orientation Week prior to the start of the Fall Semester.

Orientation Week

Prior to the beginning of the Fall semester, all freshman and transfer students entering TAMMA, NROTC, or D&C must attend Orientation Week (O-Week).

Under the guidance of the Commandant, members of the Corps of Cadets' leadership team plan and execute O-Week to introduce each new member to the Corps' routines and traditions. Cadets also learn military bearing and customs, basic seamanship, engineering, and nautical science skills. O-Week training includes, military formations, marching to class and meals, team-building exercises, hands-on seamanship training, and other training to enable new members to hit the decks running when the entire Corps returns from training sea terms and/or assignments at sea.

Student Incentive Program (SIP)

LO Cadets may qualify for financial support through MARAD's Student Incentive Program (SIP).[6] LO Cadets who receive financial support through SIP participate in the Navy Strategic Sealift Midshipman program (SSO) program and receive a commission as Ensign, USNR upon graduation and may apply for active duty service with the Navy following graduation.

In order to qualify for the financial support under SIP, LO Cadets must:

1. Pass a Navy physical examination and maintain Navy medical standards,
2. Pass semi-annual Navy Physical Readiness Tests,
3. Maintain a minimum GPA of 2.5 (4.0 system),
4. Be under the age of 27 by graduation. Waivers are available for prior service students.

Upon graduation, LO Cadets who accept financial support through SIP, must:

1. Complete the course of instruction at TAMMA,
2. Within three (3) months of completion of the TAMMA course of study, achieve a merchant mariner license with appropriate national and international endorsements for service aboard vessels in domestic and international voyages with unlimited endorsements,
3. For at least six (6) years maintain a valid 1) merchant mariner license with appropriate national and international endorsements for service aboard vessels in domestic and international voyages with unlimited endorsements, 2) transportation worker identification credential, and 3) USCG medical certificate.
4. Apply for and accept, if tendered, an appointment as a commissioned officer in the Navy Reserve including the Strategic Sealift Officer Program, the USCG Reserve, or any other reserve component of the Armed Forces of the United States for at least eight (8) years.
5. Serve the foreign and domestic commerce and the national defense for at least three (3) years after graduation.

LO Cadets with interest in the SIP are encouraged to speak with TAMMA and NROTC staff about the details of applying and the obligations following graduation.

Additional LO Requirements

In addition to minimum requirements associated with courses within USCG-approved program of study and training for international STCW Endorsements, Cadets are required to obtain several training endorsements required by the USCG. Some of these include, but are not limited to Basic Safety Training, Basic and Advanced Firefighting, Radar and Automated Radar Plotting Aids, Global Marine Distress System (GMDSS), and Bridge Resource Management.

LO Cadets are also required to apply for and maintain a valid Transportation Workers Identification Credential (TWIC), and a current Passport. TAMMA will assist each Cadet in obtaining the required endorsements and documents. **However, it is each Cadet's responsibility to maintain a current portfolio of all required documentation.** A complete list of these requirements and costs will be available during New Student Conferences.

[1] See 46 CFR Subpart C – Medical Certification. The USCG's Application for Merchant Mariner Medical Certificate may be accessed at: <https://www.tamug.edu/corps/pages/About/Application-Maritime.html>

[2] See 46 CFR Part 16 and 49 CFR Part 40

[3] <http://www.tamug.edu/corps/apply.html>

[4] 46 CFR §10.107(b) defines *Merchant Mariner Credential* as combining the individual merchant mariner's document, license, and the STCW

endorsement into a single mariners qualification document, certificate of identification, and certificate of service.

[5] <https://www.tamug.edu/corps/pages/About/Application-Maritime.html>

[6] Cadets enrolled in TAMMA's License Option (LO) program may apply for Student Incentive Payments (SIP) provided by the Department of Transportation's Maritime Administration. Title 46 USC 51509-51511 describes the details of the SIP. Cadets are encouraged to seek guidance from TAMMA staff regarding SIP.

Services

Services for Texas A&M University at Galveston Students

Campus Dining

Dining information listed below is based on information available at time of printing and is subject to change.

With the exception of students residing in Albatross or Polaris Halls, students residing in campus housing must select a minimum meal plan. All Dining Plans are loaded onto the Student ID card to make access and use easy. Fees for the selected meal plan will be added to your Texas A&M University student account, and are separate from housing fees.

On campus dining plans, generally, are either a declining balance only plan (known as Dining Dollars), or an All Access plan that allows unlimited access into Captain's Landing (dining hall located in the student center) with a limited number of Dining Dollars.

The All Access plans allow students unlimited access into Captain's Landing during open hours (must wait 30 minutes between entries) by presenting their student ID card to the staff member at entry. "Dining Dollars" are declining balance dollars that can be spent like cash or a debit card, and are accepted at all dining locations. Each purchase is automatically deducted from the account.

Meal plans may also be used at any dining location in College Station.

Dining Dollars are only accepted on campus, assuring parents and guardians that this money is spent only on food, beverages and convenience items.

Applicable sales tax will be added at checkout.

Students wanting to downgrade their meal plans during the semester have until the Census Date (identified on the academic calendar (<https://registrar.tamu.edu/academic-calendar/>)) to make these changes and the cost of the changes will adhere to the University's refund schedule. Downgrades can only be made if the student is not already on the minimum required plan. In order to add or upgrade a meal plan, please do so by 7 weeks from the start of the semester. Any plan purchases or additions made after the seventh week of class cannot be charged to the student's account and must be paid via credit card. All changes must be made through the Dining Services Office at (409) 740-4508.

Meal Plan Pricing: <https://dineoncampus.com/tamug> (<https://dineoncampus.com/tamug/>)

Campus Recreation

The Campus Recreation Department commits to Aggies learning for a lifetime by providing programs promoting wellness of mind, body, and

spirit while developing marketable skills which enrich the education of our students and the campus community.

The Campus Recreation Department features six programmatic areas: Intramural Sports, Club Sports, Outdoor Program, Aquatics, Fitness, and Wellness.

The Intramural Sports program offers the campus community the opportunity to compete in a variety of open and/or co-rec leagues or tournaments. Intramural sports are open to all currently enrolled students as well as TAMUG faculty and staff. There are no registration fees charged for participation. Instructions on how to sign-up for an intramural sport can be found within the Intramural Sports page.

The Club Sports program provides students with the chance to focus on a particular sport or recreational activity, and compete against other universities.

The Outdoor Program provides students, faculty, and staff the opportunity to participate in outdoor pursuits such as surfing, camping, stand-up paddleboarding, and kayaking through the Outdoor Rental Center and the Boulderling Wall in the Campus Recreation Center. The Outdoor Program also manages the campus challenge course, which helps with group team building and communication skills.

Additionally, the Campus Recreation Department oversees aquatic facility operations at the campus outdoor pool including open swim hours, hiring of lifeguards, and facility rentals.

The Fitness program allows students, faculty, and staff the chance to participate in group exercise classes and small group functional training classes.

The Student Wellness program creates educational opportunities for students around the eight dimensions of the wellness wheel—Spiritual, Physical, Intellectual, Emotional, Environmental, Social, Financial, and Occupational.

Career Services

Career Services can offer a variety of services for students in every stage of the career planning process, from your freshman year through graduation. These services include:

- Web based job and internship postings
- Resume and cover letter assistance
- Interview preparation and mock interviews
- On-campus interviews and employer presentations
- Specialized workshops for employment research, job and graduate school searches.
- Job search and networking tips
- Email distribution list for job and internship postings.
- Career counseling
- Two annual career fairs, one in Fall and another in the Spring

Center for Academic Learning Support

The Center for Academic Learning Support (CALs) strives to increase awareness of campus resources, foster community formation and student belonging, develop skills to build and reach personal and academic goals, and build major commitment and marketable skills. We support high impact learning opportunities by integrating students' holistic academic careers into a purposeful academic journey. Vital aspects of this effort include fostering development through academic

communities, coaching navigation skills and learning behaviors for an ever-evolving learning environment, and providing individualized student solutions.

Specific CALS programs include Academic Advising, Academic Coaching, Course Support, Guided Group Study, the FIRST Program, and Hullabaloo U. For additional information, please visit the Center for Academic Learning Support website (<https://www.tamug.edu/cals/>).

Counseling Services

The Office of Student Counseling provides services to undergraduate and graduate students at Texas A&M University at Galveston. The Office is staffed by licensed counselors and the services rendered to students are free, voluntary, and confidential. The Office staff is dedicated to assisting students in their pursuit of personal and academic growth, to helping students gain a better understanding and appreciation of themselves, and to supporting students as they make important decisions about their lives.

What is counseling?

Counseling, most simply stated, is an interaction between a person who is struggling in some way and in need of help, and another person who is trained in helping people find solutions for their struggles. The reasons for coming are many, and the counseling strategies employed also vary from counselor to counselor. The one constant is that the counselor focuses all energies on trying to help the student. It doesn't always work, but our student evaluation forms suggest that most students who seek counseling believe that it has been helpful to them. And, if you feel uncertain about whether counseling is for you, we encourage you to make an initial appointment and discuss any reservations you might have with one of our counselors. There is no obligation to continue.

Course Support

Course Support sessions aim to provide students with deeper understanding, extra practice at applied theory, and intellectual skill building. Peer Consultants guide learning in foundational courses such as Chemistry, Math, and Physics, as well as discipline-specific courses including Accounting, Economics, Engineering, Marine Transportation, and Statistics. Course Consultants are successful students who made a high grade in the course and are endorsed by faculty; they facilitate sessions in one-on-one and small group settings guiding students through homework problems and difficult course concepts using example problems. Groups of five to seven students work together in small blocks of time throughout the week.

www.tamug.edu/tutoring (<https://www.tamug.edu/tutoring/>)

Disability Resources

<http://disability.tamu.edu>

- Collaborates with faculty, staff and students to achieve access for students with disabilities.
- Interacts with students to determine reasonable accommodations to remove barriers.
- Facilitates accommodations including (but not limited to): exam accommodations, sign language interpreting and transcription, assistive technology, and classroom accommodations.
- Consults with all campus entities on providing access for disabled students.

Guided Group Study (GGS)

Supplemental Instructors design fun and collaborative study sessions based on course topics to reinforce challenging concepts and strengthen understanding. GGS support is offered for historically difficult courses usually in the first year. These guided group study sessions are taught by successful students who made a high grade in the course and are endorsed by faculty. GGS leaders partner with faculty to design active learning sessions and prepare students for exams; these sessions are taught at three times weekly for broad access to all students. Regular attendance throughout the semester helps students stay on track or get ahead, build confidence through critical thinking and problem-solving, and meet other students and form study groups.

www.tamug.edu/tutoring (<https://www.tamug.edu/tutoring/>)

Health Services

Texas A&M University at Galveston contracts health services for our enrolled undergraduate students with the University of Texas Medical Branch (UTMB) Family Medicine clinic. Under the contract, office visits to the doctor are free of charge. Medications, inoculations, x-rays, physicals, and other services provided at the clinic may be covered under students' private insurance or at the student's expense. Hospitalization and emergency room visits are full-charge at the student's expense.

Group Insurance

Since there are numerous health needs and costs which are not provided or paid for by Student Health Service, students are strongly encouraged to maintain medical insurance. A group plan is available to all students in the Texas A&M University System. Information about this program will be distributed during new student orientation and are available from the student counseling office. Additional information can be found online at <https://tamug.myahpcare.com/>. Students and parents should give careful consideration prior to dropping any current health insurance.

Emergency Medical Transport

Please note that if an ambulance or other emergency transport is called, it is the responsibility of the student to cover any cost incurred; it is not the liability of the University.

Honors Program

Texas A&M University at Galveston Honors Program believes in and promotes student success by motivating and challenging students to expand their education to a deeper, more enriched, and intellectually stimulating level.

Students in the Galveston Honors Program are encouraged to design an individualized Honors plan of study that could include independent study, research, or a thesis based on the individual student's academic, personal, and professional goals.

Honors Program Eligibility

Invitation into the Galveston Honors Program is open to:

Incoming freshmen with a minimum score of 1250 on the SAT or 28 on the ACT and in the top 10 percent of their graduating high school class, as well as National Merit Finalists, National Achievement Finalists, or National Hispanic Scholars, are automatically admitted into the Texas A&M University at Galveston Honors Program. Incoming students entering Galveston Honors may be required to participate in the Honor Experience their 1st semester (Fall) to maintain Honors status at the discretion of the Honors Program chair.

Continuing students with a cumulative Grade Point Average (GPA) of 3.5 or higher at Texas A&M University will receive an invitation to join the Honors Program at the end of each successful semester until they have reached over 90 credit hours.

A 3.5 cumulative GPA is required to remain eligible for participation in the Honors Program.

Honors Program Requirements

The following minimum requirements must be completed for students to receive an Honors designation on their official transcript:

1. A minimum of 18 Honors credit hours
2. No more than 6 Honors credit hours can come from the Texas Common Core of Curriculum or Common Body of Knowledge
3. At least 9 Honors credit hours must come from the student's major or minor requirements; this can include research, independent study, and/or internships (that are university/department sponsored)
4. Student must take 3 one credit hour Honors seminars

To make progress toward the Honors distinction, Texas A&M University at Galveston Campus students must:

1. Maintain a Texas A&M University GPA of 3.5 and a cumulative Honors GPA of at least 3.25.
2. Receive advising toward Galveston Honors distinction each semester.
3. Fulfill annual co-curricular participation and service requirements, including at least two Honors Program events each semester.

In the event an Honors student fails to meet any of these requirements, a probationary semester is granted. Continued failure to meet these requirements results in dismissal from the Honors Program.

Honors Program Core Coursework

The following three Honors Seminars are required:

GALV 101 (Connections): Exploration of connections between academic disciplines, including science and the humanities; proposes and engages with "big questions," such as what it means to be human.
 GALV 201 (Research Methods): Interdisciplinary research methods and research practices with an emphasis on writing for and presenting to different audiences.
 GALV 401 (Service Learning): Experiential learning opportunity in which students apply the objectives of the course to engage with and reflect upon meaningful community service to better understand civic responsibility.

Housing

The Office of Campus Living and Learning coordinates on-campus housing in modern student residence halls. Rooms are double and single occupancy and furnished with beds, desks, chairs, wardrobes or closets, and dressers. Students are expected to furnish pillows, blankets, shower curtains, linens, and cleaning supplies.

Students not enrolled in the Texas A&M Maritime Academy (TAMMA) are required to live on campus until the first Fall semester that they turn the age of 21 (one must be 21 *prior* to the start of the Fall term to qualify). Exceptions may be granted for special circumstances that are listed below.

Permission to live off-campus is *typically* granted if one of the following circumstances are met:

- The student is married and living with their spouse in the local Galveston area.

- The student is a single parent/guardian and their child resides with them at their local Galveston area residence.
- The student is a veteran of the U.S. Armed Forces (copy of DD-214; not active duty for training only).
- The student will live with a parent/guardian in the Galveston area. (A typed verification letter will be required)
- The student will enroll in 9 credit hours or less for the duration of the semester.
- The student has an approved medical accommodation through the Office of Disability Services.

On-campus housing is required for all Cadets enrolled in TAMMA who are under the age of 25 unless they have been granted Victor company status through the Corps of Cadets.

Any student who believes they qualify to live off campus must apply for permission to seek off-campus housing. Approximately 60 percent of the undergraduate students are housed on campus, and returning students are given priority in receiving permission to live off campus. Campus residents accepting housing in the fall semester are required to sign a Fall and Spring Semester contract and are not permitted to move off campus for the spring semester. An online application for campus housing, which is separate from the application for admission to the University, is available from the Office of Campus Living & Learning website (<https://www.tamug.edu/cll/>). Rooms are assigned in accordance with the date on which the housing application and one-time/non-refundable application fee of \$75 are received through the online housing application. Applicants for Living-Learning Communities (LLC's) are typically assigned first, with windows for students to choose their assignments through the Housing System allocated in blocks based on the date of their applications. Applications received after May 1st may be subject to assignment by Campus Living and Learning professional staff.

Upon admission to the University, students who will be living on campus must submit an application containing a housing agreement and one-time, non-refundable housing application fee to be eligible to receive a Residence Hall Assignment. A waiver for the \$75 non-refundable application fee may be submitted. To do so, the student should submit the housing application with an attached letter stating reasons for the waiver request. In order to be considered, the student must have a FAFSA submitted to TAMUG. The waiver request can be emailed to CLL@tamug.edu (reslife@tamug.edu) or mailed to TAMUG Campus Living and Learning, P.O. Box 1675, Galveston, TX, 77553-1675.

It is recommended that housing applications be submitted early. In the event that on-campus housing is not available, information concerning off-campus housing will be provided upon request. Since TAMMA Cadets are required to live on campus, Cadets will be able to pursue a license option only if campus housing is available for them.

Housing Costs

The cost of housing for each semester will vary based on the residence hall and room style a student resides in. Visit our website (<https://www.tamug.edu/cll/HousingOptions.html#Pricing>) for current costs.

International Student and Scholar Services

Student Assistance Services serves as the liaison with the International Student and Scholar Services Office at Texas A&M University in College Station. Personal counseling, financial planning, liaison with embassies and consulates, legal referrals, academic referrals, immigration matters, orientation programs, and advisement to groups, are among the services offered in collaboration with the TAMUG CARE Team, Office of Counseling

Services, Financial Aid, and International Student Services in College Station, TX.

For more information regarding International Student and Scholar Services, contact Student Assistance Services by calling (409) 740-4836.

Library

The Jack K. Williams Library hosts student-centered services and an electronic, print, and archival collection devoted to Marine and Maritime subjects in conjunction with students' courses; the Studio, a multimedia support service; the Writing Lab; course-support spaces and consultations; equipment checkout; and individual, small group, and large group study spaces. The Library supports learning with research instruction, technology and information discovery tools. The Library has access to the same electronic resources as the main campus in addition to electronic and print resources focused on the programs of the Galveston campus.

The Library promotes student success by connecting Sea Aggies with information resources in and beyond the Library. In addition, the Library helps students and faculty acquire information literacy skills and promotes inquiry and critical thinking.

Jack K. Williams Library (<http://www.tamug.edu/library/>)

Parking

Vehicles parked on the Galveston campus are required to display a valid parking permit, except for those parked in designated visitor spaces. When not purchased for the full year, the annual cost of the permit is prorated. For more information or to purchase a faculty, staff, or student permit, visit <http://www.tamug.edu/police/parking/>.

Vehicles parked in designated visitor spaces must pay for parking either by mobile app, ParkMobile, or at a kiosk located in either in Lot M200 in front of MAIN or in Lot N305 in front of the Sea Aggie Center. While designated visitor parking does not require anything to be displayed in the vehicle, the vehicle license plate is recorded as part of the transaction and is used to enforce the visitor parking rules.

Registration and Academic Status

The Texas A&M University at Galveston follows the same guidelines and definitions as the College Station campus. Registration for the fall and spring semesters is accomplished at several times. During the fall and spring semesters (in November and April), a preregistration period is held for currently enrolled and readmitted students to register for the next semester. There are periods of announced open registration for students who were unable to preregister during the scheduled preregistration period. New Student Conferences serve as an opportunity for new undergraduate students to register. Further information concerning registration may be obtained from the academic calendar published in this catalog or from the Office of the Registrar. The schedule of classes is available online.

Scholarships & Financial Aid

We want to partner with students to pay for their college expenses. There are different options to assist with cost.

Need-based financial aid programs are designed for students who have a demonstrated financial need as defined by their financial aid application, such as the Free Application for Federal Student Aid (FAFSA). All financial aid is contingent upon students enrolling and making Satisfactory

Academic Progress (SAP), as defined by Scholarships & Financial Aid or the specific aid program.

Financial Aid

Financial aid has two forms: Gift Aid (not repayable) and Self-Help (may be repayable, such as with a loan).

Gift Aid

- Grants (Federal, State, Institutional)
- Scholarships
- Waivers

Self-Help

- Loans (Federal, State, Institutional, Alternative)
- Student Employment (Work Study, Part-time Employment, Internships, Assistantships)

There is limited gift aid available to undergraduate students. Gift aid is offered on a first-come, first-served basis based on priority dates published on the Aggie One Stop website (<https://financialaid.tamu.edu/planner-dates/>).

To apply for financial aid, students must submit a financial aid application. The Free Application for Federal Student Aid (FAFSA) becomes available on October 1 each year for the next academic year. Students are encouraged to submit their FAFSA online at the Federal Student Aid website (<https://studentaid.gov/h/apply-for-aid/fafsa/>) as soon as possible. Students who do not meet the citizenship eligibility requirements to complete the FAFSA may be eligible to submit the Texas Application for State Financial Aid (TASFA). Information on this application can be found on the Aggie One Stop Apply for Aid website (<https://aggie.tamu.edu/financial-aid/apply-for-aid/>). You must be admitted to Texas A&M University, have a FAFSA or TASFA (whichever is applicable to you) on file with Texas A&M and have submitted all other requested documents to Scholarships & Financial Aid to receive a financial aid offer.

Financial aid offers for incoming students beginning in the fall semester are made early in the preceding spring semester. Financial aid offers for incoming students beginning in the spring semester are made late in the preceding fall semester. Financial aid offers to continuing students (those who have completed at least one semester at Texas A&M) for the upcoming academic year are made after spring semester grades have been submitted. Summer financial assistance is offered to students with a FAFSA or other financial aid application on file who enroll at least half-time in summer coursework at Texas A&M.

Financial aid offers are made based on the assumption that students will enroll full-time in the fall and spring semesters. Cost of attendance and offered financial aid amounts will be adjusted if you are enrolled less than full-time at Texas A&M University or through the Texas A&M-Blinn TEAM Program, the Texas A&M Engineering Academy at Blinn-Bryan, or another approved consortium program.

Students may receive federal financial aid only for courses that count towards their program of study/degree plan. State and institutional aid are not subject to the same regulatory restrictions. Regardless of the type(s) of aid offered, the cost of attendance will be reduced for courses that are not counting towards a student's program of study, which may result in a lower amount of federal, state, and institutional aid eligibility. Financial aid offers may also be adjusted if students do not begin attendance in all courses for which they are registered.

Student questions may be sent to:

Scholarships & Financial Aid
Texas A&M University at Galveston
P. O. Box 40005
College Station, TX 77842
financialaid@tamug.edu (financialaid@tamug.edu)
FAFSA School Code 003632

Please visit the Aggie One Stop website (<https://aggie.tamu.edu/>) for the most current information on programs and any associated deadlines.

Grants

The Federal Pell Grant is available to undergraduate students who have not received a baccalaureate degree and who have demonstrated financial need as determined by the FAFSA. The Federal Pell Grant provides a foundation of financial assistance to which aid from other sources may be added.

The Federal Supplemental Educational Opportunity Grant (FSEOG) and the Texas Public Education Grant (TPEG) are offered to students based on financial need as determined by the FAFSA. These funds are offered on a first-come, first-served basis.

The Towards EXcellence, Access and Success (TEXAS) Grant is available to eligible Texas residents who have requisite levels of financial need according to the results of their financial aid application and have met the remaining program criteria, which may be reviewed on the Aggie One Stop Grants website (<https://aggie.tamu.edu/financial-aid/types-of-aid/grants/>). The TEXAS Grant is also subject to funds availability and eligibility guidelines as defined by the Texas Higher Education Coordinating Board.

Additionally, Texas A&M provides institutional grant aid to eligible students to assist with educational expenses. Student grants are subject to fund availability and may be single-year or renewable.

Federal/Texas College Work Study Programs

Federal and state programs provide part-time employment for U.S. citizens, permanent residents, and eligible non-citizens, within fund limitations, who have an established financial need and desire on-campus employment.

To qualify for the Federal/Texas College Work Study programs, a student must have submitted a financial aid application, have financial need, be eligible to work in the United States, be enrolled at least half-time, and be making Satisfactory Academic Progress.

All Work Study students are paid minimum wage or higher, work an average of 20 hours per week, and are not eligible for paid holidays, retirement, vacation, or sick leave.

Loans

The Federal Direct Loan Programs are available to students who have submitted a FAFSA. Students will be notified of their eligibility for the Direct Loan program(s) through a financial aid offer.

Students and parents seeking the Parent Loan for Undergraduate Students (PLUS) may obtain information from the Aggie One Stop Federal Direct Parent PLUS Loans website (<https://aggie.tamu.edu/financial-aid/types-of-aid/loans/federal-direct-parent-plus-loans/>). This program requires the FAFSA to be on file with Scholarships & Financial Aid.

Short-term loans are available to assist students who experience temporary financial difficulties with educationally-related expenses.

Funding for this program is provided by The Association of Former Students, the Class of 1926, and other university resources. This program is not intended to provide long-term assistance or to replace other assistance available through Scholarships & Financial Aid. Students must be degree-seeking and enrolled at least half-time to be eligible for short-term loans.

The Emergency Tuition and Required Fees loan program is available to help students pay their Texas A&M tuition and required fees. The loan is applied directly to the student's tuition and fee account.

Please refer to the Aggie One Stop website (<https://aggie.tamu.edu/>) for detailed information on all of the aforementioned programs and more.

Scholarships

Incoming Freshmen Scholarship Programs

- Achievement Scholarships are available to incoming freshmen who attended and graduated from targeted high schools in the state of Texas. Awards are based on academic achievement, leadership ability, and extracurricular participation. For priority consideration, students must complete and submit the ApplyTexas (<https://www.applytexas.org/>) scholarship application no later than December 1 of their senior year of high school.
- Scholarships are available to incoming freshmen based upon a holistic review of their application. For priority consideration, students must complete and submit the ApplyTexas (<https://www.applytexas.org/>) freshmen scholarship application no later than December 1 of their senior year of high school.

Continuing Student Scholarships

- The University Scholarship Application is available to students with at least one semester completed at Texas A&M. Awards range in value from \$500 to \$10,000 and are available to undergraduate, graduate, and professional students currently enrolled at Texas A&M. Some awards are limited to certain fields of study and to individuals who have attained a necessary academic classification, while others are unrestricted. Awards are made to outstanding students based on a combination of academic achievement, campus/community involvement, campus leadership roles, and, for some scholarships, financial need. Students are encouraged to complete the application beginning in October via the scholarships website (<https://aggie.tamu.edu/financial-aid/types-of-aid/scholarships/undergraduate-scholarships/>). The deadline for submitting applications is February 1, prior to the academic year for which the student will be awarded.

Transfer Student Scholarships

- Aggie Transfer Student scholarships are designed to recognize outstanding students who will be transferring to Texas A&M University at Galveston. Scholarships are awarded based on a combination of academic achievement, extracurricular activities, campus involvement at their current institution, leadership, major and, in some instances, financial need. These award amounts can range from \$500 to \$4,000 and the application is available to students through the ApplyTexas (<https://www.applytexas.org/>) application.

Scholarship Recipients and Non-Resident Tuition Waivers

The Non-Resident Tuition Waiver for Competitive Scholarship Recipients, authorized under Texas Education Code 54.213a, is an optional waiver that institutions can implement. An eligible non-resident student who holds a competitive scholarship of a specified minimum dollar amount for the academic year or summer term for which the student is enrolled may be eligible to pay the fees and charges required of Texas residents

without regard to the length of time the student has resided in Texas. The student must have competed with other students, including Texas residents, for the scholarship, and the scholarship must be awarded by a Texas A&M University school/college or departmental scholarship committee or university representative.

The Texas Education Code requires that all male students receiving a state waiver or exemption must provide one-time proof of Selective Service registration or a Selective Service Statement of Registration Status in order to be considered eligible. Documentation will be requested through the Financial Aid Portal in Howdy.

More information is available at the Aggie One Stop Competitive Scholarship Non-Resident Tuition Waiver webpage (<https://aggie.tamu.edu/financial-aid/types-of-aid/scholarships/competitive-scholarship-non-resident-tuition-waiver/>).

Changes in Status that Impact Financial Aid

Dropping or Q-dropping a course affects a student's enrollment status. In turn, enrollment status may impact certain funding sources as described in the below sections.

- **Enrollment Status** – A student's enrollment status continues to be adjusted throughout the semester when a student drops or Q-drops a course. The change in enrollment status may or may not have an immediate impact, depending on timing. Falling to less than half-time enrollment will impact student loan repayment. Federal financial aid can pay only for courses included in the student's degree plan. Enrolling in courses not on the degree plan may result in reduced financial aid eligibility.
- **Health Insurance** – With the implementation of the Affordable Care Act (ACA), a dependent can be covered under their parent's insurance plan until the age of 26 regardless of their enrollment status as a student.
- **Scholarships & Financial Aid** – Financial aid checks enrollment status on two occasions – when a student's aid is released to their billing account and on the 12th class day of a fall or spring semester. A student's aid amount can be adjusted if the student's enrollment status changes between the time funds are disbursed to the billing account and the 12th class day. However, after the 12th class day, enrollment status is not a factor for aid that has already disbursed, unless a student withdraws or drops all courses. Instead, any changes in enrollment status will be reviewed through financial aid's satisfactory academic progress standards for subsequent semesters and will not impact current semester aid. If aid has not been disbursed prior to the 12th class day, then enrollment status is checked on the date the aid is disbursed. In the summer semester, enrollment status is officially checked on the 4th class day of the summer session(s) in which the student is enrolled.
- **Student Loan Repayment** – Students must maintain at least half-time enrollment throughout the semester for student loans to remain in an in-school deferred status. Dropping below half-time enrollment at any time during the semester will trigger student loans to enter any applicable grace period, with repayment required after the grace period has elapsed. Changes in enrollment status from full-time to half-time have no consequence on student loans. Half-time enrollment for an undergraduate student is defined as 6 hours for the fall and spring semesters.

Student Activities

It is easy to get involved at Texas A&M University at Galveston, and there are many good reasons to do so.

As would be expected, student life at TAMUG is often centered around the ocean. Many clubs and sports often involve water, but we have numerous active student organizations including many professional organizations that cover a wide variety of interests. The only question is which organization, or organizations, are right for you?

We follow Aggie traditions such as Yell Practice, Muster, Silver Taps, SALT Camp (Sea Aggies Learning Traditions), The Big Event and the cherished Aggie Ring. Students may also get involved with the Student Government Association, the Nautilus (newspaper), or Sea Spray (literary magazine).

As you can see, there are numerous opportunities to enrich your college career by practicing the six core values of Texas A&M University: Excellence, Integrity, Leadership, Loyalty, Respect, and Selfless Service.

Student Affairs

The Division of Student Affairs, Suite 101 in the Seibel Student Services Center, is responsible for the social, moral, and intellectual development of Texas A&M University Galveston Campus students through their involvement in student organizations, leadership activities, recreational sports, and other co-curricular and extracurricular activities. Student Affairs also oversees Campus Living & Learning (Housing, Community Standards, Campus CARE Team, Camps and Conferences, CPM compliance, Healthy Relationship Programming), Student Assistance Services (Campus Pantry, the 1973 Center), Counseling and Career Services, Campus Recreation (Rec Center, Outdoor Programming, Wellness, Intramurals, and Club Sports programs), and the Office of Student Activities which advises student organizations about program planning, risk management and the function of organizations to students throughout their college career. Furthermore, Student Activities allocate funding for eligible student organizations and aid in campus wide events such as Aggie Muster, Maritime Ball, Family Weekend, Springfest and many other events. In addition to providing students an avenue to participate in several club activities, Student Affairs is also responsible for dispersing football tickets and ordering and dispersing the highly honored Aggie Ring.

The Studio

The Studio aims to support targeted communication and presentation needs for students, staff, and faculty exploring visual and audio communication mediums. Services include equipment checkout, dedicated audio room, individual and group editing stations, lightboard, green screen, interview station, presentation station, lighting, audio mixing boards, and microphones. The Studio encourages discovery of visual mediums by hosting Adobe Creative Suite software along with additional audio, video, graphic, and story boarding software. Projects are supported by Video and Speech Consultants who assist in the creation and use of media for students and faculty and development of public speaking skills.

www.tamug.edu/studio (<http://www.tamug.edu/hypermedia/>)

Undergraduate Research

Undergraduate Research at TAMUG promotes student success by providing high-impact hands-on learning experiences for students in all academic disciplines to pursue an enriched, intellectually-stimulating curriculum. The TAMUG Undergraduate Research Program brings together outstanding students and faculty to build a community of

life-long learners, nationally-recognized scholars, and world citizens. Research opportunities are open to all undergraduates and are a collaborative effort between undergraduate students, graduate students, and faculty using an inquiry-based approach to generate new knowledge.

Being involved in undergraduate research allows students to participate in a scholarly community of students with common interests, to learn more about their future professional field, and to develop a close working relationship with acclaimed faculty. Research experiences make students more competitive for scholarships, internships, jobs, international opportunities, and admission to top graduate and professional programs. Perhaps most importantly, engaging in undergraduate research allows students to experience the excitement of working collaboratively to create new knowledge, solve cutting-edge problems, work collaboratively, and communicate more effectively—life skills that are increasingly valued in our world.

Visit the Undergraduate Research Program website (<https://www.tamug.edu/undergraduateresearch/>) for more information.

Undergraduate Research Scholars

The Undergraduate Research Scholars (URS) program provides eligible undergraduate students with a graduate student experience by offering students an opportunity to participate in research, thesis writing, and presentation of their research via a 2-semester long enrollment in the URS program.

Undergraduates who participate in the Undergraduate Research Scholars (URS) program will ultimately:

- Produce a written undergraduate thesis to be published in the Undergraduate Research Scholars Capstone Collection in the Texas A&M OAKTrust Repository (<http://oaktrust.library.tamu.edu/handle/1969.1/3367/>)
- Make a public presentation
- Gain knowledge that didn't come from a classroom
- Improve their chances for acceptance into graduate or professional schools, fellowships, and grants
- Gain a better understanding of graduate school
- Network with students and faculty

To apply for the Undergraduate Research Scholars (URS) program, students must:

- Be actively involved in an independent undergraduate research project throughout both the fall and spring semesters under the mentorship of a Texas A&M faculty member
- Have completed at least 90 credit hours (senior status) of undergraduate course work (juniors are eligible to apply with a letter of recommendation from the faculty advisor)
- Have at least 12 credit hours at Texas A&M University
- Have and maintain a cumulative GPA of at least 3.0
- Be expecting to graduate May the following year or later

Undergraduate Research Scholarships

The UGR scholarships will fund undergraduates engaged in high-impact learning and research experiences under the mentorship of TAMUG faculty.

The purpose of undergraduate research scholarships is to empower and encourage all students to engage in research, as well as offer professional and leadership skills to foster their interest and aptitude

toward pursuing a graduate degree and/or professional employment upon graduation.

Undergraduate research scholarship students will receive a stipend per semester and renewal from the Fall to Spring semester will depend on successful recommendation of the faculty sponsor and demonstration of appropriate progress. Recipients are required to present project results at the TAMUG Student Research Symposium and/or other professional conferences. Selection of students will be based on meeting the eligibility criteria (faculty-mentored research), the quality of the application, and a letter of support from the Faculty Mentor.

University Police

The University Police are responsible for the protection of persons and property of Texas A&M University, and for the enforcement of the laws of the State of Texas and the rules and regulations of Texas A&M University. University police are commissioned peace officers involved in regular foot and vehicle patrol of campus, late-night security escorts, crime prevention programs for the campus community, and criminal investigations for the recovery of property and apprehension of criminals. Officers also provide regular security checks of buildings and property on campus. All members of the campus community are requested to cooperate with University police officers.

Writing Support

Students can meet with peer writing consultants in one-on-one sessions, targeted workshops for course assignments, and in group visits. By making an appointment through Navigate, students can ask questions about research and organizing/brainstorming or request a review for revision, editing, formatting, citations, and references. Services are available during any stage of the writing life-cycle and for any written or verbal project. Writing Consultants teach strategies and techniques to improve writing for academic growth, career success, and lifelong learning.

www.tamug.edu/writing/ (<http://www.tamug.edu/writing/>)

Facilities

Texas A&M University at Galveston Facilities

Classrooms, laboratories and meeting spaces are housed within 23 major buildings on the Mitchell Campus on Pelican Island. The Ocean and Coastal Studies building is the largest and best-equipped marine research facility on the Gulf of America. The Jack K. Williams Library provides access to a variety of services and collections in various formats and contains museum exhibit space, archives and special collections, group study rooms, a classroom, computer lab, collections services workspace, a media lab, writing center and tutoring spaces. The training ship provides additional classroom, meeting and training space during the school year, and an additional fleet of small boats serve as floating classrooms and research stations. Other buildings include seven residence halls, the Aggie Special Events Center (ASEC), the James McCloy Arena and the Mary Moody Northen Student Center, which includes our primary dining facility. The Texas A&M University Galveston Campus has telecommunications systems established to communicate statewide within The Texas A&M University System universities and agencies. The Galveston campus has direct access to the Texas A&M University computer network in College Station via remote job entry connect lines.

Housing applications are available from Texas A&M University Galveston Office of Campus Living and Learning website <http://www.tamug.edu/cll/> and must be completed online with the one-time application fee. Applications can be cancelled or withdrawn by calling the Campus Living and Learning office, (409) 740-4445, or emailing cll@tamug.edu.

Policies

Texas A&M University at Galveston Policies

University Statement for Individuals with Disabilities

Texas A&M University (TAMU) is committed to providing reasonable accommodations to qualified students, faculty, staff and visitors and to maintaining an accessible campus community, including making its web sites accessible and usable. Texas A&M University does not discriminate on the basis of an individual's disability and complies with Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act (ADA) as amended.

Students are protected from discrimination regarding access to and participation in Texas A&M's programs and activities. #Texas A&M provides academic adjustments and auxiliary aides to accommodate the needs of students with disabilities, as defined under the law, who are otherwise qualified to meet the institution's academic requirements.

Students with disabilities who would like to request accommodations may contact the following resources based on their campus location:

- Texas A&M University, College of Nursing, College of Dentistry, Irma Lerma Rangel College of Pharmacy-College Station, Naresh K. Vashisht College of Medicine, School of Public Health, Institute of Biosciences and Technology, EnMed Program, Bush School in Washington DC, Mays Business School – CityCentre, TAMU Engineering Academies, TAMU Higher Education Center at McAllen, and Texas A&M University at Galveston should contact Disability Resources (<https://disability.tamu.edu/>) at (979) 845-1637 or disability@tamu.edu.
- Texas A&M University School of Law should contact the Office of Student Affairs at (817) 212-4111 or law-disability@law.tamu.edu to request accommodations.
- Irma Lerma Rangel College of Pharmacy in Kingsville should contact the Disability Resource Center at Texas A&M University - Kingsville at (361) 593-3024 or drc.center@tamuk.edu to request accommodations.
- Texas A&M University College of Veterinary Medicine and Biomedical Sciences in Canyon should contact the Office of Student Accessibility at West Texas A&M University – Canyon at (806) 651-2335 or osa@wtamu.edu.
- Texas A&M University at Qatar (TAMUQ) should contact the campus psychologist, Dr. Steve Wilson +974-4423-0047 or stephen.wilson@qatar.tamu.edu.

Students with a disability who believe they have experienced discrimination may contact Jennifer Smith, Associate Vice President and Title IX Coordinator in the Office of Civil Rights and Title IX, at YMCA Building Ste 108, 365 Houston St. #108, College Station, TX 77843, civilrights@tamu.edu, or at (979) 458-8407. Students can also contact Julie Kuder, the Texas A&M ADA Coordinator, at (979) 845-8116 or ADA.Coordinator@tamu.edu. The office address is YMCA Building Ste

108, 365 Houston St. #108, College Station, TX 77843. Allegations of discrimination will be immediately forwarded to the Office of Civil Rights and Title IX for review, investigation, or resolution.

For more information about disability accommodations, see TAMU Student Rule 46, Disability Accommodations in Academic Programs (<http://student-rules.tamu.edu/rule46/>) or TAMUG Student Rule 46, Disability Accommodations in Academic Programs (https://www.tamug.edu/studentrules/Student_Grievance_Procedures/46_Disability_Accommodations.html).

University Statement on Harassment and Discrimination

Texas A&M University is committed to providing a safe and non-discriminatory learning, living, and working environments for all members of the University community. The University provides equal opportunity to all employees, students, applicants for employment or admission, and the public regardless of race, color, sex (including pregnancy and related conditions), religion, national origin, age, disability, genetic information, and veteran status. Texas A&M University will promptly and equitably investigate and resolve all complaints of discrimination, harassment (including sexual harassment and sex-based misconduct), and related retaliation in accordance with applicable federal and state laws, University rules and standard administrative procedures.

The University's response to allegations of discrimination, harassment, and related retaliation will be 1) prompt and equitable, 2) intended to stop and prevent the recurrence of any harassment, and 3) intended to remedy discriminatory effects, as appropriate. A substantiated allegation of such conduct will result in disciplinary action, up to and including separation from the University. The University's student sanctioning guidance for substantiated allegations of discrimination on the basis of sex, including sexual harassment, sexual violence and related retaliation, can be found here: Title IX Cumulative Sanctioning Matrix. (<https://titleix.tamu.edu/wp-content/uploads/2019/03/title-ix-sanctioning-matrices.pdf>)

Students who have questions or believe they have experienced discrimination, harassment, sexual harassment/sex-based misconduct, and/or related retaliation are encouraged to contact Jennifer Smith, Associate Vice President and Title IX Coordinator, at YMCA Building Ste 108, 365 Houston St. #108, College Station, TX 77843, civilrights@tamu.edu, or at (979) 458-8167. The Office of Civil Rights & Title IX website can be found at titleix.tamu.edu (<https://titleix.tamu.edu/>).

To report incidents, request accommodations, or inquire about discrimination based on disability, you may contact Julie Kuder, ADA Coordinator, at (979) 845-8116 or ADA.Coordinator@tamu.edu. The office address is YMCA Building Ste 108, 365 Houston St. #108, College Station, TX 77843, or see the ADA website at <https://orec.tamu.edu/ada/>. Reported allegations of discrimination will be immediately forwarded to the Office of Civil Rights and Title IX for review, investigation, or resolution.

University Statement on Pregnancy and Related Conditions

Title IX prohibits discrimination on the basis of sex, including pregnancy and parental status in educational programs and activities. This includes harassment and discrimination against a student based on pregnancy, childbirth, false pregnancy, or recovery from any of these conditions.

The university is required to provide reasonable accommodations due to pregnancy and related conditions, including excused absences or alternative participation options when accommodations are medically necessary. Students seeking accommodations should contact Julie Kuder, Pregnancy Accommodations Coordinator, at YMCA Building Ste 108, 365 Houston St. #108, College Station, TX 77843 or (979) 845-8116 or email address TIX.Pregnancy@tamu.edu, or Jennifer Smith, Associate Vice President and Title IX Coordinator, at the YMCA Building Ste 108, 365 Houston St. #108, College Station, TX 77843. Her telephone number is: (979) 458-8167 and email address is civilrights@tamu.edu. For more information, go to <https://titleix.tamu.edu/>.

Students who have questions or believe they have experienced discrimination and/or harassment based on pregnancy, pregnancy related conditions, or parenting status are encouraged to contact Jennifer Smith, Associate Vice President and Title IX Coordinator, at the YMCA Building Ste 108, 365 Houston St. #108, College Station, TX 77843. Her telephone number is: (979) 458-8167 and email address is civilrights@tamu.edu. The Office of Civil Rights & Title IX website can be found at titleix.tamu.edu (<https://titleix.tamu.edu/>).

Aggie Honor Code

Integrity is a fundamental core value of Texas A&M University. Academic integrity requires a commitment by all faculty, students, and administrators to:

- Remain constantly focused on the quality of the academic programs
- Achieve and maintain academic excellence in all courses and programs to assure the value of Texas A&M University degrees
- Demand high academic standards from all members of the Aggie community
- Actively promote academic integrity
- Confront instances of academic misconduct through engagement in the Aggie Honor System Office rules and procedures

All Texas A&M University students, graduate and undergraduate, part-time or full-time, in residence or in distance education, are expected to follow the guiding rule of the Aggie Honor Code:

"An Aggie does not lie, cheat or steal, or tolerate those who do."

Upon accepting admission to Texas A&M University or one of its branch campuses, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning, and to follow the philosophy and rules of the Honor System. A student will be required to state his/her commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the Texas A&M community from the requirements or the processes of the Honor System.

The Honor System Office is charged with promotion of the honor code and administration of academic misconduct cases. The Honor Council, comprised of students and faculty from colleges and offices across the University, will investigate all such infractions of the honor code and recommend appropriate sanctions. The website, <http://aggiehonor.tamu.edu>, defines the types of infractions and the possible consequences. Students are urged to review this information.

In addition to adherence to the Honor Code, a student (graduate students in particular) who is completing a thesis, record of study, dissertation, and publication may fall under the additional federal requirements promulgated by the Office of Research Integrity (Scientific

Misconduct Regulations — 42 CFR part 50), as well as Texas A&M System Regulations and Texas A&M University Rules (Texas A&M System Regulations — Ethics in Research, Scholarship and Creative Work — 15.99.03 (<https://www.tamus.edu/legal/policy/policy-and-regulation-library/>), and Texas A&M University rules and standard administrative procedures — Responsible Conduct in Research and Scholarship — 15.99.03.M1, 15.99.03. M1.01-06 (<http://rules-saps.tamu.edu/TAMURulesAndSAPs.aspx#15>)).

Contact information for each campus can be found at the following:

- Texas A&M University website - <http://aggiehonor.tamu.edu>
- Texas A&M at Galveston website - <https://www.tamug.edu/HonorSystem/>
- Texas A&M at Qatar website - <https://www.qatar.tamu.edu/students/academic-services/aggie-honor-system> (<https://www.qatar.tamu.edu/students/academic-services/aggie-honor-system/>)

University Student Rules

Each student enrolled at Texas A&M University at Galveston is responsible for being fully acquainted with and complying with the Texas A&M University Student Rules. Specific rules, information and procedures may be found in publications pertaining to each particular service or department. Students are encouraged to reference the website at <http://www.tamug.edu/studentrules> (<http://www.tamug.edu/studentrules/>) for current published rules and regulations.

Fishing Rules

Texas A&M University at Galveston (TAMUG) is an institution of higher education and does not include any public fishing facilities. Due to significant safety and security concerns TAMUG only allows current students, current TAMUG employees and approved guests to fish on property owned or controlled by TAMUG. Approved guests must be accompanied by an affiliated individual, unless otherwise authorized. Fishing is only permitted on the Mitchell Campus on Pelican Island.

1. Guests of affiliated students and employees are permitted to fish as long as the TAMUG student or employee is with them. Employees and students are responsible for the conduct, compliance, safety and actions of their guests. All fishermen are expected to be courteous and respectful at all times.
2. Students and staff may have a reasonable number of guests at any one time (Campus Police will determine what is reasonable for the situation).
3. Fishermen may only deploy one or two fishing rods at a time, per fishermen. Fishing rods may not be left unattended.
4. All children must be in the immediate care of an adult. Children 12 years old and under must wear an approved USCG flotation device while on TAMUG docks, piers, and beaches, as well as when they are in or near the water. In addition to dangerous drop-offs and currents, equipment and vehicles in the vicinity of authorized fishing areas can pose a danger to unsupervised children.
5. Fishing is not permitted from the dock at any time. Fishing is allowed on the beach, between the dock and the Pelican Island Causeway, or on the fishing pier. The area around the small boat basin is not open for fishing during normal hours of operations or if port operations require it to close temporarily. Open mainly on weekends and holidays.

6. Fishing is allowed at night but may be limited or forbidden during certain times for, training, repairs and/or cruise preparation.
7. No wade fishing is allowed in the oil spill compound, the small boat basin, the Oceanography docks or any areas marked as "No Fishing". Fishing on the Teichman Road campus is strictly limited to affiliated students and employees of TAMUG.
8. All fishermen must have a valid Texas fishing license with a salt water stamp and must present it upon request.
9. No alcoholic beverages, drugs or firearms are allowed on-campus at any time. Anyone found in possession of contraband will be subject to immediate removal and/or citation or arrest.
10. All vehicle operators on-campus must obey traffic signs and directions from University Police officers or University Officials. Vehicles operated on-campus without a valid campus parking hang-tag must be registered with University Police and display a TAMUG parking pass.
11. Vehicles may be parked in campus parking areas with authorized parking permits, obtained from the Campus Police Department. Parking on the docks, the beach area or within fire lanes or any other space which is not a clearly marked parking space, is strictly prohibited. Vehicles in violation of these rules will be cited and subject to tow at the owners expense. Failure to pay parking citations (University cashiers office-SAGC) will result in revocation of fishing authorization for one year from date of violation.
12. No littering. All fishermen are responsible for any trash or debris that they may accumulate while on TAMUG property. Fish cleaning is not allowed at any time on campus property.
13. All rules will be enforced by the Campus Police Department. Anyone who fails to follow the instructions of a Campus Police Officer will be subject to revocation of campus fishing authorization, and/or citation or arrest. All unauthorized individuals will be asked to leave. All fishermen shall be considered "notified" of the rules from posted signs.
14. Texas parks and Wildlife agents frequently check fisherman on campus and notify campus officers if University rules are violated.
15. We reserve the right to investigate all containers left tied to any structure on the TAMUG water front. Anyone that suspects a container may present a problem should immediately call the officer on duty for inspection-409-740-4545. We recommend that all who leave a container in the water make sure it has their name and phone number on it, for verification. Homeland Security rules prohibit containers of any kind to be left near the ship or between the dock and the ship. These containers will be removed and discarded without notification. No ropes, strings or lines of any kind will be fastened to water lines, gas lines, electrical conduit or any other piece of infrastructure on the water front. They will be removed and discarded without notification. Any authorized staff or researcher, who finds any unauthorized containers or fastening in the normal course of their duties may remove and discard such objects without notice (report to Campus Police at time of removal).
16. The fishing pier, located in the southwest corner of campus, is small and can only accommodate a small number of fishermen at any one time. Campus Police may relieve any overload situation by whatever reasonable means are available at the time. Safety is number one.
17. No exception to these rules may be made without the approval of the TAMUG CEO or Executive Vice President or their designee.

Title IX – Sexual Discrimination, Sexual Harassment, Sexual Assault and Violence

"No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance..."

(20 U.S.C. Section 1681)

Notice of Nondiscrimination and Abuse

Texas A&M University at Galveston is committed to providing a safe and non-discriminatory learning, living, and working environment for all members of the University community. The University provides equal opportunity to all employees, students, applicants for employment or admission, and the public regardless of race, color, sex, religion, national origin, age, disability, genetic information, veteran status, sexual orientation, or gender identity. Texas A&M University at Galveston will promptly investigate and resolve all complaints of discrimination, harassment (including sexual harassment), and related retaliation in accordance with applicable federal and state laws.

The University's response to allegations of discrimination, harassment, and related retaliation will be 1) prompt and equitable; 2) intended to prevent the recurrence of any harassment; and 3) intended to remedy its discriminatory effects, as appropriate. A substantiated allegation of such conduct will result in disciplinary action, up to and including separation from the University. Visitors, contractors, and third parties who commit discrimination, harassment, retaliation, or complicity may have their relationships with the University terminated and/or their privileges of being on University premises withdrawn.

Reporting Responsibilities

Any employee who observes or has knowledge of discrimination, harassment, retaliation, or complicity must promptly report all known information about the incident(s) to the University's Designated Official unless they are designated as a "confidential employee" below. Pursuant to state law, the sanction for failure to report an incident of sexual harassment, sexual assault, dating violence, or stalking is termination of employment.

Students who are not employed by the University and non-affiliated members of the public are encouraged, but not required, to report incidents.

Confidential Employees

Certain University employees have been designated as Confidential Employees: licensed health care personnel and licensed counselors when acting in this capacity as part of their official employment. These employees only report de-identified statistics to the Designated Official.

Where to Report an Incident

The University has designated Jennifer Smith, Assistant Vice President and Title IX Coordinator as the official to receive all reports of discrimination, harassment, retaliation and complicity related to a protected class or status. Protected classes or statuses include: race, color, sex, gender identity, age, religion, disability, national origin, immigration status, citizenship status, sexual orientation, genetic information, or veteran status.

To file a report with the University, please contact:

Ms. Jennifer M. Smith, TAMU Assistant Vice President and Title IX Officer

Medical Sciences Library
202 Olsen, Suite 007
College Station, TX 77845
(979) 845-0977
civilrights@tamu.edu

Local Campus Contact (Allegations against Students): For making inquiries regarding allegations of discrimination by students, you may contact:

Dr. Todd Sutherland, TAMUG Associate VP of Student Affairs

Seibel Student Services Center #101G,
Galveston, TX 77554
(409) 740-4598
titleixstudents@tamug.edu

Local Campus Contact (Allegations against Employees and Third Parties): For making inquiries regarding allegations of discrimination by employees and third parties, you may contact:

Ron Sorensen '87 TAMUG Executive Director of Human Resources

Aggie Special Events Center (Building #3035) Suite #115,
Galveston, TX 77554,
(409) 740-4503
titleix@tamug.edu
r_sorensen@tamug.edu

Section 504 and ADA Coordinator

For reporting incidents, requesting accommodations, or inquiring about discrimination based on disability, Galveston Campus support goes through Counseling, Career and Ability Services at (409) 740-4736 or studentservices@tamug.edu.

- **Federal Agencies:** Inquiries or complaints about discrimination may be directed to the U.S. Equal Employment Opportunity Commission at (800) 669-4000 or to the U.S. Department of Education Office for Civil Rights at (214) 661-9600.
- **Texas A&M System Hotline (anonymous reporting option available):** The Risk, Fraud and Misconduct Hotline at (888) 501-3850 or <https://secure.ethicspoint.com/domain/media/en/gui/19681/index.html> (<https://secure.ethicspoint.com/domain/media/en/gui/19681/>)
- **Texas A&M University at Galveston CARE Team (anonymous reporting option available):** "Tell Somebody" online reporting at <https://tamug.edu/care/>.

Reporting to Law Enforcement

Anyone who has experienced or witnessed discrimination, harassment or related retaliation has the option to file a criminal complaint with the appropriate local law enforcement agency. A complainant will be assisted by campus authorities in reporting to law enforcement authorities, but a complainant may also choose to decline to notify law enforcement.

A report to law enforcement, even to the University Police Department (UPD), is separate from a report to the University. An individual pursues disciplinary remedies through the University and criminal remedies through law enforcement. Disciplinary and criminal remedies may be pursued separately or at the same time. An individual wishing to pursue disciplinary remedies and criminal remedies simultaneously should make a report to both entities.

For emergencies, call 9-1-1. For non-emergencies, contact local law enforcement:

- Texas A&M University at Galveston Police Department (409) 740-4545
- Galveston Police Department (409) 765-3702
- Galveston County Sheriff's Office (409) 766-2300

To Report Abuse or Neglect of Persons Age 65 or Older, Persons with Disabilities, or Minors

State law requires all persons having cause to believe that a child's physical or mental health or welfare has been adversely affected by abuse or neglect to *immediately* make a report (even if the belief is premised upon incomplete or dated information) to: any local or state law enforcement agency; the Department of Family and Protective Services (DFPS); the state agency that operates, licenses, certifies, or registers the facility in which the alleged abuse or neglect occurred; or the agency designated by the court to be responsible for the protection of children. Further, all persons having cause to believe that an individual 65 years or older or a disabled person 18 years of age or older is in the state of abuse, neglect, or exploitation are required to notify the DFPS.

To report abuse or neglect to DFPS contact: The Texas Abuse Hotline at (800) 252-5400 or https://www.dfps.texas.gov/Contact_Us/report_abuse.asp.

Amnesty for Students and Employees

When a student or employee in good faith reports or assists in the investigation of a report of an incident of sexual harassment, sexual assault, dating violence, domestic violence, or stalking, the University will not take disciplinary action against the student or employee for any violations of the University's rules or Codes of Conduct which are reasonably related to the incident reported. The University may, however, investigate to determine whether a report of an incident of sexual harassment, sexual assault, dating violence, domestic violence, or stalking was made in good faith. The amnesty will not apply to a student or employee who reports their own commission or complicity in the commission of sexual harassment, sexual assault, dating violence, domestic violence, or stalking.

Retaliation

Students, faculty and staff are prohibited from retaliating against a person for 1) making a good faith report of a violation of Texas A&M System policies, university rules, student rules, and or/the law; or 2) participating in any proceeding related to the investigation or resolution of such report. Retaliation includes threatening, intimidating, harassing, coercing or any other conduct that would discourage a reasonable person from engaging in activity protected under this policy. Retaliation may be present even where there is a decision of "unsubstantiated," "insufficient information to substantiate," "not responsible" or "not guilty" on the allegations of discrimination, harassment, or related retaliation. Retaliation does not include good faith actions lawfully pursued in response to a report of discrimination, harassment, or related retaliation. Violation of an interim, remedial, or protective measure will be considered retaliation.

False Complaints

Any person who knowingly files a false complaint of discrimination, harassment, complicity or retaliation is subject to disciplinary action, up to and including dismissal or separation from the University. A finding of

"unsubstantiated" or "insufficient information to substantiate" does not imply that a complaint was false.

Confidentiality

The confidentiality of a complaint of sexual misconduct and all documents, correspondence, and information collected during an investigation will be maintained by the University on a need-to-know basis to the extent permitted by law.

Rights, Resources, and Options

A student or an employee who is a **victim** of sexual harassment (including sexual misconduct or stalking), domestic violence, or dating violence, whether it occurred on or off-campus, has certain resources, rights and options. Information is available at TAMUG Title IX Resources, Rights, and Options for Individuals Subjected to Sexual Harassment, Sexual Misconduct, Stalking, Domestic Violence, or Dating Violence

A student or an employee who is **accused** of sexual harassment (including sexual misconduct or stalking), domestic violence, or dating violence, whether it occurred on or off-campus, has certain resources, rights and options. Information is available at TAMUG Title IX Resources, Rights, and Options for Individuals Accused of Sexual Harassment, Sexual Misconduct, Stalking, Domestic Violence, or Dating Violence

For additional information concerning federal and state policies, please reference the appendices (p. 1411) in this catalog.

College of Marine Sciences and Maritime Studies

The College of Marine Sciences and Maritime Studies is housed on the Galveston campus of Texas A&M University. The newly organized college named in 2024 defines the interdisciplinary approach to academic programs that span business, transportation, engineering, sciences, and humanities relating to the oceans and coastal environments. The college is situated in a natural laboratory with direct access to the Galveston and Houston ports and shipping lanes, estuaries, coastline, and the Gulf of America. The college serves as a critical contributor to Texas A&M's land-, sea-, and space-grant mission.

The breadth of academic programs are intertwined to study the economic, social, political and ecological vitality of our oceans, coasts, and surrounding ecosystems to improve our understanding, stewardship and sustainability of our coasts and ocean resources. We engage in scholarship and research that helps protect our coastal communities and conserve our marine life and oceans. We are discovering smart shipping and safe port solutions, and contributing to an inclusive ecosystem with improved livelihoods and future jobs.

As Texas's premier marine and maritime public institution of higher education, we serve the state and nation by providing excellence in education and training for the next generation of marine and maritime professionals.

Majors

College of Marine Sciences and Maritime Studies

- Bachelor of Science in University Studies, Oceans and One Health Concentration (p. 879)

- Bachelor of Science in University Studies, Tourism and Coastal Community Development Concentration (p. 880)

Department of Marine and Coastal Environmental Science

- Bachelor of Science in Coastal Environmental Science and Society (p. 852)
- Bachelor of Science in (p. 854)Coastal [Environmental Science and Society](#) and Master of Marine Resources Management, 5-Year Degree Program
- Bachelor of Science in Marine Sciences (p. 855)
- Bachelor of Science in Marine Sciences, License Option (p. 856)

Department of Marine Biology

- Bachelor of Science in Marine Biology (p. 859)
- Bachelor of Science in Marine Biology, License Option (p. 861)
- Bachelor of Science in Marine Fisheries (p. 862)

Department of Marine Engineering Technology

- Bachelor of Science in Marine Engineering Technology (p. 865)
- Bachelor of Science in Marine Engineering Technology, License Option (p. 866)

Department of Maritime Business Administration

- Bachelor of Science in Maritime Business Administration (p. 869)
- Bachelor of Science in Maritime Business Administration and Master of Maritime Business Administration and Logistics, 5-Year Degree Program (p. 871)

Department of Maritime Studies

- Bachelor of Arts in Maritime Studies (p. 874)

Department of Maritime Transportation

- Bachelor of Science in Marine Transportation (p. 877)

Minors

Interdisciplinary

- Entrepreneurship Minor (p. 122)

Department of Foundational Sciences

- Clinical Laboratory Sciences Minor (p. 851)

Department of Marine and Coastal Environmental Science

- Coastal Environmental Science and Society Minor (p. 858)

Department of Marine Biology

- Marine Biology Minor (p. 863)
- Marine Fisheries Minor (p. 864)

Department of Marine Engineering Technology

- Marine Electro-Technology Minor (p. 868)
- Marine Engineering Technology Minor (p. 868)

Department of Maritime Business Administration

- Maritime Business Administration Minor (p. 872)
- Maritime Cybersecurity Minor (p. 872)

Department of Maritime Studies

- Diving Technology and Methods Minor (p. 875)
- Maritime Environmental Law and Policy Minor (p. 876)

Masters

Interdisciplinary

- Master of Engineering in Ocean Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/ocean/ocean-meng/>)
- Master of Science in Ocean Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/ocean/ocean-ms/>)
- Master of Science in Oceanography (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/oceanography/ms/>)

Department of Marine and Coastal Environmental Science

- Master of Marine Resources Management in Marine Resources Management (<https://catalog.tamu.edu/graduate/galveston/marine-sciences-maritime-studies/marine-and-coastal-environmental-science/mmrms/>)

Department of Marine Biology

- Master of Science in Marine Biology (<https://catalog.tamu.edu/graduate/galveston/marine-sciences-maritime-studies/marine-biology/ms/>)

Department of Maritime Business Administration

- Master of Maritime Business Administration and Logistics in Maritime Business Administration and Logistics (<https://catalog.tamu.edu/graduate/galveston/marine-sciences-maritime-studies/maritime-business-administration/mmal/>)
- Master of Maritime Business Administration and Logistics (MBAA) and Juris Doctor (JDLW) Combined Degree Program (<https://catalog.tamu.edu/graduate/galveston/marine-sciences-maritime-studies/maritime-business-administration/mmb-jd/>)

Doctoral Interdisciplinary

- Doctor of Philosophy in Oceanography (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/arts-and-sciences/oceanography/phd/>)

Department of Marine and Coastal Environmental Science

- Doctor of Philosophy in Marine and Coastal Management and Science (<https://catalog.tamu.edu/graduate/galveston/marine-sciences-maritime-studies/marine-and-coastal-environmental-science/phd-mcms/>)

Department of Marine Biology

- Doctor of Philosophy in Marine Biology (<https://catalog.tamu.edu/graduate/galveston/marine-sciences-maritime-studies/marine-biology/phd/>)

Department of Foundational Sciences

The mission of the Department of Foundational Sciences (FSCI) is to be a community of engaged faculty who offer academically excellent and pedagogically innovative classes in mathematics, chemistry, physics and statistics. We envision that all Galveston students will be challenged and successful in the high quality coursework we offer. Our faculty are proactively engaging the students with hands-on high impact learning experiences and support activities for their coursework.

FSCI advises for and facilitates minors supporting the Oceans and One Health degree and other programs on the Galveston Campus. The department offers the coursework needed for minors in Mathematics, and Chemistry, through the respective departments at Texas A&M. The department also facilitates the Secondary Education minor, which will lead to students in Marine Biology, Marine Coastal and Environmental Science or Oceans and One Health being certified for teaching life science, physical science, or chemistry for grades 7-12.

Faculty

Acero-Schertzer, Carmen E, Instructional Assistant Professor
Foundational Sciences
PHD, University of Miami, 1996

Adjei, Francis, Instructional Assistant Professor
Foundational Sciences
PHD, University of Texas at Dallas, 2017

Aronson, Carl Lawrence, Instructional Assistant Professor
Foundational Sciences
PHD, University of Michigan at Ann Arbor, 1999

Boulahouache, Chaouki, Instructional Associate Professor
Foundational Sciences
PHD, Syracuse University, 2002

Brown, Philip R, Associate Professor
Foundational Sciences
PHD, Texas A&M University, 2000

Galan, Jhenny F, Instructional Professor
Foundational Sciences
PHD, University of Connecticut, 2006

Gard, Joel, Visiting Instructional Assistant Professor
Foundational Sciences
PHD, University of Houston, 2023

Kang, Cong X, Associate Professor
Foundational Sciences
PHD, The University of Texas at Austin, 1999

Luxemburg, Leon A, Associate Professor
Foundational Sciences
PHD, Texas A&M University, 1987

Nair, Radhika P, Instructional Associate Professor
Foundational Sciences
PHD, University of Nevada, 2009

Qiu, Lin, Instructional Associate Professor
Foundational Sciences
PHD, University of Alabama, 2006

Rantschler, James O, Instructional Assistant Professor
Foundational Sciences
PHD, University of Alabama, 2003

Schwehr, Kathleen A, Instructional Assistant Professor
Foundational Sciences
PHD, Texas A&M University, 2004

Shrestha, Khim Raj, Instructional Assistant Professor
Foundational Sciences
PHD, Syracuse University, 2015

Townsend, Grace L, Instructional Associate Professor
Foundational Sciences
MS, University of Houston at Clear Lake, 1983

Warren, Jesse T, Lecturer
Foundational Sciences
MS, University of Houston at Clear Lake, 2005

Yi, Eunjeong, Professor
Foundational Sciences
PHD, University of Houston, 2003

Minors

- Clinical Laboratory Sciences Minor (p. 851)

Clinical Laboratory Sciences - Minor

This specialized Clinical Laboratory Sciences minor, offered through a unique partnership with UTMB, provides advanced training in laboratory sciences.

The Department of Foundational Sciences offers a minor in Clinical Laboratory Sciences (CLBS) through a partnership with the University of Texas Medical Branch (UTMB) in Galveston. Students who wish to obtain this minor must be University Studies, Oceans and One Health majors who have been admitted to the Clinical Laboratory Sciences program at UTMB. Seven hours of coursework taken during the first semester in

that program will be applied towards the CLBS minor at TAMUG. More information is available from the Oceans and One Health advisor.

Program Requirements

Code	Title	Semester Credit Hours
TAMUG		
MARB 315	Natural History of Vertebrates	4
MARB 420	Comparative Animal Physiology	4
UTMB ¹		
CLLS 3200	Basic Operations Methods and Introduction to Clinical Lab	2
CLLS 3514	Clinical Chemistry	5
Total Semester Credit Hours		15

¹ Admission to University of Texas Medical Branch (UTMB) for the two CLLS courses is required.

This minor will be completed in 15 credit hours, 8 of which are taught at TAMUG and 7 are taught at UTMB.

Department of Marine and Coastal Environmental Science

The Department of Marine and Coastal Environmental Science (MCES) educates undergraduate and graduate students to be future leaders in coastal and marine science as well as in management and policy decision-making for the utilization and preservation of marine resources. We recognize today's professional careers demand strong interdisciplinary as well as interpersonal skills and have designed our educational programs to provide a core education in the physical, chemical and geological sciences and the necessary training for applying this knowledge to the maintenance and improvement of our marine resources. Our faculty conducts cutting-edge research in coastal marine geology, physical oceanography, marine geochemistry, and coastal resources management that emphasize and support our degrees and course curricula. Our strength is the diversity of our faculty who utilize their experience from private, governmental, and academic careers to create extraordinary learning opportunities for students through "hands on" and "on the water" field and laboratory research as well as internships that give our students a competitive advantage for employment after graduation.

We offer a variety of majors and minors in subjects centered on the coastal and marine environment. We offer a BS in Marine Sciences (MARS) and a BS in Coastal Environmental Science and Society (CESS). The License Option Program (MARS-LO) is also available to MARS majors to obtain a third mate's license in the Merchant Marine upon graduation. We offer a minor in CESS. Graduate programs offer a Master of Marine Resources Management (MARM) and a PhD program in Marine and Coastal Management and Science (MCMS). We also offer a combination program in which the student can attain a BS in CESS with a MARM degree in 5 years. Our faculty advise students in diverse MS and PhD graduate degrees on our campus such as the graduate program in Marine Biology (MARB) and programs in conjunction with departments in College Station campus such as Oceanography (OCNG) and Landscape Architecture and Urban Planning (LAUP). The departmental website (<https://www.tamug.edu/mars/faculty/index.html>) (<https://www.tamug.edu/mars/faculty/>) provides more information of

our faculty's fields of expertise and appointments with other departments and programs.

Faculty

Adyasari, Dini, Assistant Professor
Marine and Coastal Environmental Science
PHD, University of Bremen, 2019

Amon, Rainer, Professor
Marine and Coastal Environmental Science
PHD, The University of Texas at Austin, 1995

Bodson, Bruce R, Lecturer
Marine and Coastal Environmental Science
JD, South Texas College of Law, 1993

Brody, Samuel D, Professor
Marine and Coastal Environmental Science
PHD, University of North Carolina, 2002

Davlasheridze, Meri, Associate Professor
Marine and Coastal Environmental Science
PHD, Pennsylvania State University, 2013

Dellapenna, Timothy M, Professor
Marine and Coastal Environmental Science
PHD, The College of William & Mary, 1999

Du, Jiabi, Assistant Professor
Marine and Coastal Environmental Science
PHD, College of William and Mary, 2017

Jonkman, Sebastiaan, Research Professor
Marine and Coastal Environmental Science
PHD, Delft University of Technology, 2007

Kaiser, Karl, Professor
Marine and Coastal Environmental Science
PHD, University of South Carolina, 2009

Moser, Melanie J, Instructional Professor
Marine and Coastal Environmental Science
PHD, University of Houston, 1977

Park, Kyeong, Professor
Marine and Coastal Environmental Science
PHD, College of William and Mary, 1993

Retchless, David P, Associate Professor
Marine and Coastal Environmental Science
PHD, Pennsylvania State University, 2015

Ross, Ashley D, Associate Professor
Marine and Coastal Environmental Science
PHD, Texas A&M University, 2010

Smith, Christopher Wayne, Instructional Assistant Professor
Marine and Coastal Environmental Science
PHD, University of Georgia, 2019

Takir, Driss, Visiting Lecturer
Marine and Coastal Environmental Science
PHD, University of Tennessee, 2013

Wang, Zhaojun, Assistant Professor
Marine and Coastal Environmental Science
PHD, University of Delaware, 2021

van Hengstum, Peter J, Professor
Marine and Coastal Environmental Science
PHD, Dalhousie University, Canada, 2011

Majors

- Bachelor of Science in Coastal Environmental Science and Society (p. 852)
- Bachelor of Science in (p. 854)Coastal [Environmental Science and Society](#) and Master of Marine Resources Management, 5-Year Degree Program
- Bachelor of Science in Marine Sciences (p. 855)
- Bachelor of Science in Marine Sciences, License Option (p. 856)

Minors

- Coastal Environmental Science and Society Minor (p. 858)

Coastal Environmental Science and Society - BS

This specialized program prepares students for a successful future in marine resource development through an increased focus on geological and biological sciences, along with economics, political science and law.

The Coastal Environmental Science and Society program is a Bachelor of Science degree that focuses on natural environmental processes (physical, chemical/biogeochemical, and geological) and social issues (policy, management, economics, law, etc.) related to the development, exploitation and conservation of oceanic and coastal resources and ecosystems. The Coastal Environmental Science and Society curriculum provides a solid foundation in oceanography, geology, chemistry, biology and physics with additional coursework in economics, policy and management. The curriculum is specifically geared towards understanding the societal and environmental impacts of resource development and exploitation, with the focus on environmental pollution, sustainable development, biological diversity, fisheries and mariculture development and management, or oil and gas extraction and exploration, coastal ecosystems (e.g., wetlands), and global climate change. There is a growing demand for trained entry-level professionals from both government, industry and non-governmental organizations who understand and can use scientific information in the planning and management processes and policy designs. With a solid scientific foundation, the Coastal Environmental Science and Society graduates are ideally poised to pursue their careers at the interface between government and businesses operating in marine realm. With suitably chosen electives, our graduates are well qualified to enter Master or PhD programs in marine resource management and policy, environmental sciences, oceanography or related disciplines.

Students in Coastal Environmental Science and Society may choose to establish a minor field of study, for example, in Economics (TAMU) or in Maritime Business Administration (TAMUG) through completion of credits as outlined in the available minors' curriculum pages. Obtaining a minor from a department located at TAMU in College Station with coursework completed in Galveston is also possible. An advisor in the Department of Marine and Coastal Environmental Science can help

with course selection and facilitate the minor approval process through another department.

Program Requirements

First Year

Fall		Semester Credit Hours
CHEM 119	Fundamentals of Chemistry I	4
ENGL 104	Composition and Rhetoric	3
MATH 147 or MATH 151	Calculus I for Biological Sciences or Engineering Mathematics I	4
MARS 102	Earth and Ocean Science ¹	4
Semester Credit Hours		15
Spring		
BIOL 111	Introductory Biology I	4
CHEM 120	Fundamentals of Chemistry II	4
MARB 101	Succeeding in Science ¹	3
Select one of the following:		4
MATH 148	Calculus II for Biological Sciences	
MATH 150	Functions, Trigonometry and Linear Systems	
MATH 152	Engineering Mathematics II	
Semester Credit Hours		15

Second Year

Fall		
BIOL 112 or GEOL 106	Introductory Biology II or Historical Geology	4
ECON 202	Principles of Economics	3
MARS 210	Marine Geography ¹	3
MARS 280	Coastal and Ocean Resources ^{1,2}	3
MARS 281	Sophomore Seminar in Marine Sciences ¹	1
Professional elective ^{1,3}		3
Semester Credit Hours		17
Spring		
ECON 203	Principles of Economics	3
MARS 303	Computing and Data Display ¹	3
Select one of the following:		4
PHYS 201	College Physics	
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences	
Communication (p. 27)		3
Professional elective ^{1,3}		3
Semester Credit Hours		16

Third Year

Fall		
MARS 325	Introduction to GIS for Marine Sciences ¹	3
MARS 420	Biological Oceanography ¹	3
POLS 207	State and Local Government	3
STAT 303 or MARB 303	Statistical Methods or Biostatistics	3

Professional elective ^{1,3}		3
Semester Credit Hours		15
Spring		
MARS 430	Marine Geology ^{1,2}	4
POLS 206	American National Government	3
American History (p. 30)		3
Creative Arts (p. 30)		3
Professional elective ^{1,3}		3
Semester Credit Hours		16
Fourth Year		
Fall		
MARA 363	The Management Process	3
MARS 491	Research in Marine Sciences ¹	1
Professional elective ^{1,3}		3
Professional elective ^{1,3}		3
General elective ⁴		3
Semester Credit Hours		13
Spring		
MARS 481	Seminar ¹	1
American History (p. 30)		3
Language, Philosophy and Culture (p. 28)		3
Professional elective ^{1,3}		3
General elective ⁴		3
Semester Credit Hours		13
Total Semester Credit Hours		120

¹ Indicates required courses in the major. These courses will be used to compute the major GPR.

² Designated writing intensive course.

³ Recommended professional electives include, but are not limited to: ATMO 363; CHEM 227, CHEM 237, CHEM 228, CHEM 238, CHEM 316, CHEM 318; FSCI 360, GEOG 331; MARA 470, MARB 300-499 (p. 1119); MARS 303, MARS 305, MARS 306, MARS 310, MARS 330, MARS 370/ GEOG 370, MARS 408, MARS 410, MARS 412, MARS 415, MARS 425, MARS 426, MARS 432, MARS 440, MARS 470, MARS 484, MARS 489, MARS 491; MATH 251, MATH 308; POLS 347; OCEN 201, OCEN 265, OCEN 300, OCEN 311; STAT 303.

⁴ Select any 100-499 course not used elsewhere.

The total hours may be increased if the student is required to take remedial math, remedial English, foreign language, or the 3-hour University Core Curriculum requirement for International and Cultural Diversity and the 3-hour requirement for Cultural Discourse.

All electives must be chosen in consultation with, and approved by, the student's academic advisor. Unless courses are specifically listed, see University Core Curriculum for a listing of course options for Communication, Mathematics, Life and Physical Sciences, Language Philosophy and Culture, Creative Arts, American History, Government and Political Sciences and Social and Behavioral Sciences. The Graduation requirements include a requirement for 3 hours of I (p. 49)nternational and Cultural Diversity (p. 49) courses and 3 hours of C (p. 48)ultural Discourse (p. 48) courses. A course satisfying a Core category, a college/ department requirement, or a free or directed elective can be used to satisfy this requirement. See academic advisor.

Coastal Environmental Science and Society - 5-Year Bachelor of Science and Master of Marine Resources Management

This degree program views marine natural resources management and policy development from both an ecological and policy perspective, which serves the needs of both private and public sector jobs in a great range of companies and agencies.

The Coastal Environmental Science and Society (CESS) and Master of Marine Resources Management (MMRM) Program allows CESS majors to enter the MMRM graduate program at the beginning of their senior year, enabling students to receive their CESS undergraduate degree (BS) and a MMRM graduate degree in five years. CESS majors who have at least a 3.25 GPA and have fulfilled all of their prerequisite course requirements and otherwise completed 101 or 102 hours by the fall of their fourth year are eligible to apply for the 5-year combined program during their junior year. Applicants to the 5-year combined program submit the same materials (including GRE scores) and are subject to the same admission process and criteria as other MMRM program applicants. Those students whose credentials are judged to be competitive by the mid-January deadline will be admitted.

Admitted students enroll in MMRM graduate courses with an undergraduate classification (U4) during the fall of their fourth year. They are then reclassified as degree-seeking master's students (G7) upon completing 120 credit hours, which typically occurs at the beginning of the fall semester of the fifth year. Students are required to complete the same 2-year, 36-hour curriculum as other graduate students admitted to the MMRM Professional Track (see MMRM curriculum). Students who are interested in the MMRM Research (Thesis) Track are afforded additional flexibility to replace required courses with up to nine hours of research courses (MARS 691) and electives chosen with the approval of their student advisory committee. To comply with the course and work requirements of the Research Track, this program may extend beyond the 5-year window. For specific requirements to comply with the Research Track curriculum, students are asked to consult the MMRM section of the catalog.

Students who choose not to finish the MMRM degree after being admitted to the 5-year combined program may exit the program at any time. Completed MMRM courses will be applied to their bachelor's degree in CESS, as appropriate. Failure to complete the MMRM program will in no way impede their ability to attain a bachelor's degree in CESS when the requirements for that degree are completed. Those who pursue the 5-year combined program obtain both degrees upon the completion of the 5-year combined program, receiving both their Bachelor of Science in CESS and the MMRM degrees at the end of year five. Advising for the 5-year combined program is coordinated by the Department of Marine and Coastal Environmental Science undergraduate and graduate advisors and by the Office of Graduate Studies. Advising will help ensure that interested students have satisfied the prerequisite course requirements for the bachelor's degree so that they may enter the 5-year combined program. CESS students should consult an undergraduate advisor and a graduate advisor for more information.

Program Requirements

First Year		Semester Credit Hours
Fall		
CHEM 119	Fundamentals of Chemistry I	4
ENGL 104	Composition and Rhetoric	3
MARS 102	Earth and Ocean Science ¹	4
MATH 147 or MATH 151	Calculus I for Biological Sciences or Engineering Mathematics I	4
Semester Credit Hours		15
Spring		
BIOL 111	Introductory Biology I	4
CHEM 120	Fundamentals of Chemistry II	4
MARB 101	Succeeding in Science ¹	3
Select one of the following:		4
MATH 148	Calculus II for Biological Sciences	
MATH 150	Functions, Trigonometry and Linear Systems	
MATH 152	Engineering Mathematics II	
Semester Credit Hours		15
Second Year		
Fall		
BIOL 112 or GEOL 106	Introductory Biology II ¹ or Historical Geology	4
ECON 202	Principles of Economics	3
MARS 210	Marine Geography ¹	3
MARS 280	Coastal and Ocean Resources ^{1,2}	3
POLS 207	State and Local Government	3
Semester Credit Hours		16
Spring		
ECON 203	Principles of Economics ³	3
MARS 281	Sophomore Seminar in Marine Sciences ^{1,2}	1
MARS 303	Computing and Data Display ¹	3
POLS 206	American National Government	3
Select one of the following:		4
PHYS 201	College Physics	
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences	
Communication (p. 27)		3
Semester Credit Hours		17
Third Year		
Fall		
MARA 363	The Management Process	3
MARS 420	Biological Oceanography ¹	3
MARS 481	Seminar ¹	1
STAT 303	Statistical Methods	3
American history (p. 30)		3
Professional elective ^{1,4}		3
Semester Credit Hours		16

Spring

MARS 430	Marine Geology ^{1,2}	4
MARS 491	Research in Marine Sciences ¹	1
American history (p. 30)		3
Language, philosophy and culture (p. 28)		3
Professional elective ^{1,4}		3
Professional elective ^{1,4}		3
Semester Credit Hours		17

Fourth Year**Fall**

MARS 325	Introduction to GIS for Marine Sciences ^{1,3}	3
MARS 625	GIS Use in Coastal Resources ⁵	3
Creative arts (p. 30)		3
Professional elective ^{1,4}		3
Professional elective ^{1,4}		3
Semester Credit Hours		15

Spring

MARA 604	Marine Economics and Sustainability Management ⁵	3
MARS 603	Quantitative Methods for Resource Management ⁵	3
MARS 675	Environmental Management Strategies ⁵	3
MARS 681	Seminar ⁵	1
Professional elective ^{1,4}		3
Professional elective ^{1,4}		3
Semester Credit Hours		16

Fifth Year**Fall**

MARS 635	Environmental Impact Statements and Natural Resource Damage Assessment ^{5,6}	3
MARS 660	Environmental Conflict Resolution ^{5,6}	3
PLAN 641	Problems of Environmental Planning Administration ⁵	3
MARM elective ⁵		3
Semester Credit Hours		12

Spring

MARS 680	Integrative Analysis in Marine Resources ⁵	2
MARM electives ⁵		9
Semester Credit Hours		11
Total Semester Credit Hours		150

¹ Indicates required courses in the major. These courses will be used to compute the major GPA.

² Designated writing intensive course.

³ Recommended professional electives include but are not limited to: ATMO 363; CHEM 227, CHEM 237, CHEM 228, CHEM 238, CHEM 316, CHEM 318; FSCI 360, GEOG 331; MARA 470; MARB 300-499 (p. 1119); MARS 303, MARS 305, MARS 306, MARS 310, MARS 330, MARS 370/ GEOG 370, MARS 408, MARS 410, MARS 412, MARS 415, MARS 425, MARS 426, MARS 432, MARS 440, MARS 470, MARS 484, MARS 485, MARS 489, MARS 491; MATH 251, MATH 308; POLS 347; OCEN 201, OCEN 265, OCEN 300, OCEN 311, STAT 303,

⁴ Credit by exam for MARS 325 and ECON 203 will be awarded after successful completion of MARS 625 and MARA 604, respectively.

⁵ The 36-hour professional track curriculum is structured with 24 hours of required courses and 12 hours of optional elective courses. The required courses include a 1 hour seminar to be taken in the student's first year, 8 hours of management, 3 hours of Geographic Information Systems (GIS), 6 hours of resource economics and statistical methods, and 6 hours of law/policy courses. The student in the professional track will choose electives for the remaining 12 credit hours. See MARM curriculum pages of the graduate catalog for additional requirements for the research track (thesis option) curriculum.

⁶ Course to be used towards both the undergraduate degree and graduate degree.

All electives must be chosen in consultation with, and approved by, the student's academic advisor. Unless courses are specifically listed, see University Core Curriculum for a listing of course options for Communication; Mathematics; Life and Physical Sciences; Language, Philosophy and Culture; Creative Arts; American History; Government and Political Sciences; and Social and Behavioral Sciences. The 3-hour University Core Curriculum requirement for International and Cultural Diversity may be met with courses used to satisfy other degree requirements. The 3-hour University Core Curriculum requirement for Cultural Discourse may be met with courses used to satisfy other degree requirements.

The program includes a total of 156 hours which up to 6 hours may be applied toward both the Bachelor of Science in Coastal Environmental Science and Society and the Master of Marine Resources Management.

The total hours may be increased if the student is required to take remedial math, remedial English, foreign language, International and Cultural Diversity, and Cultural Discourse courses.

See program admission criteria for more information.

Marine Sciences - BS

The Marine Sciences (MARS) program is a Bachelor of Science degree that focuses on the geological, chemical and physical science aspects of the estuarine, coastal and marine environment.

The coastal location of the campus enables students to acquire extensive hands-on field experience in addition to rigorous course work in chemistry, geology, physics, biology, oceanography and mathematics. All MARS majors take four courses of oceanography with labs and a course in geographic information systems (GIS). During the senior year students will participate in research with faculty members culminating in the writing of a senior thesis and the formal presentation of their research. We offer various elective courses, including geosciences, chemical/ biogeochemical oceanography, and physical oceanography, or a broader interdisciplinary courses. Academic advisors in the Department of Marine and Coastal Environmental Science can help with course selection depending on the student's areas of interest.

Program Requirements

First Year

Fall		Semester Credit Hours
CHEM 119	Fundamentals of Chemistry I	4
ENGL 104	Composition and Rhetoric	3
MARS 102	Earth and Ocean Science ¹	4

MATH 147 or MATH 151	Calculus I for Biological Sciences or Engineering Mathematics I	4
Semester Credit Hours		15
Spring		
BIOL 111	Introductory Biology I	4
CHEM 120	Fundamentals of Chemistry II	4
MARB 101	Succeeding in Science ¹	3
Select one of the following:		4
MATH 148	Calculus II for Biological Sciences	
MATH 150	Functions, Trigonometry and Linear Systems	
MATH 152	Engineering Mathematics II	
Semester Credit Hours		15
Second Year		
Fall		
BIOL 112 or GEOL 106	Introductory Biology II or Historical Geology	4
MARS 210	Marine Geography ¹	3
Select one of the following:		4
PHYS 201	College Physics	
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences	
Professional elective ^{1,3}		4
Semester Credit Hours		15
Spring		
MARS 303	Computing and Data Display ¹	3
POLS 207	State and Local Government	3
Select one of the following:		4
PHYS 202	College Physics	
PHYS 207 & PHYS 227	Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences	
Communication (p. 27)		3
Professional elective ^{1,3}		3
Semester Credit Hours		16
Third Year		
Fall		
MARS 325	Introduction to GIS for Marine Sciences ¹	3
MARS 410	Physical Oceanography ¹	3
MARS 420	Biological Oceanography ¹	3
POLS 206	American National Government	3
Professional elective ^{1,3}		3
Semester Credit Hours		15
Spring		
MARS 430	Marine Geology ^{1,2}	4
MARS 440	Chemical Oceanography ¹	3
American history (p. 30)		3
Creative arts (p. 30)		3
Professional elective ^{1,3}		3
Semester Credit Hours		16

Fourth Year**Fall**

MARS 460	Capstone Undergraduate Research Experience I ²	1
MARS 481	Seminar ²	1
MARS 491	Research in Marine Sciences ²	2
Language, philosophy and culture (p. 28)		3
Professional elective ^{1,3}		3
General elective ⁴		3
General elective ⁴		3

Semester Credit Hours**16****Spring**

MARS 461	Capstone Undergraduate Research Experience II ^{1,2}	1
MARS 491	Research in Marine Sciences ¹	2
American history (p. 30)		3
Professional elective ^{1,3}		3
General elective ⁴		3

Semester Credit Hours**12****Total Semester Credit Hours****120**¹ Course counts towards major GPR.² Writing intensive course.³ Professional Electives include: ATMO 363; CHEM 227, CHEM 237, CHEM 228, CHEM 238, CHEM 257, CHEM 258, CHEM 316, CHEM 318; FSCI 360, GEOG 331; MARA 470; MARB 300-499 (p. 1119); MARS 300-499 (p. 1126); MATH 251, MATH 308; POLS 347; STAT 303; OCEN 201, OCEN 213, OCEN 265, OCEN 300, OCEN 311.⁴ Select any 100-499 course not used elsewhere.

The Graduation requirements include a requirement for 3 hours of I (p. 49) International and Cultural Diversity (p. 49) courses and 3 hours of Cultural Discourse (p. 48) courses. A course satisfying a Core category, a college/department requirement, or a free or directed elective can be used to satisfy this requirement.

Marine Sciences - BS, License Option

The license option (LO) in the Marine Sciences (MARS) program leads toward a license as a deck officer in the United States Merchant Marine.

This program retains the physical science core of the MARS curriculum and adds coursework that prepares the student to sit for the U.S. Coast Guard (USCG) examination as a Third Mate of any gross tonnage upon oceans, steam, or motor vessels. Students combine a broad base of courses in physical science and mathematics and practical instruction in seamanship and navigation with three oceanography courses. The objective of the program is to provide students with a sound intellectual and educational background to function in a scientifically and technologically advanced society, while also providing the practical hands-on training needed for employment in the maritime industry. Graduates are particularly well qualified to serve on research vessels where an understanding of the scientific purpose of the voyage is required. Students who wish to enter a physical science graduate program will need to take additional course work in science and mathematics. Cadets who enroll in and apply to graduate under one of the license option curricula must complete the appropriate license examination for Third Mate or Third Assistant Engineer in order to

graduate from Texas A&M University as well as licensing requirements outlined in the program requirements. Certain license option courses require a minimum grade of C (70%).

Program Requirements

First Year

		Semester
Fall		Credit Hours
ENGL 104	Composition and Rhetoric	3
MARS 102	Earth and Ocean Science ¹	4
MART 103	Basic Safety and Lifeboatman Training ²	3
MART 115	Seamanship I ²	3
MATH 147 or MATH 151	Calculus I for Biological Sciences or Engineering Mathematics I	4
Semester Credit Hours		17
Spring		
MARB 101	Succeeding in Science ¹	3
MART 130	Introduction to Maritime Law ²	1
MART 201	Vessel Structure and Ship Knowledge ²	3
MART 204	Terrestrial Navigation I ²	3
Select one of the following:		4
MATH 148	Calculus II for Biological Sciences	
MATH 150	Functions, Trigonometry and Linear Systems	
MATH 152	Engineering Mathematics II	
Communication (p. 27)		3
Semester Credit Hours		17
Summer		
MART 200	Deck Sea Training I: Basic Communications, Navigation and Seamanship ²	4
Semester Credit Hours		4
Second Year		
Fall		
CHEM 119	Fundamentals of Chemistry I	4
MART 202	Ship Stability and Trim ²	3
MART 212	Marine Dry Cargo Operations ²	3
MART 215	Seamanship II ^{2,3}	3
MART 225	Terrestrial Navigation II ²	3
Semester Credit Hours		16
Spring		
CHEM 120	Fundamentals of Chemistry II	4
MARS 210	Marine Geography	3
MART 210	Integrated Navigation I: RADAR/ARPA/ECDIS ²	4
MART 303	Celestial Navigation ²	3
MART 313	Marine Liquid Cargo Operations ²	3
Semester Credit Hours		17
Summer		
MART 300	Deck Sea Training II: Intermediate Communications, Navigation and Seamanship ²	4
Semester Credit Hours		4

Third Year

Fall

MART 208	Maritime Meteorology	3
MART 310	Integrated Navigation II: Electronic Navigation ²	3
MART 321	Navigation Rules - International and Inland ²	2
Select one of the following:		4
PHYS 201	College Physics	
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences	
American history (p. 30)		3
Semester Credit Hours		15

Spring

MARS 430	Marine Geology ^{1,3}	4
MART 307	Global Maritime Distress Safety System ²	3
MART 315	Integrated Navigation III - Shiphandling for the Mariner ²	2
Select one of the following:		4
PHYS 202	College Physics	
PHYS 207 & PHYS 227	Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences	
American history (p. 30)		3
Semester Credit Hours		16

Summer

MART 400	Deck Sea Training III: Advanced Communications, Navigation and Seamanship ²	4
Semester Credit Hours		4

Fourth Year

Fall

MARS 325	Introduction to GIS for Marine Sciences ¹	3
MARS 410	Physical Oceanography ¹	3
MARS 481	Seminar ¹	1
MART 401	Maritime Security ²	3
MART 498	Maritime Medical Care Provider ²	2
POLS 206	American National Government	3
Language, philosophy and culture (p. 28)		3
Semester Credit Hours		18

Spring

MARS 420	Biological Oceanography	3
MARS 440	Chemical Oceanography ¹	3
MARS 491	Research in Marine Sciences ¹	1
MART 404	The Navigator ²	2
MART 410	Bridge Resource Management ²	2
POLS 207	State and Local Government	3
Creative arts (p. 30)		3
Semester Credit Hours		17
Total Semester Credit Hours		145

- ¹ Indicates required courses in the Marine Sciences License Option major. These courses will be used to compute the major GPA. Also, if any upper level MARS or OCNG elective courses are taken, they will be used in the major GPA.
- ² Indicates license courses leading to a USCG license endorsement or sea time credit accrual which require a minimum grade of C (70%) or better to earn the endorsement or accrual. Midshipmen will be required to repeat the course until they earn a grade of C (70%) or better. MART 307 GMDSS requires a score of 75% or better.
- ³ Designated writing intensive course. MARS-LO majors must take two writing intensive courses; MART 215 and MARS 430 .

All electives must be chosen in consultation with, and approved by, the student's academic advisor. Unless courses are specifically listed, see University Core Curriculum for a listing of course options for Communication; Mathematics; Life and Physical Sciences; Language, Philosophy and Culture; Creative Arts; American History; Government and Political Sciences; and Social and Behavioral Sciences. The 3-hour University Core Curriculum requirement for International and Cultural Diversity and 3-hour requirement for Cultural Discourse may be met with courses used to satisfy other degree requirements.

The total hours may be increased if the student is required to take remedial math, remedial English, foreign language, International and Cultural Diversity, or Cultural Discourse courses.

This degree requires full participation in the Texas A&M University Maritime Academy Corps of Cadets as a qualified License Option cadet. Refer to the University catalog section for the Texas A&M Maritime Academy for additional information. In addition to the academic requirements outlined here, the cadet must also complete the following requirements to receive the degree:

- Successfully complete required sea service and minimum training cruise requirements
- Pass a comprehensive professional examination (either the Third Mate Unlimited-Oceans or Third Assistant Engineering Unlimited) administered by the U.S. Coast Guard (USCG).
- Successfully complete all competencies required by the International Convention on Standards for Training, Certification and Watchkeeping (STCW).

Note: STCW competency certifications expire 5 years after completion. If the cadet does not complete the degree within that time period, the cadet will be required to revalidate the expired competency prior to graduation.

Coastal Environmental Science and Society - Minor

This minor provides students a base of knowledge in the economic, environmental, and social issues concerning the development of marine resources, along with a strong scientific background needed to understand these issues.

Students in other majors may establish a minor field of study in Coastal Environmental Science and Society (CESS) through the completion of coursework. Coursework in environmental management, policy and economics of the coastal zone can round out the education of those students who are interested in conservation and societal issues

associated with fisheries, marine protected areas, sensitive wetlands, coastal development and community resilience. Therefore the CESS minor pairs well with majors in Marine Biology (p. 859), Marine Fisheries (p. 862), Maritime Studies (<https://catalog.tamu.edu/undergraduate/galveston/marine-sciences-maritime-studies/liberal-studies/maritime-studies-ba/>), Maritime Business Administration (p. 869), or Ocean Engineering (p. 705).

Program Requirements

Code	Title	Semester Credit Hours
MARS 280	Coastal and Ocean Resources	3
Select one of the following:		4
MARS 102	Earth and Ocean Science	
OCNG 251	The Blue Planet - Our Oceans & OCNG 251and The Blue Planet - Our Oceans Laboratory	
Select one of the following:		3
MARA 470	Environmental Law	
MARS 370/	Coastal Processes	
GEOG 370		
MARS 415	Remote Sensing Technology	
MARS 425	Coastal Wetlands Management & MARS 426and Coastal Wetlands Delineation Laboratory	
Select one of the following:		3
MARS 410	Physical Oceanography	
MARS 420	Biological Oceanography	
MARS 430	Marine Geology	
MARS 440	Chemical Oceanography	
Select one of the following:		3
MARA 470	Environmental Law	
MARS 370/	Coastal Processes	
GEOG 370		
MARS 410	Physical Oceanography	
MARS 415	Remote Sensing Technology	
MARS 420	Biological Oceanography	
MARS 425	Coastal Wetlands Management & MARS 426and Coastal Wetlands Delineation Laboratory	
MARS 430	Marine Geology	
MARS 440	Chemical Oceanography	
Total Semester Credit Hours		16

Department of Marine Biology

The Department of Marine Biology offers undergraduate Bachelor of Science degrees in Marine Biology, Marine Fisheries, and Marine Biology-License Option from Texas A&M University. At the graduate level, the department offers Master of Science and Doctoral degrees in Marine Biology. Teaching and research facilities are located in Galveston, Texas along the shore of Galveston Bay. The semitropical climate provides students and faculty with year-round access to a variety of estuarine, coastal and pelagic marine ecosystems, including salt marshes, oyster reefs, seagrass meadows and coastal sand dunes and beaches. A state-

of-the-art Sea Life Facility is available for additional hands-on experiences with marine organisms.

The faculty have research expertise in marine fisheries, marine invertebrate and vertebrate zoology, marine botany, marine mammalogy, biological oceanography, wetlands ecology, marine conservation and management, biodiversity, microbiology, virology, genomics, toxicology, physiology, marine acoustics, and evolutionary biology.

Marine biology undergraduate students obtain employment with state and federal agencies, private industry, environmental consulting entities, biomedical research, marine parks, aquariums and zoos, and teaching. Many undergraduates pursue postgraduate studies in marine biology, as well as in the fields of medicine, veterinary sciences and environmental law.

Faculty

Alvarado-Bremer, Jaime, Professor
Marine Biology
PHD, University of Toronto, 1994

Armitage, Anna, Professor
Marine Biology
PHD, University of California at Los Angeles, 2003

Corte, Guilherme, Assistant Professor
Marine Biology
PHD, State University of Campinas, 2016

Cresswell, Jacquelyn N, Visiting Lecturer
Marine Biology
PHD, Texas A&M University, 2019

Davis, Randall W, Professor
Marine Biology
PHD, University of California at San Diego, 1980

Dobberstine, Jim, Visiting Lecturer
Marine Biology
MS, University of Houston-Clear Lake, 2007

Foroughirad, Vivienne, Assistant Professor
Marine Biology
PHD, Duke University, 2019

Hala, David, Associate Professor
Marine Biology
PHD, Brunel University, 2007

Hochman, Mona E, Senior Lecturer
Marine Biology
MS, University of Maryland, 2000

Kitchen, Sheila, Assistant Professor
Marine Biology
PHD, Oregon State University, 2016

Labonté, Jessica, Associate Professor
Marine Biology
PHD, University of British Columbia, 2013

Liu, Hui, Associate Professor
Marine Biology
PHD, University of Alaska Fairbanks, 2006

MATICH, PHILIP, Instructional Associate Professor
Marine Biology
PHD, Florida International University, 2014

Marshall, Christopher, Professor
Marine Biology
PHD, University of Florida, 1997

Miglietta, Maria P, Associate Professor
Marine Biology
PHD, Duke University, 2005

Petersen, Lene H, Instructional Associate Professor
Marine Biology
PHD, Memorial University of New Foundland, 2010

Quigg, Antonietta S, Professor
Marine Biology
PHD, Monash University, 2000

Roelke, Daniel L, Professor
Marine Biology
PHD, Texas A&M University, 1997

Rooker, Jay R, Professor
Marine Biology
PHD, The University of Texas at Austin, 1997

Schulze, Anja, Professor
Marine Biology
PHD, University of Victoria, Canada, 2001

Schwarz, John R, Senior Professor
Marine Biology
PHD, Rensselaer Polytechnic Institute, 1972

Shah Esmaeili, Yasmina, Visiting Assistant Professor
Marine Biology
PHD, State University of Campinas, 2023

Steichen, Jamie L, Instructional Associate Professor
Marine Biology
PHD, Texas A&M University, 2013

Wells, Robert J, Professor
Marine Biology
PHD, Louisiana State University, 2007

Majors

- Bachelor of Science in Marine Biology (p. 859)
- Bachelor of Science in Marine Biology, License Option (p. 861)
- Bachelor of Science in Marine Fisheries (p. 862)

Minors

- Marine Biology Minor (p. 863)
- Marine Fisheries Minor (p. 864)

Marine Biology - BS

The Marine Biology Bachelor of Science degree emphasizes high impact, hands-on learning, with courses offering lab and field-based experiences.

This program’s curriculum spans a broad range of topics, including ichthyology and fish physiology, marine mammalogy, ecology, marine botany and coastal plant ecology, vertebrate and invertebrate zoology, coral biology, and marine conservation. Our diverse curriculum allows students to tailor their education to realize their career goals. With state-of-the-art labs and classrooms, a fleet of vessels, and world-class faculty, our educational and research opportunities prepare graduates to become leaders in their field.

Learn from Experts in the Field

The faculty of the Department of Marine Biology comprises some of the top researchers in their respective fields. This international group of scientists, hailing from 10 different countries around the world, is eager to share their knowledge and foster the passions of our undergraduates. Our faculty recognizes the power of networking, and provides students research and professional opportunities through affiliations with NOAA, FDA, EPA, Texas Parks and Wildlife Department, Texas Commission on Environmental Quality, Galveston Bay Foundation, General Land Office, and numerous others. Whether a student desires to study the smallest microbes and plankton to the largest marine organisms, or ecosystems along the coastline to the deepest reaches of the ocean, the faculty of the Marine Biology Department equips each student with the knowledge needed to succeed.

Career Opportunities

The unique flexibility of courses and the unparalleled access to top quality professors, training, and the sea puts our students in a great position to succeed in any number of career paths, including:

- Conservation
- Environmental Consulting
- Research
- Biomedical Sciences
- Veterinary and Medical degrees
- Law Enforcement
- Environmental Outreach
- Higher/Secondary Education

Endless Learning Opportunities

The courses offered to Marine Biology undergraduates are tailored to give students a solid foundational knowledge of life in the ocean while allowing students to pursue their specific interests. The diverse array of electives includes such courses as: Biology of Marine Mammals, Tropical Marine Ecology, Marine Toxicology, Animal Behavior, Life in Extreme Environments, and Conservation Biology.

Learning Outside the Classroom

Sometimes the greatest lessons are learned away from the classroom. For this reason, the Marine Biology Department offers field-based courses in Puerto Rico and at SeaWorld San Antonio. Additionally, students can take advantage of our on-campus Sea Life Facility for extensive hands-on opportunities. Undergraduates in our program get more than just a degree, they get experiences of a lifetime.

Double Your Career Options

Marine Biology majors have the option to pursue a U.S. Merchant Marine License Option through the Texas A&M Maritime Academy. Those who complete the program will have not only their Bachelor of Science degree,

but will also qualify to take the U.S. Coast Guard license examination in order to become a Third Mate for ocean going vessels, a vital asset in a number of career fields.

Program Requirements

First Year		Semester
Fall		Credit Hours
MARB 101	Succeeding in Science ¹	3
CHEM 119	Fundamentals of Chemistry I	4
ENGL 104	Composition and Rhetoric	3
MATH 147 or MATH 151	Calculus I for Biological Sciences or Engineering Mathematics I	4
Semester Credit Hours		14
Spring		
BIOL 111	Introductory Biology I ^{1,2}	4
MARS 102	Earth and Ocean Science ¹	4
CHEM 120	Fundamentals of Chemistry II	4
Select one of the following:		4
MATH 148	Calculus II for Biological Sciences	
MATH 150	Functions, Trigonometry and Linear Systems	
MATH 152	Engineering Mathematics II	
Semester Credit Hours		16
Second Year		
Fall		
MARB 215	Marine Zoology ¹	4
PHYS 201	College Physics	4
POLS 206	American National Government	3
Select one of the following:		4
CHEM 227 & CHEM 237	Organic Chemistry I and Organic Chemistry Laboratory	
CHEM 257	Organic Chemistry I - Structure and Function	
Semester Credit Hours		15
Spring		
MARB 315 or MARB 435	Natural History of Vertebrates ¹ or Marine Invertebrate Zoology	4
PHYS 202	College Physics	4
POLS 207	State and Local Government	3
Select one of the following:		4
CHEM 228 & CHEM 238	Organic Chemistry II and Organic Chemistry Laboratory	
CHEM 258	Organic Chemistry II - Reactivity and Applications	
Semester Credit Hours		15
Third Year		
Fall		
MARB 301	Genetics ¹	4
MARB 303	Biostatistics ¹	4
Marine biology elective ^{1,3}		4
Communication (p.)		3
Semester Credit Hours		15

Spring

MARB 310	Introduction to Cell Biology ¹	4
or BIOL 351	or Fundamentals of Microbiology	
Marine biology elective ^{1,3}		4
Marine biology elective ^{1,3}		4
Social and behavioral sciences (p. 31)		3

Semester Credit Hours 15

Fourth Year**Fall**

MARB 425	Marine Ecology ¹	4
MARB 408	Marine Botany ¹	4
or MARB 430	or Coastal Plant Ecology	
Marine biology elective ^{1,3}		3
American History (p. 30)		3

Semester Credit Hours 14

Spring

MARB 420	Comparative Animal Physiology ¹	4
Marine biology elective ^{1,3}		3
American history (p. 30)		3
Creative arts (p. 30)		3
Language, philosophy and culture (p. 28)		3

Semester Credit Hours 16

Total Semester Credit Hours 120

¹ Indicates required courses in the Marine Biology major. These courses will be used to compute the major GPA.

² A grade of C or better is required before advancing to upper level courses.

³ 18 credit hours of marine biology electives selected from the following: BIOL 351; FSCI 360, MARB 300-499 (p. 1119); MARS 305, MARS 325. Students can only select 2 mammals courses (MARB 400, MARB 401, MARB 403, or MARB 407).

All electives must be chosen in consultation with, and approved by, the student's academic advisor. Unless courses are specifically listed, see University Core Curriculum for a listing of course options for Communication; Mathematics; Life and Physical Sciences; Language, Philosophy and Culture; Creative Arts; American History; Government and Political Sciences; and Social and Behavioral Sciences. The 3-hour University Core Curriculum requirement for International and Cultural Diversity may be met with courses used to satisfy other degree requirements. The 3-hour University Core Curriculum requirement for Cultural Discourse may be met with courses used to satisfy other degree requirements. Up to 4 hours of MARB 491 and/or MARB 484 may be used as marine biology elective courses in your curriculum. Please consult with your academic advisor.

Marine Biology - BS, License Option

The Marine Biology License Option program allows the marine biology student to prepare for a career as an officer aboard a sea going vessel by participating in the Texas A&M Maritime Academy License Option program.

This program's curriculum provides the basics of marine biology, as well as courses leading toward licensing as a Third Mate of any gross tonnage upon oceans, steam, or motor vessels in the U.S. Merchant Marine.

The Marine Biology License Option curriculum is an abbreviated version of the Marine Biology curriculum and is oriented toward field activities consistent with service aboard research vessels. Midshipmen who enroll in and apply to graduate in this curriculum must pass the license examination and all other requirements for the Third Mate in order to graduate from Texas A&M University. Certain United States Coast Guard courses require a minimum grade of C (70%).

Program Requirements

First Year**Fall**

		Semester Credit Hours
CHEM 119	Fundamentals of Chemistry I	4
MARB 101	Succeeding in Science ¹	3
MART 103	Basic Safety and Lifeboatman Training ²	3
MART 201	Vessel Structure and Ship Knowledge ²	3
MATH 150	Functions, Trigonometry and Linear	4
or MATH 152	Systems	
	or Engineering Mathematics II	

Semester Credit Hours 17

Spring

BIOL 111	Introductory Biology I ^{1,3}	4
MARS 102	Earth and Ocean Science ¹	4
MART 115	Seamanship I ²	3
MART 130	Introduction to Maritime Law	1
MART 204	Terrestrial Navigation I ²	3

Semester Credit Hours 15

Summer

MART 200	Deck Sea Training I: Basic Communications, Navigation and Seamanship ²	4

Semester Credit Hours 4

Second Year**Fall**

CHEM 120	Fundamentals of Chemistry II	4
MARB 215	Marine Zoology ¹	4
MART 225	Terrestrial Navigation II	3
MATH 147	Calculus I for Biological Sciences	4
or MATH 151	or Engineering Mathematics I	
NVSC 200	Naval Science for the Merchant Marine Officer ²	3

Semester Credit Hours 18

Spring

ENGL 104	Composition and Rhetoric	3
MART 215	Seamanship II ²	3
MART 303	Celestial Navigation ²	3
Marine biology elective ^{1,4}		4
Marine biology elective ^{1,4}		3

Semester Credit Hours 16

Summer

ECON 202	Principles of Economics	3
Communication (p.)		3

Language, philosophy and culture (p. 28)	3
Semester Credit Hours	9
Third Year	
Fall	
MARB 303 Biostatistics ¹	4
MART 210 Integrated Navigation I: RADAR/ARPA/ECDIS ²	4
MART 212 Marine Dry Cargo Operations ²	3
MART 321 Navigation Rules - International and Inland ²	2
American history (p. 30)	3
Semester Credit Hours	16
Spring	
MART 202 Ship Stability and Trim ²	3
MART 307 Global Maritime Distress Safety System ²	3
MART 310 Integrated Navigation II: Electronic Navigation ²	3
MART 313 Marine Liquid Cargo Operations ²	3
POLS 206 American National Government	3
Semester Credit Hours	15
Summer	
MART 300 or MART 350 Deck Sea Training II: Intermediate Communications, Navigation and Seamanship ² or Deck Sea Training II – Commercial Internship	4
Semester Credit Hours	4
Fourth Year	
Fall	
MARB 425 Marine Ecology ¹	4
MART 410 Bridge Resource Management ²	2
PHYS 201 College Physics	4
POLS 207 State and Local Government	3
Creative arts (p. 30)	3
Semester Credit Hours	16
Spring	
MART 208 Maritime Meteorology ²	3
MART 498 Maritime Medical Care Provider ^{2,5}	2
PHYS 202 College Physics	4
American History (p. 30)	3
Marine biology elective ^{1,4}	4
Semester Credit Hours	16
Summer	
MART 400 Deck Sea Training III: Advanced Communications, Navigation and Seamanship ²	4
Semester Credit Hours	4
Total Semester Credit Hours	150

¹ Indicates required courses in Marine Biology License Option major.

These courses will be used to compute the major GPA.

² Indicates license courses leading to a USCG/STCW license endorsement or sea time credit accrual which require a minimum grade of C (70%) or better to earn the endorsement or accrual. Students will

be required to repeat the course until they earn a grade of C (70%) or better. MART 307 requires a grade of 75% or better.

³ A grade of C or better is required before advancing to upper level courses.

⁴ Select from CHEM 227 and CHEM 237, CHEM 228 and CHEM 238, CHEM 257, CHEM 258, MARB 300-400 (p. 1119).

⁵ MART 498 must be taken within one year of graduation to receive USCG approval.

All electives must be chosen in consultation with, and approved by, the student's academic advisor. Unless courses are specifically listed, see University Core Curriculum for a listing of course options for Communication; Mathematics; Life and Physical Sciences; Language, Philosophy and Culture; Creative Arts; American History; Government and Political Sciences; and Social and Behavioral Sciences. The 3-hour University Core Curriculum requirement for International and Cultural Diversity may be met with courses used to satisfy other degree requirements. The 3-hour University Core Curriculum requirement for Cultural Discourse may be met with courses used to satisfy other degree requirements.

The total hours may be increased if the student is required to take remedial math, remedial English, foreign language or International and Cultural Diversity courses, or any of the six hour cruise options. The six hour cruise options (NAUT 300, NAUT 400) do not add any required hours to the degree plan.

This degree requires full participation in the Texas A&M University Maritime Academy Corps of Cadets as a qualified License Option cadet. Refer to the University catalog section on the Texas A&M Maritime Academy for additional information. In addition to the academic requirements outlined here, the cadet must also complete the following requirements to receive the degree:

- Successfully complete required sea service and minimum training cruise requirements
- Pass a comprehensive professional examination (either the Third Mate Unlimited-Oceans or Third Assistant Engineering Unlimited) administered by the U.S. Coast Guard (USCG).
- Successfully complete all competencies required by the International Convention on Standards for Training, Certification and Watchkeeping (STCW).

Note: STCW competency certifications expire 5 years after completion. If the cadet does not complete the degree within that time period, the cadet will be required to revalidate the expired competency prior to graduation.

Marine Fisheries - BS

This program provides educational opportunities in the biological sciences, with emphasis on marine management.

Ecology, taxonomy, zoogeography, culture, and general biology of commercial species are emphasized in this program. Course offerings are structured to provide not only a strong basis of formal academic instruction but also considerable hands-on field and collection experience by taking advantage of the coastal location of the university. A strong preparation in the sciences is recommended. Marine Fisheries graduates are prepared to work as fisheries managers or research biologists for state and federal agencies, ecological consulting firms, and educational institutions. Qualified degree recipients may undertake postgraduate

studies in resource management, mariculture, systematics, and fisheries economics.

Program Requirements

First Year

Fall		Semester Credit Hours
CHEM 119	Fundamentals of Chemistry I	4
ENGL 104	Composition and Rhetoric	3
MARB 101	Succeeding in Science ¹	3
MATH 147 or MATH 151	Calculus I for Biological Sciences or Engineering Mathematics I	4
Semester Credit Hours		14

Spring

BIOL 111	Introductory Biology I ^{1,2}	4
CHEM 120	Fundamentals of Chemistry II	4
MARS 102	Earth and Ocean Science ¹	4
Select one of the following:		4
MATH 148	Calculus II for Biological Sciences	
MATH 150	Functions, Trigonometry and Linear Systems	
MATH 152	Engineering Mathematics II	
Semester Credit Hours		16

Second Year

Fall		
MARB 215	Marine Zoology	4
PHYS 201	College Physics	4
POLS 206	American National Government	3
Select one of the following:		4
CHEM 227 & CHEM 237	Organic Chemistry I and Organic Chemistry Laboratory	
CHEM 257	Organic Chemistry I - Structure and Function	
Semester Credit Hours		15

Spring

MARB 311	Ichthyology ¹	4
PHYS 202	College Physics	4
POLS 207	State and Local Government	3
Select one of the following:		4
CHEM 228 & CHEM 238	Organic Chemistry II and Organic Chemistry Laboratory	
CHEM 258	Organic Chemistry II - Reactivity and Applications	
Semester Credit Hours		15

Third Year

Fall		
MARB 301	Genetics ¹	4
MARB 303	Biostatistics ¹	4
MARB 315 or MARB 435	Natural History of Vertebrates ¹ or Marine Invertebrate Zoology	4
MARB 320	Fisheries Techniques ¹	4
Semester Credit Hours		16

Spring

ECON 202	Principles of Economics	3
American history (p. 30)		3
Language, philosophy and culture (p. 28)		3
Marine fisheries elective ³		4
Marine fisheries elective ³		4
Semester Credit Hours		17

Fourth Year

Fall		
MARB 425	Marine Ecology ¹	4
MARB 460	Fisheries Population Dynamics ¹	4
Creative arts (p. 30)		3
Marine fisheries elective ³		4
Semester Credit Hours		15

Spring

MARB 445	Marine Fisheries Management ¹	3
American history (p. 30)		3
Communication (p.)		3
Marine fisheries elective ³		3
Semester Credit Hours		12
Total Semester Credit Hours		120

¹ Indicates required courses in the Marine Fisheries major. These courses will be used to compute the major GPA.

² A grade of C or better is required before advancing to upper level courses.

³ Select from MARB 300-499 (p. 1119).

The total hours may be increased if the student is required to take remedial math, remedial English, foreign language, Cultural Discourse or International and Cultural Diversity courses.

All electives must be chosen in consultation with, and approved by, the student's academic advisor. Unless courses are specifically listed, see University Core Curriculum for a listing of course options for Communication; Mathematics; Life and Physical Sciences; Language, Philosophy and Culture; Creative Arts; American History; Government and Political Sciences; and Social and Behavioral Sciences. The 3-hour University Core Curriculum requirement for International and Cultural Diversity may be met with courses used to satisfy other degree requirements. The 3-hour University Core Curriculum requirement for Cultural Discourse may be met with courses used to satisfy other degree requirements.

Marine Biology - Minor

Coupled with the appropriate major, a minor in marine biology is a powerful asset and can prepare a student for a number of exciting and rewarding career opportunities. This coursework combines top quality classroom, laboratory, and hands-on experiences to diversify a student's education and prepare them for a future in research, conservation, education, and more.

Program Requirements

Code	Title	Semester Credit Hours
Select four of the following: ¹		16
MARB 301	Genetics	
MARB 311	Ichthyology	
MARB 315	Natural History of Vertebrates	
MARB 360	Marine Conservation Biology	
MARB 400	Biology of Marine Mammals	
MARB 425	Marine Ecology	
MARB 430	Coastal Plant Ecology	
MARB 435	Marine Invertebrate Zoology	

¹ All MARB 300-400 (p. 1119) level courses require BIOL 111 and (MARB 215 or BIOL 112).

Marine Fisheries - Minor

The minor in Marine Fisheries will allow students to acquire relevant and multidisciplinary knowledge related to fisheries. Students will be able to choose among courses that will provide theoretical, technical, and practical skills to work in various fields of fishery and fishery management.

Program Requirements

Code	Title	Semester Credit Hours
MARB 311	Ichthyology	4
Select 11 hours from the following:		11
MARB 320	Fisheries Techniques	
MARB 335	Fish Physiology	
MARB 423	Mariculture	
MARB 445	Marine Fisheries Management	
MARB 460	Fisheries Population Dynamics	
Total Semester Credit Hours		15

Department of Marine Engineering Technology

Texas A&M University at Galveston is a special purpose institution for teaching, research, and public service pertaining to marine and maritime studies in science, engineering, and business. The Marine Engineering Technology Department offers programs that prepare students to become leaders in the maritime industry. Within this context, the Marine Engineering Technology (MARR) program produces graduates who are prepared to perform engineering work in the maritime sector onboard a vessel or marine-related shore-based industries involving the design, production, operation, maintenance, and management of engineering and power generation systems. The program is available in a License Option version as part of the Texas A&M Maritime Academy for students who want to serve as an engineering officer aboard seagoing vessels.

Opportunities for such work abound in the vicinity of the campus, which is located just south of the fourth largest metropolis in the United States. The Houston/Galveston area has extensive port facilities, considerable commercial, recreational, and military ship traffic, and

offshore and onshore infrastructure associated with the oil industry. Career opportunities of various kinds are therefore available for these graduates who are ideally suited for working on ships, at port facilities, and at shore facilities, particularly in power generation, distribution, and associated auxiliary support systems.

Our goal is to produce graduates with a strong background in engineering fundamentals, mathematics, and analytical methods, which is reinforced by practical machine shop, welding, and laboratory experiences (including several on the training ship). The curriculum builds on a foundation of basic engineering topics such as fluid mechanics, thermodynamics, electricity, drafting, and materials science to develop inter-disciplinary skills required for the practice of marine engineering. In particular, the program's educational objectives are to produce graduates who can plan, design, construct, operate, and maintain systems used in marine, offshore and onshore power systems such as propulsion, electrical power generation and distribution, refrigeration, and potable water production and sterilization. Graduates also support the maritime sector (the Navy and Coast Guard), companies operating sea-going vessels, the offshore oil and gas industry; and, are well-prepared to engage in lifelong education, professional development, and continuous improvement.

Faculty

Aleyasin, Sobhan, Visiting Lecturer
Marine Engineering Technology
PHD, University of Manitoba, 2019

Coleman, Gerard T, Professor of the Practice
Marine Engineering Technology
MS, The George Washington University, 1996

Fathi, Nima, Assistant Professor
Marine Engineering Technology
PHD, University of New Mexico, 2017

Khan, Irfan, Assistant Professor
Marine Engineering Technology
PHD, Carnegie Mellon University, 2018

McQueen, Vanicha, Associate Professor of the Practice
Marine Engineering Technology
BS, US Merchant Marine Academy, 1988

Moore, Andrew L, Assistant Professor of the Practice
Marine Engineering Technology
MS, Texas Tech University, 2018

Nyakiti, Luke, Instructional Associate Professor
Marine Engineering Technology
PHD, Texas Tech University, 2008

Potier, Paul A, Professor of the Practice
Marine Engineering Technology
PHD, Prairie View A&M University, 2012

Reeves, Adam, Assistant Professor of the Practice
Marine Engineering Technology
BS, Massachusetts Maritime Academy, 1993

Tian, Guanyu, Assistant Professor
Marine Engineering Technology
PHD, University of Central Florida, 2022

Verma, Alok, Professor
Marine Engineering Technology
PHD, Old Dominion University, 2005

Majors

- Bachelor of Science in Marine Engineering Technology (p. 865)
- Bachelor of Science in Marine Engineering Technology, License Option (p. 866)

Minors

- Marine Electro-Technology Minor (p. 868)
- Marine Engineering Technology Minor (p. 868)

Marine Engineering Technology - BS

The Marine Engineering Technology (MARR) program is designed to prepare the student for a career as an engineering professional in the maritime industry.

Students receive an education in applied engineering with a maritime focus. The MARR curriculum is a thermal power-oriented specialization of a classical Mechanical Engineering Technology program. A thorough preparation in mathematics, science, and engineering courses is the foundation for further study in ship propulsion plants, electrical power generation and distribution equipment. Marine Engineering Technology focuses on power cycles, principles, and methods used to convert various forms of energy into useful power. The Maritime industry is moving toward clean energy production onboard its vessels. The use of alternative fuels and Hybrid Energy Storage Systems (HESS) is becoming common. The curriculum explores the selection and operation of the major components and support systems in the power cycle. Courses in marine engineering are supplemented with studies in automation and control systems, naval architecture and the maritime application of electrical engineering fundamentals. The students' education is enhanced through the use of computer simulation of propulsion plants and direct operation of marine machinery aboard the University's training ship. Students who wish to pursue USCG license should enroll in the license option. Marine Engineering Technology (MARR) Program is accredited by the Engineering Technology Accreditation Commission of ABET, www.abet.org (<http://www.abet.org/>).

Program Requirements

First Year

Fall		Semester Credit Hours
CHEM 107	General Chemistry for Engineering Students	3
CHEM 117	General Chemistry for Engineering Students Laboratory	1
ENGL 104	Composition and Rhetoric	3
MARE 100	Marine Engineering Fundamentals ¹	3
MATH 151	Engineering Mathematics I ²	4
MARE 111	Methods in Engineering Technology	2
Semester Credit Hours		16
Spring		
MATH 152	Engineering Mathematics II ²	4

PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences ²	4

Creative arts (p. 30)		3
MARE 242	Manufacturing Methods I	2
MARE 112	Graphics for Engineering Technology	2
Semester Credit Hours		15

Second Year

Fall

MARE 202	Marine Thermodynamics ^{1,2}	3
MARE 205	Engineering Mechanics I ^{1,2}	3
MARE 243	Manufacturing Methods II	1
PHYS 207 & PHYS 227	Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences ²	4

Communication (p. 27)		3
American history (p. 30)		3

Semester Credit Hours

17

Spring

MARE 206	Engineering Mechanics II ^{1,2}	3
MARE 209	Mechanics of Materials ^{1,2}	3
MARE 211	Steam Propulsion Plants	3
MARE 261	Engineering Analysis ¹	3
American history (p. 30)		3

Semester Credit Hours

15

Third Year

Fall

MARE 207	Electrical Power I ^{1,2}	3
MARE 305	Fluid Mechanics Theory ¹	4
MARE 313	Heat Transfer ¹	3
POLS 207	State and Local Government	3
MARE 309	Marine Construction Materials	3

Semester Credit Hours

16

Spring

MARE 306	Electrical Power II ¹	3
MARE 312	Diesel Propulsion Plants ¹	3
MARE 441	Engineering Economics and Project Management ¹	3

Language, philosophy and culture (p. 28)		3
Technical elective ^{1,3}		3

Semester Credit Hours

15

Fourth Year

Fall

MARE 307	Marine Electronics ¹	3
MARE 405	Fundamentals of Naval Architecture ^{1,4}	3
MARE 451	Senior Design Project I ¹	2
POLS 206	American National Government	3
MARE elective ^{1,5}		3

Semester Credit Hours

14

Spring

MARE 402	Shipboard Automation and Control ¹	3

MARE 452	Senior Design Project II ^{1,4}	2
Social and behavioral sciences (p. 31)		3
MARE elective ^{1,5}		3
Technical elective ^{1,3}		3
Semester Credit Hours		14
Total Semester Credit Hours		122

¹ Indicates required courses in Marine Engineering major. These courses will be used to compute the major GPA.

² Required to earn a grade of C or better in MATH 151, MATH 152, PHYS 206, PHYS 207, PHYS 226, PHYS 227, MARE 202, MARE 205, MARE 206, MARE 207, and MARE 209. Failure to meet this requirement will prevent the student from continuing any sequence in which the course is a prerequisite. Although they may count for credit, grades from another institution below a C in engineering, mathematics and physics will not be accepted by the TAMUG engineering programs toward the degree.

³ Technical electives may be any course with the following prefixes: MARE (p. 1122), MARS (p. 1126), MART (p. 1129), OCEN (p. 1179), CVEN (p. 990), MATH (p. 1135), PHYS (p. 1205), or OCNG (p. 1182) in consultation with the student's advisor. At least one elective must be at the 300 or 400 level.

⁴ Designated Writing intensive course.

⁵ Students may take any of the 300 or 400-level courses (except MARE 402 and MARE 405) offered by the Marine Engineering Department in their senior year which are offered to license option students.

All electives must be chosen in consultation with, and approved by, the student's academic advisor. Unless courses are specifically listed, see University Core Curriculum at <http://core.tamu.edu/> for a listing of course options for Communication; Mathematics; Life and Physical Sciences; Language, Philosophy and Culture; Creative Arts; American History; Government and Political Sciences; and Social and Behavioral Sciences. The 3-hour University Core Curriculum requirement for International and Cultural Diversity and the 3-hour University Core Curriculum requirement for Cultural Discourse may be met with courses used to satisfy other degree requirements.

Although they may count for university credit, grades from another institution below a C in engineering, mathematics and physics will not be accepted by the TAMUG engineering technology program toward the degree.

The total hours may be increased if the student is required to take remedial math, remedial English, computer science, foreign language or if the creative arts; language, philosophy and culture or social science requirements do not fulfill the International and Cultural Diversity requirement.

Marine Engineering Technology - BS, License Option

The purpose of the Marine Engineering Technology License Option (MARR LO) program is to train students to serve as engineering officers aboard sea-going vessels.

The MARR curriculum is a power-oriented specialization of a classical Mechanical Engineering Technology program. A thorough preparation in mathematics, science, and engineering courses is the foundation

for further study in ship propulsion plants, electrical power generation and distribution equipment. Marine Engineering Technology focuses on power cycles, principles, and methods used to convert various forms of energy into useful power. The Maritime industry is moving toward clean energy production onboard its vessels. The use of alternative fuels and Hybrid Energy Storage Systems (HESS) are common. The curriculum explores the selection and operation of the major components and support systems in the power cycle. Courses in marine engineering are supplemented with studies in automation and control systems, naval architecture and the maritime application of electrical engineering fundamentals. The students' education is enhanced through the use of computer simulation of propulsion plants and direct operation of marine machinery aboard the University's training ship. Marine Engineering Technology (MARR) is accredited by the Engineering Technology Accreditation Commission of ABET, <https://www.abet.org/>.

In addition to the degree requirements for the Marine Engineering Technology Degree, MARR LO Cadets must complete the requirements to achieve a Merchant Mariner Credential (MMC) issued by the USCG. The requirements for the MMC are determined by International conventions, Federal law and regulations, and policies established by the USCG and the Maritime Administration (MARAD). The requirements for an MMC are subject to change according to developments at the International Maritime Organization (IMO), Congressional action, the Federal rulemaking process, and consultations between the USCG, MARAD, and the Maritime Academies. The student who successfully completes the program will be qualified to sit for the U.S. Coast Guard license examination as a Third Assistant Engineer of any gross tonnage upon oceans, steam and motor vessels and issuance of Standards of Training, Certification and Watchkeeping (STCW) international endorsement as Officer-In-Charge of an Engineering Watch (OICEW). Unlimited tonnage gas turbine endorsement also available.

MARR LO students must also complete all the requirements as a cadet in the Texas A&M Maritime Academy, described previously in this catalog, in order to receive the degree. Cadets who enroll in and apply to graduate in Marine Engineering Technology must successfully complete the license examination for Third Assistant Engineer in order to graduate from Texas A&M University. Courses earning USCG or STCW qualifications, sea-time remission or STCW competency certification require a minimum grade of C (70%). In addition, all STCW proficiencies must be satisfactorily completed with a grade of 70% or better (See applicable course outlines available through the department).

Program Requirements

First Year

Fall		Semester Credit Hours
CHEM 107	General Chemistry for Engineering Students	3
CHEM 117	General Chemistry for Engineering Students Laboratory	1
MARE 100	Marine Engineering Fundamentals	3
MARE 111	Methods in Engineering Technology	2
MART 103	Basic Safety and Lifeboatman Training ¹	3
MATH 151	Engineering Mathematics I ²	4
Semester Credit Hours		16
Spring		
ENGL 104	Composition and Rhetoric	3

MARE 112	Graphics for Engineering Technology	2
MARE 242	Manufacturing Methods I ^{1,3}	2
MATH 152	Engineering Mathematics II ²	4
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences ²	4
Social and behavioral sciences (p. 31)		3
Semester Credit Hours		18
Summer		
MARE 200	Basic Operations ^{1,3}	4
Semester Credit Hours		4
Second Year		
Fall		
MARE 202	Marine Thermodynamics ^{2,3}	3
MARE 205	Engineering Mechanics I ^{2,3}	3
MARE 243	Manufacturing Methods II ^{1,3}	1
PHYS 207 & PHYS 227	Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences ²	4
American history (p. 30)		3
Communication (p. 27)		3
Semester Credit Hours		17
Spring		
MARE 206	Engineering Mechanics II ^{2,3}	3
MARE 209	Mechanics of Materials ^{2,3}	3
MARE 211	Steam Propulsion Plants ^{1,3}	3
MARE 261	Engineering Analysis ³	3
American history (p. 30)		3
Semester Credit Hours		15
Summer		
MARE 300 or MARE 350	Intermediate Operations ^{1,3} or Commercial Cruise Internship	4
Semester Credit Hours		4
Third Year		
Fall		
MARE 207	Electrical Power I ^{1,2,3}	3
MARE 305	Fluid Mechanics Theory ^{1,3}	4
MARE 309	Marine Construction Materials	3
MARE 313	Heat Transfer ³	3
NVSC 200	Naval Science for the Merchant Marine Officer ³	3
Semester Credit Hours		16
Spring		
MARE 306	Electrical Power II ^{1,3}	3
MARE 312	Diesel Propulsion Plants ^{1,3}	3
MARE 316	Marine Auxiliary Systems ³	3
Creative arts (p. 30)		3
Language, philosophy and culture (p. 28)		3
Semester Credit Hours		15

Summer		
MARE 400	Advanced Operations ^{1,3}	4
Semester Credit Hours		4
Fourth Year		
Fall		
MARE 307	Marine Electronics ^{1,3}	3
MARE 405	Fundamentals of Naval Architecture ^{1,3,4}	3
MARE 451	Senior Design Project I ³	2
POLS 206	American National Government	3
Technical Elective ^{3,5}		3
Semester Credit Hours		14
Spring		
MARE 402	Shipboard Automation and Control ³	3
MARE 410	Marine Engine, Energy, and Electrical Resource Management ^{1,3}	3
MARE 441	Engineering Economics and Project Management	3
MARE 452	Senior Design Project II ^{3,4}	2
MART 498	Maritime Medical Care Provider ¹	2
POLS 207	State and Local Government	3
Semester Credit Hours		16
Total Semester Credit Hours		139

¹ Indicates license courses leading to a USCG/STCW license endorsement or sea time or workshops skills credit accrual which require a minimum grade of C (70%) or better to earn the endorsement or workshop skills accrual. Cadets will be required to repeat the course until they earn a grade of C (70%) or better. Failure to meet this requirement will prevent the student from continuing any sequence in which the course is a prerequisite.

² Students are required to earn a grade of C or better in MATH 151, MATH 152, PHYS 206, PHYS 207, PHYS 226, PHYS 227, MARE 202, MARE 205, MARE 206, MARE 207, and MARE 209. Failure to meet this requirement will prevent the student from continuing any sequence in which the course is a prerequisite.

³ Indicates required courses in the Marine Engineering Technology License Option major. These courses will be used to compute the major GPA.

⁴ Designated Writing intensive course.

⁵ Technical electives may be any course with the following prefixes: CSCE (<https://catalog.tamu.edu/undergraduate/course-descriptions/csce/>), MARE (p. 1122), MART (p. 1129), OCEN (p. 1179), MATH (p. 1135), PHYS (p. 1205), MARS (p. 1126), or OCNG (p. 1182) at the 300 or 400 level in consultation with the student's advisor.

All electives must be chosen in consultation with, and approved by, the student's academic advisor. Unless courses are specifically listed, see University Core Curriculum at <http://core.tamu.edu/> for a listing of course options for Communication; Mathematics; Life and Physical Sciences; Language, Philosophy and Culture; Creative Arts; American History; Government and Political Sciences; and Social and Behavioral Sciences. The 3-hour University Core Curriculum requirement for International and Cultural Diversity and the 3-hour University Core Curriculum requirement for Cultural Discourse may be met with courses used to satisfy other degree requirements. Although they may count for university credit, grades from an other institution below a C in engineering, mathematics

and physics will not be accepted by the TAMUG engineering programs toward the degree.

The total hours may be increased if the student is required to take remedial math, remedial English, foreign language or International and Cultural Diversity courses.

This degree requires full participation in the Texas A&M University Maritime Academy Corps of Cadets as a qualified License Option cadet. Refer to the University catalog section for the Texas A&M Maritime Academy for additional information. In addition to the academic requirements outlined here, the cadet must also complete the following requirements to receive the degree:

- Successfully complete required sea service and minimum training cruise requirements
- Pass a comprehensive professional examination (either the Third Mate Unlimited- Oceans or Third Assistant Engineering Unlimited) administered by the U.S. Coast Guard (USCG).
- Successfully complete all competencies required by the International Convention on Standards for Training, Certification and Watchkeeping (STCW).

Note: STCW competency certifications expire 5 years after completion. If the cadet does not complete the degree within that time period, the cadet will be required to revalidate the expired competency prior to graduation.

Marine Electro-Technology - Minor

The Marine Engineering Electro-Technology Minor provides students with the knowledge and skills to maintain, troubleshoot and repair shipboard electrical equipment.

As vessels become increasingly automated, the need for mariners and shoreside employees with advanced electronics and networking skills has become essential. This minor's curriculum consists of electrical theory and practical application of troubleshooting and diagnostics of shipboard machinery. Machinery includes engine room equipment, deck equipment, computer networking, High Voltage, and navigation systems.

This program requires a grade of "C" or better for the courses to be used as evidence of meeting "Option 2" of MCP-FM-NMC5-216 (03) for approved training toward the Electro-Technical Officer endorsement. A student can use this minor towards an original electro-technical rating when combined with Qualified Assessor Endorsed Assessments for IMO's Section A-III/6 and A-III/7 of the STCW code with required sea service. Endorsement options for post-completion should be discussed with a MARE advisor to determine eligibility based on the student's degree and this minor.

Program Requirements

Code	Title	Semester Credit Hours
MARE 301	Digital Fundamentals for Marine Engineers	3
MARE 325	Shipboard Networking Systems	3
MARE 335	Power Electronics for Shipboard Applications	3
MARE 345	High Voltage Technology for Marine Engineers	3

MARE 445	Marine Navigation Systems	3
Total Semester Credit Hours		15

Marine Engineering Technology - Minor

The MARE minor provides training in marine engineering, project management, shipboard, and port operations.

Students will receive instruction in shipboard safety and attend firefighting school. An in-depth study of the ship's propulsion and auxiliary systems will allow the student to understand the interconnectivity between engineering principles and their applications. The minor will culminate in an at-sea experience aboard the training ship or approved placement. While at sea, the students will stand watch and perform maintenance and repairs onboard the vessel. This minor is intended to complement other engineering or Galveston-based majors.

The student must meet Texas A&M Maritime Academy documentation requirements to enroll in MARE 200. All at-sea placements require medical review, possession of a Transportation Workers Identification Card (TWIC), Merchant Mariners Credential (MMC), and a Passport. The department will not track sea time for use towards licensing beyond the minor. Each student will receive a discharge from the vessel, including the number of days sailed aboard the vessel as a cadet and a letter grade for completion of the MARE 200. This program does not lead to direct USCG licensure, but sea time gained onboard the vessel will be acknowledged as service and can be used towards endorsements after graduation. Endorsement options for post-completion should be discussed with a MARE advisor to determine eligibility based on the student's degree and this minor.

Program Requirements

Code	Title	Semester Credit Hours
MARE 100	Marine Engineering Fundamentals	3
MARE 200	Basic Operations	4
MARE 316	Marine Auxiliary Systems	3
MARE 377	Engineering Risk Management in Maritime Construction and Shipbuilding	3
or MARE 44	or Engineering Economics and Project Management	
MART 103	Basic Safety and Lifeboatman Training	3
Total Semester Credit Hours		16

Department of Maritime Business Administration

Our Mission

To develop inspirational leaders through innovative teaching, impactful research, and meaningful service to our community and the maritime industry.

Faculty

Afenyo, Mawuli, Assistant Professor
Maritime Business Administration
PHD, Memorial University of Newfoundland, 2017

Baker, Robert K, Professor of the Practice
Maritime Business Administration
MBA, University of Houston, 1983

Boudreaux, Lowell A, Instructional Professor
Maritime Business Administration
MML, Texas A&M University at Galveston, 2017
MBA, Lamar University, 1996

Bömer Galvão, Cassia, Associate Professor
Maritime Business Administration
PHD, Pontificia Universidade Catolica, 2017

Caesar, Divine Livingstone, Assistant Professor
Maritime Business Administration
PHD, University of Tasmania, 2016

Ciminello, Vito J, Instructional Professor
Maritime Business Administration
MBA, Northwestern University, 1979

Fertitta Woods, Kelli, Instructional Assistant Professor
Maritime Business Administration
JD, South Texas College of Law, 2013

Gurtu, Amulya, Professor
Maritime Business Administration
PHD, Toronto Metropolitan University, 2014

Hammady Brho, Mazen, Assistant Professor
Maritime Business Administration
PHD, University of North Texas, 2018

Hark, John F, Senior Lecturer
Maritime Business Administration
BS, Texas A&M University, 1989

Jazairy, Amer, Assistant Professor
Maritime Business Administration
PHD, KTH Royal Institute of Technology, 2020

Morrison, Robert Dean, Professor of the Practice
Maritime Business Administration
PHD, University of Texas Rio Grande Valley, 2015
PHD, Indiana State University, 2008

Mykoniatis, Nikolaos, Instructional Associate Professor
Maritime Business Administration
PHD, The Pennsylvania State University, 2013

Nwabueze, Uchenna M, Instructional Professor
Maritime Business Administration
PHD, Sheffield Hallam University, City Campus, 1995

Rodrigue, Jean-Paul, Professor
Maritime Business Administration
PHD, Université de Montréal, 1994

Wolski, Chris, Adjunct Professor of Law
Maritime Business Administration
MBA, University of Maryland Global Campus, 2018

Majors

- Bachelor of Science in Maritime Business Administration (p. 869)
- Bachelor of Science in Maritime Business Administration and Master of Maritime Business Administration and Logistics, 5-Year Degree Program (p. 871)

Minors

- Maritime Business Administration Minor (p. 872)
- Maritime Cybersecurity Minor (p. 872)

Maritime Business Administration - BS

A business degree for the sea, this program offers students the chance to learn the skills needed for the maritime industry.

The Maritime Business Administration undergraduate curriculum, offered through the College of Marine Sciences and Maritime Studies, provides a solid background in the key areas of accounting, finance, marketing, law, economics and international trade that are critical for today's business professionals. These courses lay the foundation for more advanced courses in international trade, inland waterways management, brokerage and chartering, organizational behavior, transportation economics, port and terminal management and other areas related to the maritime industry.

International trade is expanding as a result of the general increase in world-wide economic and political stability and this trend is expected to increase, as major economies participate more fully in world-wide economic growth. The great majority of this expanded trade will be carried by ship. As a result, activity in American ports is expected to more than double in the next 20 years, and some ports in the Gulf of America are expected to see a tripling of port activity. Taken together, these forces are currently and will continue to positively affect demand for trained maritime professionals ashore. Maritime Business Administration graduates are ideally poised to meet the increasing demand for well educated maritime professionals.

Additionally, qualified undergraduate students have the opportunity to earn a Bachelor of Science and a Master of Maritime Business Administration and Logistics (p. 871) in five years time through the Department of Maritime Business Administration's combination program.

The Maritime Business Administration program is also offered at the Texas A&M Higher Education Center in McAllen, Texas.

Program Requirements

First Year

Fall		Semester Credit Hours
ECON 202	Principles of Economics ¹	3
MARA 205	Introduction to Ships and Shipping ^{1,2}	3
MATH 140	Mathematics for Business and Social Sciences ^{1,3}	3

American history (p. 30)	3
Communication (p. 27)	3
Semester Credit Hours	15
Spring	
ECON 203 Principles of Economics ¹	3
ISTM 210 Fundamentals of Information Systems ¹	3
MARA 212 Business Law ¹	3
MATH 142 Business Calculus ⁴	3
Life and physical sciences (p. 27) ⁵	3
Semester Credit Hours	15
Second Year	
Fall	
ACCT 229 Introductory Accounting ¹	3
BUSN 203 Statistical Methods for Business ¹	3
POLS 206 American National Government	3
Communication (p. 27)	3
Language, philosophy and culture (p. 28)	3
Semester Credit Hours	15
Spring	
ACCT 230 Introductory Accounting ¹	3
POLS 207 State and Local Government	3
American history (p. 30)	3
Creative arts (p. 30)	3
General elective	3
Semester Credit Hours	15
Third Year	
Fall	
MARA 301 Ocean Transportation ¹	3
MARA 363 The Management Process ¹	3
MGMT 311 Legal and Social Environment of Business ¹	3
MARA elective ^{1,6}	3
MARA elective ^{1,6}	3
Semester Credit Hours	15
Spring	
FINC 341 Business Finance ¹	3
MARA 304 Marine Insurance ¹	3
MKTG 321 Marketing	3
Life and physical sciences (p. 27) ⁵	3
MARA elective ^{1,6}	3
Semester Credit Hours	15
Fourth Year	
Fall	
MARA 373 Personnel Management ^{1,7}	3
MARA 440 Global Economy and Enterprise Management ^{1,8,9}	3
SCMT 364 Operations Management ¹	3
Life and physical sciences (p. 27) ⁵	3
MARA elective ^{1,6}	3
Semester Credit Hours	15
Spring	
MARA 421 Admiralty Law ¹	3
MARA 466 Strategic Management ^{1,9}	3

MARA elective ^{1,8}	3
MARA elective ^{1,8}	3
General elective	3
Semester Credit Hours	15
Total Semester Credit Hours	120

¹ Indicates required courses in the Maritime Business Administration major. These courses will be used to compute the major GPA. At the time of graduation, a MBAU major must have a GPA of at least 2.25 in their major. A MBAU major must achieve a grade of C or better in ACCT 229, ACCT 230, ECON 202, and ECON 203 as a graduation requirement. These courses may be repeated as necessary to meet this requirement, and the requirement applies to courses taken at Texas A&M University Galveston Campus or offered for transfer from other institutions.

² Students must register for MARA 205 their first semester at Texas A&M University Galveston Campus.

³ MATH 148, MATH 150, MATH 152, MATH 168, and MATH 172 will be accepted in lieu of MATH 140.

⁴ MATH 147, MATH 151, and MATH 171 will be accepted in lieu of MATH 142.

⁵ Students may satisfy the 9-credit hours of Life and Physical Science requirement through any combination of one, three or four credit hour courses.

⁶ Students should select 18 hours from the following courses: ECON 311, ECON 323, ECON 452; MARA 201, MARA 342, MARA 345, MARA 346, MARA 347, MARA 348, MARA 350, MARA 360, MARA 401, MARA 402, MARA 403, MARA 416, MARA 424, MARA 435, MARA 445, MARA 446, MARA 450, MARA 461, MARA 470, MARA 475, MARA 484, MARA 485, MARA 489, MARA 490, MARA 491, MARA 493 and SCMT 336.

⁷ Satisfies the 3 credit hour Cultural Discourse (p. 48) (CD) requirement.

⁸ Designated writing intensive course.

⁹ Satisfies the 3 credit hour International and Cultural Diversity (p. 49) (ICD) requirement.

TOTAL PROGRAM HOURS 120

All electives must be chosen in consultation with, and approved by, the student's academic advisor. Unless courses are specifically listed, see University Core Curriculum (p.) for a listing of course options for Communication; Mathematics; Life and Physical Sciences; Language, Philosophy and Culture; Creative Arts; American History; Government and Political Sciences; and Social and Behavioral Sciences.

The total hours may be increased if the student is required to take remedial math, remedial English or foreign language courses.

To earn the economics minor, the student's elective hours must include ECON 311, ECON 323, and ECON 452. For additional requirements of the economics minor, please see the Economics - Minor (<https://catalog.tamu.edu/undergraduate/liberal-arts/economics/minor/>).

Maritime Business Administration - 5-Year Bachelor of Science and Master of Maritime Business Administration and Logistics

This combination program enables motivated students to receive their Bachelor of Science in Maritime Business Administration (MBAU) undergraduate degree and a Master of Maritime Business Administration and Logistics (MBAA) graduate degree in five years.

This program allows Maritime Business Administration (MBAU) majors to enter the graduate program for a Master of Maritime Business Administration and Logistics at the beginning of their senior year.

Students admitted to the 5-year combined degree program will have completed coursework required to receive a bachelor's degree. These courses must include the specific prerequisites for a Bachelor of Science degree in Maritime Business Administration, as well as the required Texas A&M University core curriculum courses.

Maritime Business Administration majors who have at least a 3.00 GPA and who have taken all of their prerequisite courses and otherwise completed 60 hours by the spring of their third year will be eligible to apply for the 5-year combined program during their junior year. Applicants interested in the 5-year program should contact the MARA Chair of Graduate Studies and also consult the MARA website. The 5-year combined degree applicants will be judged competitively by the same admission criteria as for other MBAA applicants.

Students will be required to complete graduate hours that include core courses in economics, management, operations and logistics. The electives will be chosen according to the interest of the student in consultation with an academic adviser.

All undergraduate courses are offered on the Galveston Campus. Graduate level courses may be offered as traditional format courses on the Galveston Campus or via asynchronous distance education technology.

Program Requirements

First Year

Fall		Semester Credit Hours
ECON 202	Principles of Economics ¹	3
MARA 205	Introduction to Ships and Shipping ^{1,2}	3
MATH 140	Mathematics for Business and Social Sciences ³	3
American history (p. 30)		3
Communication (p. 27)		3
Semester Credit Hours		15
Spring		
ECON 203	Principles of Economics ¹	3
ISTM 210	Fundamentals of Information Systems ¹	3
MARA 212	Business Law ¹	3
MATH 142	Business Calculus ⁴	3

Life and physical sciences (p. 27) ⁵		3
Semester Credit Hours		15
Second Year		
Fall		
ACCT 229	Introductory Accounting ¹	3
BUSN 203	Statistical Methods for Business ¹	3
POLS 206	American National Government	3
Communication (p. 27)		3
Language, philosophy and culture (p. 28)		3
Semester Credit Hours		15
Spring		
ACCT 230	Introductory Accounting ¹	3
POLS 207	State and Local Government	3
American history (p. 30)		3
Creative arts (p. 30)		3
General elective		3
Semester Credit Hours		15
Third Year		
Fall		
MARA 301	Ocean Transportation ¹	3
MARA 363	The Management Process ¹	3
MGMT 311	Legal and Social Environment of Business ¹	3
MARA elective ^{1,6}		3
MARA elective ^{1,6}		3
Semester Credit Hours		15
Spring		
MARA 304	Marine Insurance ¹	3
MARA 416	Port Operations, Administration and Economics ^{1,7}	3
MARA 440	Global Economy and Enterprise Management ^{1,7,8}	3
Life and physical sciences (p. 27) ⁵		3
MARA elective ^{1,6}		3
Semester Credit Hours		15
Fourth Year		
Fall		
MARA 373	Personnel Management ^{1,9}	3
MARA 421	Admiralty Law ^{1,10}	3
MARA 625	Maritime Law and Policy	3
Life and physical sciences (p. 27) ⁵		3
MARA elective ^{1,6}		3
Graduate elective ¹¹		3
Semester Credit Hours		18
Spring		
MARA 623	Maritime Economics Theory and Applications ¹²	3
MARA 641	Maritime Financial Management ¹²	3
MARA elective ^{1,6}		3
MARA elective ^{1,6}		3
General elective		3
Semester Credit Hours		15

Fifth Year**Fall**

MARA 612	Maritime Human Resource Management	3
MARA 627	Maritime Marketing Services	3
Graduate elective ¹¹		3
Graduate elective ¹¹		3

Semester Credit Hours	12

Spring

MARA 466	Strategic Management ^{1,10}	3
MARA 610	Maritime Strategic Management	3
MARA 664	Maritime Operations Management	3
Graduate elective ¹¹		3
Graduate elective ¹¹		3

Semester Credit Hours	15

Total Semester Credit Hours	150

¹ Indicates required courses in the Maritime Business Administration major. These courses will be used to compute the major GPA. At the time of graduation, a MBAU major must have a GPA of at least 2.25 in their major. A MBAU major must achieve a grade of C or better in ACCT 229, ACCT 230, ECON 202, and ECON 203 as a graduation requirement. These courses may be repeated as necessary to meet this requirement, and the requirement applies to courses taken at Texas A&M University Galveston Campus or offered for transfer from other institutions.

² Students must register for MARA 205 their first semester at Texas A&M University Galveston Campus.

³ MATH 148, MATH 150, MATH 152, MATH 168, and MATH 172 will be accepted in lieu of MATH 140.

⁴ MATH 147, MATH 151, and MATH 171 will be accepted in lieu of MATH 142.

⁵ Students may satisfy the 9-credit hours of Life and Physical Science requirement through any combination of one, three or four credit hour courses.

⁶ Students are required to complete 18 credit hours of MARA electives. Students should choose from the following courses: ECON 311, ECON 323, ECON 452, MARA 201, MARA 342, MARA 345, MARA 346, MARA 347, MARA 348, MARA 350, MARA 360, MARA 401, MARA 402, MARA 403, MARA 424, MARA 435, MARA 445, MARA 446, MARA 450, MARA 461, MARA 470, MARA 475, MARA 484, MARA 485, MARA 489, MARA 490, MARA 491, MARA 493 and SCMT 336.

⁷ Satisfies the writing intensive (W) requirement.

⁸ Satisfies the 3 credit hour International and Cultural Diversity (p. 49) (ICD) requirement.

⁹ Satisfies the 3 credit hour Cultural Discourse (p. 48) (CD) requirement.

¹⁰ Credit by examination given for MARA 421 and MARA 466.

¹¹ Select 15 credit hours from the following graduate level elective courses: MARA 604, MARA 616, MARA 624, MARA 636, MARA 645, MARA 650, MARA 660, MARA 670, MARA 673, MARA 675, MARA 678, MARA 684, MARA 685, MARA 689, MARA 690 and MARA 691.

¹² Courses to be used to meet both undergraduate and graduate requirements.

TOTAL PROGRAM HOURS 156

All electives must be chosen in consultation with, and approved by, the student's academic advisor. Unless courses are specifically listed, see University Core Curriculum (p.) for a listing of course options for Communication; Mathematics; Life and Physical Sciences; Language,

Philosophy and Culture; Creative Arts; American History; Government and Political Sciences; and Social and Behavioral Sciences.

The total hours may be increased if the student is required to take remedial math, remedial English, or foreign language courses.

To earn the economics minor, the student's elective hours must include ECON 311, ECON 323, and ECON 452. For additional requirements of the economics minor, please see the Economics - Minor (<https://catalog.tamu.edu/undergraduate/liberal-arts/economics/minor/>).

Maritime Business Administration - Minor

A minor in maritime business administration gives students a solid foundation in areas concerning maritime business, such as accounting, management and port operations.

The minor in Maritime Business Administration, offered through the College of Marine Sciences and Maritime Studies, is designed to provide students with fundamental knowledge in the business of water transportation. Students are required to complete coursework in general business and the maritime industry, as well as maritime course electives.

Program Requirements

Code	Title	Semester Credit Hours
ACCT 229	Introductory Accounting	3
MARA 301	Ocean Transportation	3
MARA 363	The Management Process	3
Electives ^{1, 2, 3}		9
Total Semester Credit Hours		18

¹ Students should meet with an advisor in the Department of Maritime Business Administration to select the courses most appropriate for their area of interest.

² Select from: ACCT 230, FINC 341, MARA 212, MARA 304, MARA 342, MARA 373, MARA 401, MARA 402, MARA 416, MARA 421, MARA 424, MARA 435, MARA 440, MARA 450, MARA 470, MARA 475, MARA 484, MARA 485, MARA 489, MARA 491, MARA 493 and MKTG 321.

³ To ensure students have adequate depth in the maritime field, electives must be approved for the MBAU-minor dependent on a students' major. Students with no other background or coursework in Maritime Business Administration will be required to select at least 9 hours of MARA courses to support the student's competency in the maritime field.

Maritime Cybersecurity - Minor

Students gain specialized knowledge in protecting maritime IT and operational systems, preparing them to safeguard critical infrastructure in a field of increasing global importance.

The Maritime Cybersecurity Minor is designed to develop the knowledge and skills of students interested in maritime careers. This encompasses protecting both information technology (IT) and operational technology (OT) systems while also safeguarding data in the maritime environment. The world economy, security, and global well-being rely on maritime commerce to transport and distribute goods, services, and personnel either overseas or through inland waterways. These components

collectively comprise the maritime transportation systems which are increasingly targeted by cyberattacks with potentially disastrous results both nationally and internationally. Courses will be focused on developing foundational knowledge and skills.

Program Requirements

Code	Title	Semester Credit Hours
MARA 201	Foundations of Maritime Cyber Security	3
MARA 360	Maritime Cybersecurity Issues	3
MARA 403	Law and Policy in Cybersecurity	3
Select two of the following:		6
CSCE 477/ Cybersecurity Risk CYBR 403		
MARA 304	Marine Insurance	
MARA 401	Brokerage and Chartering	
MARA 416	Port Operations, Administration and Economics	
MARA 450	Maritime Supply Chain Management	
Total Semester Credit Hours		15

Must make a grade of C or better in each course used towards minor.

Minimum required GPA to declare minor is a 2.5.

Department of Maritime Studies

The Department of Maritime Studies in the College of Marine Sciences and Maritime Studies offers the Bachelor of Arts in Maritime Studies. The degree encompasses the past and present relationships between humans and the sea including nautical archaeology, cultural anthropology, world politics, maritime history, maritime literature, tall ship sail training, museum studies, tourism, domestic and international public service, and environmental concerns.

The mission of the Department of Maritime Studies is to provide a robust intellectual foundation for students pursuing occupational and leadership roles in areas such as government, communication, business, non-governmental organizations, public policy, tourism policy, journalism and public relations, archaeology and anthropology, museums and archives, professional diving, and preparation for graduate studies and law school.

Maritime Studies students participate in a variety of state and national programs such as the Model United Nations, Student Conference on National Affairs, and the Bush School Public Service Institute. Students are encouraged to avail themselves of the international educational opportunities available through courses offered in the Texas A&M University Education Abroad Programs Office (<http://abroad.tamu.edu/>).

With faculty maintaining research agendas in a variety of disciplines including politics, history, mass media and communication, English, popular culture, archeology, philosophy, museum studies, anthropology, genocide studies, African-American studies, and mathematics, Maritime Studies builds within students enhanced critical thinking and strong communication skills, while emphasizing the critical nature of multicultural thinking and collaboration in a global economy.

The Department of Maritime Studies provides the skills necessary for students to:

- Lead others through critical thinking, multi-dimensional problem solving, and issue advocacy;
- Be competitive in a multicultural world increasingly interested in college graduates with interdisciplinary backgrounds;
- Inform public policy creation and decision-making from both the governmental and business perspectives;
- Earn internships in areas such as politics, law and legal affairs, communication, for-profit and non-profit organizations, artifact conservation and museum management;
- Prepare for graduate school and law school opportunities;
- Understand the inalienable connections between education, freedom, and democracy.

Faculty

Atassi, Sami H, Instructional Assistant Professor
Maritime Studies
PHD, Indiana University Bloomington, 2023

Ballingall, Timothy, Instructional Assistant Professor
Maritime Studies
PHD, Texas Christian University, 2021

Caton, Amy J, Instructional Associate Professor
Maritime Studies
MLS, University of North Texas, 2012

DiGeorgio-Lutz, JoAnn, Professor
Maritime Studies
PHD, University of North Texas, 1993

Domsy, Darren K, Associate Professor
Maritime Studies
PHD, York University, 2006

Earle, Thomas, Associate Professor
Maritime Studies
PHD, Rice University, 2017

Echols, Katherine E, Instructional Professor
Maritime Studies
PHD, University of Houston, 2015

Falvo, Kathryn R, Assistant Professor
Maritime Studies
PHD, Pennsylvania State University, 2018

Furth, Brett H, Instructional Assistant Professor
Maritime Studies
PHD, Texas A&M University, 2015

Galvan Mandujano, Martha C, Lecturer
Maritime Studies
PHD, The University of Oklahoma, 2015

Haney, Adam D, Instructional Associate Professor
Maritime Studies
MA, Texas A&M University Commerce, 2014

Josvoll, Kristin K, Instructional Associate Professor
Maritime Studies
MA, Johns Hopkins University, 2015

Kates, Cindy, Lecturer
Maritime Studies
EDD, University of South Dakota, 2000
MMU, University of South Dakota, 1995

Kress, Lisa M, Lecturer
Maritime Studies
MFA, University of Houston, 2001

Lamphere, Jenna A, Assistant Professor
Maritime Studies
PHD, University of Tennessee Knoxville, 2016

Ledford, Chris, Instructional Associate Professor
Maritime Studies
MS, Texas A&M University at Corpus Christi, 2003

Mark, Samuel E, Professor
Maritime Studies
PHD, Texas A&M University, 2000

Musgrove, Liz, Instructional Assistant Professor
Maritime Studies
MA, University of North Texas, 2005

Nealon, Bill H, Lecturer
Maritime Studies
MED, Lamar University, 2018

Nyman, Elizabeth A, Associate Professor
Maritime Studies
PHD, Florida State University, 2010

Ottman, Rebecca D, Assistant Professor
Maritime Studies
PHD, Indiana University Bloomington, 2021

Pintacuda, Jesse C, Lecturer
Maritime Studies
BS, Texas A&M University at Galveston, 2008

Presswood, Phillip H, Instructional Assistant Professor
Maritime Studies
MA, University of Houston at Clear Lake, 2011

Slatton, Katie J, Instructional Associate Professor
Maritime Studies
MED, University of Montevallo, 2003

Traber, Daniel S, Professor
Maritime Studies
PHD, University of Houston, 2000

Viser, Victor J, Instructional Associate Professor
Maritime Studies
PHD, Temple University, 1995

Williams, Sara S, Senior Lecturer
Maritime Studies
BS, Texas A&M University, 2000

de Avillez, André Rosenbaum, Visiting Lecturer
Maritime Studies
PHD, The Pennsylvania State University, 2016

Majors

- Bachelor of Arts in Maritime Studies (p. 874)

Minors

- Diving Technology and Methods Minor (p. 875)
- Maritime Environmental Law and Policy Minor (p. 876)

Maritime Studies - BA

Maritime Studies (MAST) offers students a unique opportunity to examine the varied ways humans use and impact coastal and maritime environments.

This program is well suited for students seeking to understand the vital and synergistic relationship humans have with the sea.

With 40% of the world's population living within 60 miles of a coastline, a myriad of interests and demand for jobs dependent upon coastal areas exist, such as:

- Energy exploration and use
- Preservation and conversation of culture
- Historical research
- Underwater archaeology
- Contract archaeology
- Commercial fisheries
- Museums and their management
- Policy changes
- The effects of rising sea levels and changing coastal climates on coastal communities
- Human rights at sea

By studying the history, archaeology, literature, and politics of maritime peoples and cultures from ancient times to present, Maritime Studies graduates gain a comprehensive understanding of the interconnected issues, while achieving an excellent broad-based interdisciplinary education with a distinctive, international emphasis.

Working closely with their undergraduate advisor, students tailor the MAST degree program to suit their interests and career goals, and have many opportunities for enrichment activities contribute to a healthy graduation portfolio. Activities can include enrollment in an internship suited to their career interest, participation in field studies, concentration on a particular topic with a professor of their choice, and/or studying abroad for a semester. MAST students are able to train as a crew member on a working 19th century tall ship, The Elissa. MAST students are encouraged to pursue at least one minor, usually in Anthropology, English, Diving, Museum Studies or History, and many earn two.

Employers understand that students of the liberal arts bring advanced comprehensive problem-solving capabilities to the job market. Upon graduation with the MAST degree, students have acquired valuable critical thinking, reasoning, and communication skills. They are prepared for a diverse choice of fields including, but not limited to, oil and gas administration, environmental management, state and federal agencies, historical and non-profit foundations, museums conservation and

administration, mass and niche communication, nautical and contract archaeology, journalism, education, management, law school, and graduate studies in related fields.

Program Requirements

First Year

Fall		Semester Credit Hours
ENGL 104	Composition and Rhetoric	3
MAST 240	Introduction to Maritime Studies ^{1,2}	3
Life and physical sciences (p. 27)		1
Mathematics (p. 27)		3
Directed elective ^{1,3}		3
Semester Credit Hours		13
Spring		
ENGL 203	Writing about Literature	3
Government/Political science (p. 31)		3
Language, philosophy and culture (p. 28)		3
Mathematics (p. 27)		3
MAST elective ^{1,4}		3
Semester Credit Hours		15

Second Year

Fall		
ANTH 225 & ANTH 226	Introduction to Biological Anthropology and Introduction to Biological Anthropology Laboratory ¹	4
HIST 232	History of American Sea Power	3
Creative arts (p. 30)		3
Social and behavioral sciences (p. 31)		3
Directed elective ^{1,3}		3
Semester Credit Hours		16
Spring		
ANTH 210	Social and Cultural Anthropology ¹	3
POLS 232	Introduction to Maritime Public Policy ¹	3
American history (p. 30)		3
Government/Political science (p. 31)		3
General elective		3
Semester Credit Hours		15

Third Year

Fall		
ANTH 316	Nautical Archaeology ¹	3
MAST 365	Material Culture ¹	3
Life and physical sciences (p. 27)		4
MAST elective ^{1,4}		3
MAST elective ^{1,4}		3
Semester Credit Hours		16
Spring		
ENGL 335	Literature of the Sea ¹	3
HIST 242	United States Maritime History ¹	3
Directed elective ^{1,3}		3
MAST elective ^{1,4}		3

MAST elective ^{1,4}		3
Semester Credit Hours		15
Fourth Year		
Fall		
ENGL 415	Studies in a Major Author ¹	3
MAST 425	Thesis and Technical Writing ¹	3
MAST elective ^{1,4}		3
MAST elective ^{1,4}		3
General elective		3
Semester Credit Hours		15
Spring		
MAST 411	International Maritime Culture ¹	3
Directed elective ^{1,3}		3
MAST elective ^{1,4}		3
MAST elective ^{1,4}		3
General elective		3
Semester Credit Hours		15
Total Semester Credit Hours		120

¹ Must make a grade of C or better.

² Required the first semester in the MAST program.

³ Select from ANTH 202, ANTH 313, ANTH 350, ANTH 409, ANTH 423, ANTH 485; COMM 203, COMM 365/JOUR 365; ENGL 330, ENGL 334, ENGL 338, ENGL 339/AFST 339, ENGL 374/WGST 374, ENGL 484, ENGL 485; HIST 226, HIST 370, HIST 373, HIST 374, HIST 405, HIST 485; KINE 199; MARA 212, MARA 421, MARA 435, MARA 470; POLS 353, POLS 366; SPAN 101, SPAN 102, SPAN 201, SPAN 202. A maximum of 3 hours of KINE 199, and a maximum of 3 hours of 484 or 485 may be used for directed electives.

⁴ Select from ANTH 318, ANTH 330, ANTH 351, ANTH 484; CLAS 371; MAST 200-499 (p. 1133) (except MAST 365, MAST 480, MAST 481); PHIL 314; POLS 231, POLS 347. A maximum combination of 6 hours of 484, 485 and/or 491 may be used as MAST electives.

Students in the BA-MAST program must maintain a portfolio of artifacts from MAST required coursework. The portfolio is developed over the course of the undergraduate career, and upon completion, will contain artifacts from each MAST required course. The Portfolio is assessed for completion during the last term of enrollment, after the student submits the graduation application. The completion of the portfolio requirement will be assessed by the Maritime Studies faculty.

Diving Technology and Methods - Minor

The minor in Diving Technology and Methods combines practical scuba training with advanced coursework highlighting scientific and specialized applications of diving.

Students gain professional diving certifications and experience in scientific diving research. Students in any major may establish a minor field of study in Diving Technology and Methods through completing hours from the designated courses.

In addition to the course requirements, students must:

- Maintain compliance with training agency requirements
- Maintain a GPA of 2.5

- Maintain good health and fitness appropriate to the level of diving required. Adverse behaviors that put the diver or other participants at risk such as the use of alcohol or certain medicines may require the diver to be removed from the program.

Program Requirements

Code	Title	Semester Credit Hours
Select from:		16
KINE 199	Required Physical Activity (Conditioning Swimming)	
KINE 199	Required Physical Activity (Positive Impact Diving)	
DIVE 250	SCUBA Diving I	
DIVE 251	SCUBA Diving II	
DIVE 260	Scuba Diving III	
DIVE 310	Techniques in Boat and Wreck Diving	
DIVE 330	Rescue Diving	
DIVE 331	Alternative Diving Technology	
DIVE 357	Dive Leadership – Divemaster	
DIVE 405	Expedition Planning	
DIVE 410	AAUS Scientific Diving	
DIVE 411	Offshore Research Diving	
DIVE 430	Techniques in Overhead Environment Diving	
DIVE 440	Decompression and Mixed Gas Procedures	
DIVE 489	Special Topics In...	
Total Semester Credit Hours		16

Minimum of 8 hours at 300-400 level.

Must complete a medical statement or have recreational scuba divers physician examination.

Must maintain a GPA of 2.5.

Must maintain good health and fitness appropriate to the level of diving required.

Maritime Environmental Law and Policy - Minor

This minor provides the perfect platform for students looking to launch a career in law, business or public policy.

The Maritime Environmental Law and Policy minor focuses on the rules that govern acceptable human impacts on the environment, the policy processes for creating those rules, as well as the incentives created by those rules. As maritime environmental issues become more prominent, students will understand relevant statutes and doctrine and their real-world application in maritime affairs, as well as interdisciplinary approaches to maritime and environmental management while exploring legal aspects of ocean and coastal policy issues.

Program Requirements

Code	Title	Semester Credit Hours
POLS 232	Introduction to Maritime Public Policy	3
POLS 347	Politics of Energy and the Environment	3
MARA 470	Environmental Law	3
Select two of the following:		6
MARA 421	Admiralty Law	
MARA 435	Labor Law and Policy	
MARS 280	Coastal and Ocean Resources	
PHIL 314	Environmental Ethics	
SOCI 328	Environmental Sociology	
Total Semester Credit Hours		15

Minimum of 2.5 GPA in minor coursework.

Students must make a grade of C or better in all courses.

Department of Maritime Transportation

The Department of Maritime Transportation courses prepare students to ensure they meet all the requirements to hold a U.S. Coast Guard Third Mate's license of any gross tonnage upon oceans, steam, or motor vessels and issuance of International Standards of Training, Certification and Watchkeeping (STCW) endorsements. Earning a deck license means students will learn to navigate a vessel, handle cargo, and operate and maintain a variety of ship systems. Skills are learned through extensive theoretical education that is applied practically via navigation, seamanship, ship construction, ship handling, and stability training on campus in state-of-the-art ship simulators as well as aboard training vessels and commercial vessels. The Marine Transportation core also provides a broad maritime education to produce a well-trained and knowledgeable ship's officer and combines studies in the humanities and sciences.

Cadets are also provided with solid fundamentals in business topics related to the maritime industry, ashore and afloat. Cadets take courses which provide a broad understanding of management issues and specific skills required for critical thinking and decision making in business. These skills complement the maritime operations education and strengthen their performance as shipboard officers. Cadets gain a foundation in business administration allowing them to pursue shore-side opportunities in maritime business, logistics, and operations.

The department also offers advanced elective courses in relevant subject areas. These courses can be grouped by cadets interested in pursuing an academic minor to gain a more in-depth exposure to a particular subject area. Students should contact their academic advisor for specific information and advice.

In addition to satisfying the institution's higher education accreditation requirements, the department's program must also comply with domestic and international laws and standards related to maritime education. The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), as amended, sets qualification standards for masters, officers, and watch-keeping personnel on

seagoing merchant ships. The STCW Code and the U.S. Code of Federal Regulations establish the standards that the U.S. Coast Guard uses to license U.S. Merchant Mariners. Courses earning USCG or STCW qualifications, sea-time, or STCW competency certification require a minimum grade of C (70%). In addition, all STCW proficiencies must be satisfactorily completed with a grade of 70% or better (See applicable course outlines available through the department).

Cadets who enroll in and apply to graduate in Marine Transportation must successfully complete the license examination for Third Mate to graduate from Texas A&M University.

Faculty

Allen, Jonathon, Assistant Professor of the Practice
Maritime Transportation
BS, U.S. Merchant Marine Academy, 2014

Barrows, Timothy, Assistant Professor of the Practice
Maritime Transportation
BS, Texas A&M University at Galveston, 2017

Davidson, Dillon, Assistant Professor of the Practice
Maritime Transportation
MIA, Texas A&M University, 2024

Edenfield, George, Professor of the Practice
Maritime Transportation
MA, American Military University, 2013

Faris, Joseph Basam, Associate Professor of the Practice
Maritime Transportation
BS, Texas A&M University at Galveston, 2011

Fazioli, Andrea L, Assistant Professor of the Practice
Maritime Transportation
BS, Texas A&M University at Galveston, 1994

Gillespie, Patrick Joesph, Assistant Professor of the Practice
Maritime Transportation
BS, Ferris State University, 2009

Griffitts, Joshua Todd, Assistant Professor of the Practice
Maritime Transportation
BS, Texas A&M University, 2017

Kieffer, Kristi R, Associate Professor of the Practice
Maritime Transportation
BS, Texas A&M University at Galveston, 2012

Kieffer, Stephen A, Lecturer
Maritime Transportation
BS, Arizona State University, 1987

Murray, Ny'Eshia N, Assistant Professor of the Practice
Maritime Transportation
BS, Texas A&M University at Galveston, 2012

Nelick, Timothy F, Senior Professor
Maritime Transportation
BS, Texas A&M University at Galveston, 1987

Peterlin, John G, Associate Professor of the Practice
Maritime Transportation
BS, United States Merchant Marine Academy, 1976

Rodriguez, Andrea, Assistant Professor of the Practice
Maritime Transportation
BS, Texas A&M University at Galveston, 2013

Roth, Augusta D, Professor of the Practice
Maritime Transportation
DBA, Walden University, 2018

Vechan, Ryan J, Associate Professor of the Practice
Maritime Transportation
JD, University of Houston, 2014

Weaver, Stephen R, Assistant Professor of the Practice
Maritime Transportation
BS, Texas A&M University at Galveston, 2017

Majors

- Bachelor of Science in Marine Transportation (p. 877)

Marine Transportation - BS

This degree combines maritime expertise with business acumen, enabling students to excel as licensed officers and pursue advanced opportunities in global shipping and logistics.

The Department of Maritime Transportation program combines instruction and training in maritime disciplines with studies in the humanities and sciences to ensure students satisfy the institution's higher education accreditation requirements for a Bachelor of Science degree in Marine Transportation. The program also meets all the training and education requirements to prepare students to hold a U.S. Coast Guard Third Mate's license of any gross tonnage upon oceans, steam, or motor vessels and for issuance of an International Standards of Training, Certification and Watchkeeping (STCW) endorsement as Officer-In-Charge of a Navigation Watch (OICNW). Earning a deck merchant mariner credential means students will learn to navigate a vessel, handle cargo, and operate and maintain a variety of ship systems. Skills are learned through extensive theoretical education that is applied practically via navigation, seamanship, ship construction, ship handling, and stability training on campus in state-of-the-art ship simulators as well as aboard training vessels and commercial vessels. The Marine Transportation core provides a broad maritime education to produce a well-trained and knowledgeable ship's officer.

Cadets are also provided with solid fundamentals in business topics related to the maritime industry, ashore and afloat. Cadets take courses which provide a broad understanding of management issues and specific skills required for critical thinking and decision making in business. These skills complement the maritime operations education and strengthen their performance as shipboard officers. Cadets gain a foundation in business administration allowing them to pursue shore-side opportunities in maritime business, logistics, and operations.

The department also offers advanced elective courses in relevant subject areas. These courses can be grouped by cadets interested in pursuing an academic minor to gain a more in-depth exposure to a particular subject area. Students should contact their academic advisor for specific information and advice.

The department's program must also comply with domestic and international laws and standards related to maritime education. The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), as amended, sets qualification

standards for masters, officers, and watch-keeping personnel on seagoing merchant ships. The STCW Code and the U.S. Code of Federal Regulations establish the standards that the U.S. Coast Guard uses to license U.S. Merchant Mariners. Courses earning USCG or STCW qualifications, sea-time, or STCW competency certification require a minimum grade of C (70%). In addition, all STCW proficiencies must be satisfactorily completed with a grade of 70% or better (See applicable course outlines available through the department).

Cadets who enroll in and apply to graduate in Marine Transportation must successfully complete the license examination for Third Mate to graduate from Texas A&M University.

Program Requirements

First Year

Fall		Semester Credit Hours
MART 103	Basic Safety and Lifeboatman Training ^{1,2}	3
MART 115	Seamanship I ^{1,2}	3
MATH 140 or MATH 150	Mathematics for Business and Social Sciences or Functions, Trigonometry and Linear Systems	3
American History (p. 30)		3
Communication (p. 27)		3
Life and Physical Sciences (p. 27)		1
Semester Credit Hours		16
Spring		
MART 130	Introduction to Maritime Law ^{1,2}	1
MART 201	Vessel Structure and Ship Knowledge ^{1,2}	3
MART 204	Terrestrial Navigation I ^{1,2}	3
MATH 142 or MATH 151	Business Calculus or Engineering Mathematics I	3
NVSC 200	Naval Science for the Merchant Marine Officer ^{1,2}	3
PHYS 201	College Physics	4
Semester Credit Hours		17
Summer		
MART 200	Deck Sea Training I: Basic Communications, Navigation and Seamanship ^{1,2}	4
Semester Credit Hours		4

Second Year

Fall		
ECON 203 or ECON 202	Principles of Economics or Principles of Economics	3
MART 202	Ship Stability and Trim ^{1,2}	3
MART 212	Marine Dry Cargo Operations ^{1,2}	3
MART 215	Seamanship II ^{1,2,3}	3
MART 225	Terrestrial Navigation II ^{1,2}	3
Semester Credit Hours		15
Spring		
MART 210	Integrated Navigation I: RADAR/ARPA/ ECDIS ^{1,2}	4
MART 303	Celestial Navigation ^{1,2}	3

MART 313	Marine Liquid Cargo Operations ^{1,2}	3
PHYS 202	College Physics	4
Communication (p. 27)		3
Semester Credit Hours		17
Summer		
MART 300 or MART 350	Deck Sea Training II: Intermediate Communications, Navigation and Seamanship ^{1,2} or Deck Sea Training II – Commercial Internship	4
Semester Credit Hours		4
Third Year		
Fall		
MART 208	Maritime Meteorology ^{1,2}	3
MART 310	Integrated Navigation II: Electronic Navigation ^{1,2}	3
MART 321	Navigation Rules - International and Inland ^{1,2}	2
POLS 206	American National Government	3
American History (p. 30)		3
Semester Credit Hours		14
Spring		
MARA 201	Foundations of Maritime Cyber Security ¹	3
MARA 301	Ocean Transportation ¹	3
MART 307	Global Maritime Distress Safety System ^{1,2}	3
MART 315	Integrated Navigation III - Shiphandling for the Mariner ^{1,2}	2
POLS 207	State and Local Government	3
Directed Elective ^{1,4}		3
Semester Credit Hours		17
Summer		
MART 400	Deck Sea Training III: Advanced Communications, Navigation and Seamanship ^{1,2}	4
Semester Credit Hours		4
Fourth Year		
Fall		
MARA 416	Port Operations, Administration and Economics ^{1,6}	3
MARA 421	Admiralty Law ¹	3
MART 401	Maritime Security ^{1,2}	3
MART 498	Maritime Medical Care Provider ^{1,2,5}	2
Language, Philosophy and Culture (p. 28)		3
Semester Credit Hours		14
Spring		
MART 404	The Navigator ^{1,2}	2
MART 410	Bridge Resource Management ^{1,2,6}	2
Creative Arts (p. 30)		3
Directed Elective ^{1,4}		3
Directed Elective ^{1,4}		3
Semester Credit Hours		13
Total Semester Credit Hours		135

- ¹ Indicates required courses in the Marine Transportation major. These courses will be used to compute the major GPA, which must be at least 2.25.
- ² Indicates license courses leading to a USCG/STCW license endorsement or sea time credit accrual which require a minimum grade of C or better to earn the endorsement or accrual. Students will be required to repeat the course until they earn a grade of C or better. MART 307 GMDSS requires a score of 75 percent or better.
- ³ Indicates a course that satisfies the writing intensive course requirements of the University.
- ⁴ Approved MART Directed Electives include but are not limited to ACCT 229; MARA 304, MARA 342, MARA 346, MARA 348, MARA 360, MARA 363, MARA 373, MARA 401, MARA 402, MARA 424, MARA 435, MARA 440, MARA 450; MART 100-499 (<https://catalog.tamu.edu/undergraduate/course-descriptions/mart/>).
- ⁵ MART 498 must be taken within one year of graduation to receive USCG approval.
- ⁶ Indicates a course that satisfies the oral communication course requirements of the University.

All electives must be chosen in consultation with, and approved by, the student's academic advisor. Unless courses are specifically listed, see University Core Curriculum (p. 26) for a listing of course options for Communication; Mathematics; Life and Physical Sciences; Language, Philosophy and Culture; Creative Arts; American History; Government and Political Sciences; and Social and Behavioral Sciences. The 6-hour University Core Curriculum (p. 26) requirement for International and Cultural Diversity (<https://catalog.tamu.edu/undergraduate/general-information/degree-information/international-cultural-diversity-requirements/>) and Cultural Discourse (<https://catalog.tamu.edu/undergraduate/general-information/degree-information/cultural-discourse-requirements/>) may be met with courses used to satisfy other degree requirements.

MART students are required to earn a grade of C or better in all MART courses, including electives in field.

The total hours may be increased if the student is required to take remedial math, remedial English, foreign language or International and Cultural Diversity (p. 49) courses.

This degree requires full participation in the Texas A&M University Maritime Academy Corps of Cadets as a qualified license option cadet. Refer to the University catalog section for the Texas A&M Maritime Academy for additional information. In addition to the academic requirements outlined here, the cadet must also complete the following requirements to receive the degree:

- Successfully complete required sea service and minimum training cruise requirements.
- Pass a comprehensive professional examination (either the Third Mate Unlimited- Oceans or Third Assistant Engineering Unlimited) administered by the U.S. Coast Guard (USCG).
- Successfully complete all competencies required by the International Convention on Standards for Training, Certification and Watchkeeping (STCW).

Note: STCW competency certifications expire 5 years after completion. If the cadet does not complete the degree within that time period, the cadet will be required to revalidate the expired competency prior to graduation.

University Studies Programs

The College of Marine Sciences and Maritime Studies offers degrees in University Studies. A University Studies degree differs from a traditional "major" in that it consists of a concentration and two minors of 15-18 hours each. The University Studies degree format was created to provide students the flexibility to combine areas of study that are of special interest.

Majors

- Bachelor of Science in University Studies, Oceans and One Health Concentration (p. 879)
- Bachelor of Science in University Studies, Tourism and Coastal Community Development Concentration (p. 880)

University Studies - BS, Oceans and One Health Concentration

Oceans and One Health is an interdisciplinary concentration that allows the student to explore the intersection between human, animal, and environmental health specific to the coastal environment.

This degree program is intended for students who wish to pursue medical, dental, veterinary, or health-professional degrees or those interested in health issues in urbanized coastal communities. It is a flexible but robust program that provides opportunities for students to have a solid background in the physical and biological sciences, environmental science, and/or health-related disciplines. Students can choose their focus from a diverse list of concentration electives and minors to tailor their degree to their professional goals.

Through a partnership with the University of Texas Medical Branch (UTMB) in Galveston our Oceans and One Health students who apply and are admitted to UTMB after completing 95 hours at TAMUG have the option to obtain a minor in Clinical Laboratory Sciences, which includes the first semester coursework for the MS degree in Clinical Laboratory Sciences at UTMB.

This concentration is housed in the Foundational Sciences Department.

Students in this program may choose to pursue secondary (grades 8 thru 12) science teaching certification. Please consult with Department of Foundation Sciences.

Program Requirements

Code	Title	Semester Credit Hours
FSCI 281	Oceans and One Health Sophomore Seminar	1
FSCI 334	One Health in Coastal Regions	3
FSCI 360	Biochemistry	4
FSCI 428	Coastal Development and Human Health	3
MARB 303	Biostatistics	3
or STAT 303 or Statistical Methods		

OCNG 251	The Blue Planet - Our Oceans	4
& OCNG 252	and The Blue Planet - Our Oceans Laboratory	
Select 6 hours from the following:		6
BIOL 351	Fundamentals of Microbiology	
CHEM 383	Chemistry of Environmental Pollution	
MARB 301	Genetics	
MARB 310	Introduction to Cell Biology	
MARB 401	Physiological Ecology of Marine Mammals	
or MARB or Comparative Animal Physiology		
MARB 414	Toxicology	
MARB 430	Coastal Plant Ecology	
MARS 325	Introduction to GIS for Marine Sciences	
OCNG 320	Biological Oceanography	
University and College Requirements		
BIOL 111	Introductory Biology I	4
CHEM 119	Fundamentals of Chemistry I	4
CHEM 120	Fundamentals of Chemistry II	4
ENGL 104	Composition and Rhetoric	3
POLS 206	American National Government	3
POLS 207	State and Local Government	3
PBSI 107	Introduction to Psychology	3
or MARS 21 or Marine Geography		
American history (p. 30)		6
Communication (p. 27)		3
Creative arts (p. 30)		3
Language, philosophy and culture (p. 28)		3
Mathematics (p. 27)		6
Minor 1		15-18
Minor 2		15-18
General electives		15-21
Total Semester Credit Hours		120

All University Studies degree plans require at least 120 hours for completion. A University Studies Degree consists of a concentration of 21-24 hours and two minors of 15-18 hours each. Specific courses may be required for the completion of the hours in the concentrations and minors. Some concentrations and minors contain required courses that have additional prerequisites. One of the two minors must be completed in a college outside of the college that provides the concentration for the student's degree.

University Studies - BS, Tourism and Coastal Community Development Concentration

This concentration transforms students into a new class of professionals with the knowledge and skills to help coastal communities progress, while maintaining sound ecological and environmental practices.

Students who are currently enrolled at Texas A&M University Galveston campus may submit proposals to enroll as University Studies majors.

The University Studies degree format was created to provide students the flexibility to combine areas of study within either or both campuses that are of special interest. This flexibility may be attractive to students who have particular career paths or post-baccalaureate degree paths in mind.

Specific courses may be required for the completion of the hours in the concentrations and minors. Some concentrations and minors contain required courses that have additional prerequisites. One of the two minors must be completed in a college outside of the college that provides the concentration for the student's degree.

Students must submit a Proposed Course Form that lists the courses for the individual degree plan the student hopes to complete to the University Studies admissions committee. The application includes a required 2-3 page essay in which the student can explain how the degree will help the student meet the desired educational and personal goals. Once it is determined that the Proposed Course Form has been completed with appropriate information, it will be reviewed by the department that offers the concentration. Students must be in good academic standing, and they must have good academic standing in previous courses that count toward the area of concentration or minors.

A University Studies major will be considered a student in the department that offers the concentration; the Tourism and Coastal Community Development concentration is housed in the Maritime Studies department. The student's diploma will list Bachelor of Arts or Bachelor of Science in the same place it is currently listed, and University Studies will be listed in the place the major is currently listed. The student's area of concentration and the two minors will be indicated on the student's transcript.

The concentration in Tourism and Coastal Community Development requires major coursework and equips students with the knowledge and skills to help coastal communities progress, while maintaining sound ecological and environmental practices. Such thinking involves an interdisciplinary approach that engenders creative and critical thinking about such issues as maritime public policy, communication, marine science, sociology, and ecology. Students graduate with the capability to guide industry and community toward a path that is both sustainable and economically beneficial. TCD career opportunities include:

- Ecotourism
- Coastal community planning and development
- Environmental policy and legislative affairs
- Sports tourism
- Convention and tourism offices
- Hospitality industry liaison
- Tourism sociological impact researcher
- Ecological economics
- NGOs and international social justice legal centers
- Congressional and legislative assistant

The student must complete a minimum coursework in residence at Texas A&M University Galveston campus.

Program Requirements

Code	Title	Semester Credit Hours
HMGT 302	Application of Tourism Principles	3
HMGT 426	Sustainable Tourism	3

SOCI 205	Introduction to Sociology ¹	3
SOCI 320	Demographic Methods	3
SOCI 404/ RPTS 404	Sociology of the Community	3
Concentration Electives ²		9
University and College Requirements		
ENGL 104	Composition and Rhetoric	3
COMM 203	Public Speaking	3
Mathematics (p. 27)		6
Life and physical sciences (p. 27)		9
Creative arts (p. 30)		3
Language, philosophy and culture (p. 28)		3
Social and behavioral sciences (p. 31)		3
American history (p. 30)		6
POLS 206	American National Government	3
POLS 207	State and Local Government	3
Minor 1		15-18
Minor 2		15-18
General electives ³		18-24
Total Semester Credit Hours		120

¹ Required the first semester in the TCC Program.

² Select from COMM 365/JOUR 365; ECON 202; HMG 331, HMG 340; MARS 280; MAST 425, MAST 484, PHIL 314; POLS 232, POLS 340/PSAA 340; SOCI 312, SOCI 328, SOCI 484.

³ Hours must be in 100-499 courses not used elsewhere.

⁴ All University Studies degree plans require at least 120 hours for completion. A University Studies Degree consists of a concentration of 21-24 hours and two minors of 15-18 hours each. Specific courses may be required for the completion of the hours in the concentrations and minors. Some concentrations and minors contain required courses that have additional prerequisites. One of the two minors must be completed in a college outside of the college that provides the concentration for the student's degree.

TEXAS A&M UNIVERSITY AT QATAR

General Statement

Texas A&M's branch campus in Qatar, part of the 2,500-acre multi-institutional campus known as Education City, formally opened on September 7, 2003, offering undergraduate degree programs in chemical, electrical, mechanical, and petroleum engineering. Texas A&M's engineering program is widely considered among the best in America, and the curricula offered at the Qatar campus are materially the same as those offered at the main campus located in College Station, Texas. Texas A&M University at Qatar is fully funded by the Qatar Foundation for Education, Science, and Community Development and provides a unique opportunity for the University to expand its international presence and provide educational and research opportunities for faculty and students.

Mission Statement

The mission of the Qatar campus is to develop exemplary engineers and leaders through internationally recognized undergraduate and graduate degree programs. Texas A&M at Qatar generates new knowledge and intellectual capital through innovative research and collaborative partnerships that yield sustainable impacts. In all of its efforts, Texas A&M at Qatar serves the needs of the State of Qatar and the region through broad expertise and engagement that expands human capital.

Texas A&M University at Qatar Joint Advisory Board

The Joint Advisory Board (JAB) of Texas A&M University at Qatar was established May 25, 2003, between Texas A&M University and Qatar Foundation for Education, Science and Community Development to provide advice regarding the management and operation of Texas A&M at Qatar the Dean and CEO and to Qatar Foundation. The JAB is primarily responsible for ongoing review and evaluation of the success of Texas A&M at Qatar.

Joint Advisory Board Members

His Excellency Dr. Mohammed bin Saleh Al-Sada — Chairman
Former Minister of Energy and Industry, State of Qatar

Dr. Alan R. Sams — Vice Chair
Provost and Executive Vice President, Texas A&M University

Dr. N. K. Anand
Regents Professor of Mechanical Engineering, Texas A&M University

Engineer Mohamed Salem Al-Marri
Executive Vice President of Projects, Engineering and Procurement Services, QatarEnergy

Dr. Robert H. Bishop
Vice Chancellor for Engineering, The Texas A&M University System
Dean of Engineering, Texas A&M University
Director, Texas A&M Engineering Experiment Station

Mr. Bill Bullock, Jr.
Executive Vice President and Chief Financial Officer, ConocoPhillips

Dr. Mounir Hamdi
Founding Dean, College of Science and Engineering

Hamad Bin Khalifa University

Mr. Taher Hamid
President and General Manager, ExxonMobil Qatar

Mr. Shannon Slocum
President, Eastern Hemisphere, Halliburton

Ex-officio Members

Mr. Francisco J. Marmolejo
Higher Education President and Education Advisor, Qatar Foundation for Education, Science and Community Development (QF)

Dr. César O. Malavé
Dean, Texas A&M University at Qatar

Dr. Patrick Linke, Secretariat
Executive Associate Dean, Texas A&M University at Qatar

Texas A&M University at Qatar Senior Leadership

The leadership of Texas A&M University at Qatar is responsible for the vision of the campus. This vision is simple: to be the premier provider of engineering education in the region, a significant contributor to knowledge internationally and an essential resource to the State of Qatar.

Dr. César O. Malavé, PhD, PE
Dean

Dr. Patrick Linke, PhD
Senior Associate Dean

Dr. Brady Creel, PhD
Assistant Dean for Strategic Communication and Chief of Staff

Dr. Ryan McLawhon, PhD
Assistant Dean for Academic Services and Student Affairs

Ms. Rosalie Nickles
Assistant Dean for Finance, Compliance and Administrative Procedure

Qatar Foundation and Education City

Founded in 1995 by His Highness Sheikh Hamad bin Khalifa Al-Thani, who was then the emir and now is the father emir, the Qatar Foundation for Education, Science and Community Development's guiding principle is that a nation's most valuable natural resource is its people. The foundation's symbol is the Sidra tree, whose deep, solid roots reflect the foundation's regard for Qatari culture and whose fruits carry the seeds of hope for a better tomorrow.

Her Highness Sheikha Moza bint Nasser serves as chairperson of the Qatar Foundation and guides the nonprofit organization's programs and philosophies. Among those philosophies is a commitment to making Qatar a world-renowned center for higher learning.

To that end, the Qatar Foundation's most visionary undertaking, Education City, was founded in 1997. The 2,500-acre complex in Doha, Qatar, boasts state-of-the-art facilities and a forward-thinking agenda that has enticed some of the world's top universities to open branch campuses. In 2003, Texas A&M at Qatar joined Virginia Commonwealth

University School for the Arts and Weill Cornell Medical College in offering undergraduate degree programs at Education City. In 2004, Carnegie Mellon University came aboard, followed by Georgetown University in 2005, Northwestern University in 2008 and HEC Paris in 2011. It is also the home of Hamad bin Khalifa University. In addition, the Qatar Science and Technology Park, an extensive, state-of-the-art research complex, is providing opportunities for research partnerships between business, government and academic institutions.

The missions of Education City are clearly defined: to prepare world-class graduates capable of assuming professional leadership positions in Qatar, throughout the Gulf region, and around the world, and to make Qatar a world leader in higher education and cutting-edge research. Texas A&M at Qatar is proud to take part in achieving the goals of the Qatar Foundation, which so closely resemble its own commitments to education and community service.

General Information (p. 883)

Minors

- Chemistry Minor (p. 323)
- Electrical Engineering Minor (p. 648)
- Geology Minor (p. 388)
- Mathematics Minor (p. 444)
- Physics Minor (p. 471)

Interdisciplinary

- Entrepreneurship Minor (p. 122)

Certificates

The College of Engineering has designed several certificate programs to offer ambitious students the opportunity to go beyond the traditional curriculum and gain specific knowledge in a concentration area. Students are required to consult with their academic advisor prior to submitting an application for a certificate. Enrolling and being accepted into a certificate program does not guarantee registration into required courses or that courses will be offered at Texas A&M University at Qatar. For specific information on each certificate available, visit the College of Engineering website.

Texas A&M Qatar Campus

General Information

General Statement

The accelerating pace of industrial and technological developments has created an ever-increasing demand for highly qualified, professional engineers to maintain the momentum already achieved, and to extend and direct the course of these developments. The ever-expanding population and the increased demands for goods and services have imposed new challenges to provide effective solutions while minimizing unwanted side effects. Engineers recognize that all actions taken have their respective costs, and that solutions to long-standing societal problems are found in careful, thorough planning and study. With a pragmatic background in problem solving, engineers are perhaps best qualified to address society's problems.

Texas A&M University's College of Engineering strives to provide its students with a high-quality education that will prepare them for a wide range of careers at the forefront of the engineering field. The curriculum

is designed to accomplish this by closely integrating cutting-edge basic and applied research with innovative classroom instruction. Texas A&M University's engineering programs are routinely ranked among the best in the U.S., and graduates are highly recruited to provide leadership and innovative solutions to global challenges.

Our faculty members maintain active research programs in a wide range of areas. In addition, our undergraduate students participate in numerous co-op and internship programs, which give them the opportunity to apply their knowledge to real-world challenges in a variety of settings.

At Texas A&M University at Qatar, engineering students take courses in the fundamental disciplines—mathematics, sciences, and liberal arts—that will prepare them for the rigorous technical training that follows. This training is dedicated to specialized studies in one of the four engineering fields offered at Texas A&M University at Qatar. Combining intensive and demanding coursework with practical experience means students are ready to step into their professional fields and make immediate and meaningful contributions.

College Prerequisite Policy

The following prerequisite policy applies to any student in a College of Engineering undergraduate degree program and to any student who seeks admission to an undergraduate degree program in the College of Engineering. This policy is in addition to prerequisite policies imposed by the University (Texas A&M University Student Rules). For complete details concerning this policy, students should contact their Undergraduate Advising Office.

Students must earn a grade of C or better in all courses identified in each College of Engineering undergraduate degree program and any prerequisites for these courses. If a student earns a grade of D or F in any of these courses, the student is required to repeat the course before enrolling in a more advanced course that has the D/F course as a prerequisite. A student may attempt a course no more than three times, including courses graded Q or W but excluding those graded NG, unless approval has been received from their department. A student must complete all prerequisites for a course with a grade of C or better by the start of the semester in which the student plans to enroll in the course.

A student is responsible for checking the prerequisites for each course to ensure the prerequisite requirements have been satisfied. A student who registers for a course for which he/she lacks the necessary prerequisite course(s) and/or the prerequisite grade requirement will be required to drop the course. A student who is told to drop a course and is still enrolled by the deadline set each semester may be administratively dropped by their department. If a student is administratively dropped from a course, the student is responsible for all financial obligations associated with the drop. An administrative drop may adversely impact (including, but not limited to): health insurance benefits, financial aid, athletic eligibility, INS status, veterans' benefits, and eligibility to participate in extracurricular activities.

Other Requirements

All required coursework must be taken for a grade to satisfy requirements for a degree in the College of Engineering. Courses cannot be taken on a satisfactory/unsatisfactory basis to satisfy this requirement.

ENGR^{IX}

ENGR^{IX} is a college-wide, zero-credit-hour required program that is composed of approved engineering-centric activities that meet the criteria of high-impact learning experiences. Undergraduate students

can use their participation in one of these activities to partially satisfy their ENGR^[X] requirement. Full satisfaction of the ENGR^[X] requirement includes participating in an engineering-centric activity and submitting a meaningful, self-reflection that discusses the experience and overall impact on the student's education.

Each engineering department identifies the activities it will accept in satisfying a student's ENGR^[X] requirement. Students should consult with their academic advisor for approved activities.

More information on ENGR^[X] at Texas A&M University at Qatar can be found at <https://www.qatar.tamu.edu/students/academic-services/engrx> (<https://www.qatar.tamu.edu/students/academic-services/engrx/>).

Course Credit

Credit by Examination

Undergraduate students at Texas A&M University at Qatar may earn course credit by demonstrating superior achievement on tests offered through several examination programs. Credit earned by examination does not contribute to a student's grade point ratio. The university awards credit for scores on certain tests published by the Advanced Placement Program (AP), the SAT Subject Tests and the International Baccalaureate (IB) Program. Score minimums to be eligible for credit can be found on the Testing Services website (<https://testing.tamu.edu/>). In some instances, Texas A&M University at Qatar also offers qualified students opportunities to earn credits by taking departmental examinations prepared by the faculty. Additional information concerning credit by examination or departmental examinations may be obtained from the Academic Services Office (<https://www.qatar.tamu.edu/students/academic-services/>).

Registration and Academic Status

Registration for the fall and spring semesters is accomplished at several times. During the fall and spring semesters (in November and April), a preregistration period is held for currently enrolled and readmitted students to register for the next semester. There are periods of announced open registration for students who were unable to preregister during the scheduled preregistration period. New undergraduate students are registered by staff in the Academic Services Office prior to and after Aggie Life 101. Further information concerning registration may be obtained from the academic calendar published in this catalog or from the Office of Records. The schedule of classes is available online.

More information may be found here (p. 79).

Grading System

Because students attend a college or university to extend their education, grades are usually given as an indication of the proficiency of their endeavors. The student's semester grade in a course shall be based upon performance and/or participation in class, exercises and tests, laboratory work and final examination as applicable to the course. The proportionate weight assigned to each of the factors shall be determined by the department administering the course.

More information may be found here (p. 81).

Withdrawal from Texas A&M University at Qatar

An official withdrawal from the university will result when a student drops all in progress and courses not yet started in a particular term. A student who withdraws from the university before the completion of a semester or summer term is required to comply with the official withdrawal procedure. This process is initiated by submitting a request through the Howdy portal; the University Clearance Form (<https://www.qatar.tamu.edu/students/office-of-records/student-forms/>) found on the Office of Records website must also be submitted. Students may not withdraw after the Q-drop deadline. The student's dean will retain the authority to support a student withdrawal after the deadline.

If a student is enrolled in one or more inter/intra-session ("minimesters") or summer terms and chooses to withdraw, all current and future in progress courses for the entire semester will be dropped. The student will be ineligible to register for courses for the remainder of that semester.

STUDENTS RECEIVING FINANCIAL AID or SPONSORSHIPS should contact their sponsor before withdrawing. Withdrawing from the university does not cancel all tuition and fees. Failure to comply may result in owing a substantial sum rather than having a zero balance or refund. In addition, withdrawing may affect immigration status. Please check this carefully before initiating the withdrawal process.

For university policy regarding withdrawal, see the Texas A&M University Student Rules (<http://student-rules.tamu.edu/>).

Transcripts

Students applying for admission to Texas A&M are required to submit transcripts of previous academic work and in some cases, results of standardized tests. The submission of altered documents or the failure to furnish complete and accurate information on admissions forms will be grounds for disciplinary action.

Individuals who previously attended Texas A&M University at Qatar may obtain an official transcript of their completed coursework, provided they have no financial obligations to Texas A&M University, Texas A&M University at Qatar, or the Qatar Foundation. A fee, which according to state law must be paid in advance, will be charged for each copy. During grading and degree posting, official transcripts may be produced for enrolled students only if all courses for that semester or term are shown as in progress (IP) or have all final grades posted.

Current Students

Current students may order an official transcript through the Howdy Portal (<https://howdy.tamu.edu/>).

Former Students

Former students who attended Texas A&M University at Qatar may be able to purchase an official transcript online through the Howdy Portal (<https://howdy.tamu.edu/>).

Graduation Application, Diploma and Commencement

Formal application for a degree at Texas A&M University at Qatar is made by submitting an Application for Graduation via the Howdy Portal. Students must also pay the required diploma/graduation fee and the optional regalia fee (if planning to attend the commencement ceremony) using the online payment portal (<https://tamu.estore.flywire.com/products/?storeCatalog=1202>). Applications for graduation should be submitted by the deadline stated in the Texas A&M University at Qatar academic calendar. Under certain circumstances, an application for a degree may be accepted after the stated deadline.

Students must have settled all financial obligations to the university and Qatar Foundation prior to receiving a diploma.

Texas A&M University at Qatar graduate and undergraduate students completing their degree in July or December will have the opportunity to participate in the commencement ceremony in May, following

the completion of their degree. Students must participate in the commencement ceremony at their home campus.

Language of Instruction

The language of instruction at Texas A&M University at Qatar is English. All teaching, exercise and practical material are provided in English.

Academic Calendar

Texas A&M University at Qatar Calendar

Fall Semester 2025*

August 24	Sunday. First day of fall classes First day to apply for fall graduation Undergraduate change of curriculum period begins. See Student Rule 5.1, https://student-rules.tamu.edu/rule05 (https://student-rules.tamu.edu/rule05/)
August 28	Thursday. Last day to add/drop courses with no record for the fall term, 4:30 PM
September 8	Monday. Official census date (12th class day)
September 18	Thursday. Undergraduate change of curriculum period ends, 4:30 PM
September 25	Thursday. Last day to apply for December graduation, 4:30 PM
September 30	Tuesday. Undergraduate degree plan approval deadline
October 12-16	Sunday-Thursday. Fall Break (No classes. Offices remain open)
October 23	Thursday. Mid-term grades due by noon to the Office of Records
November 18	Tuesday. Bonfire 1999 Remembrance Day
November 20	Thursday. Last day to drop courses with no academic penalty (Q-drop), 4:30 PM Last day to officially withdraw from the university, 4:30 PM
December 7	Sunday. Last day of fall term classes Pursuant to Student Rule 8.3 (https://student-rules.tamu.edu/rule08 (https://student-rules.tamu.edu/rule08/)), no regular course examinations (except for laboratory and one-hour courses) shall be given after the 14th week of classes
December 8	Monday. Reading day (No classes; offices remain open)
December 9-11	Tuesday-Thursday. Fall term final examinations
December 14	Sunday. Fall term final examinations
December 17	Wednesday. Final grades due by 6:00 PM to the Office of Records
December 18	Thursday. Qatar National Day (Offices closed)
December 21-29	Sunday-Monday. Winter break (Offices closed)

Spring Semester 2026*

December 30	Tuesday. Offices reopen after winter break
January 4	Sunday. First day of spring classes First day to apply for spring graduation Undergraduate change of curriculum period begins. See Student Rule 5.1, https://student-rules.tamu.edu/rule05 (https://student-rules.tamu.edu/rule05/)

January 8	Thursday. Last day to add/drop courses with no record for the spring term, 4:30 PM
January 19	Monday. Official census date (12th class day)
January 29	Thursday. Undergraduate change of curriculum period ends, 4:30 PM
February 5	Thursday. Last day to apply for spring graduation, 4:30 PM
February 10	Tuesday. Qatar National Sports Day (No classes; Offices closed)
February 18	Wednesday. Projected first day of Ramadan
February 22-26	Sunday-Thursday. Spring break (No classes; Offices remain open)
March 5	Thursday. Mid-semester grades due by noon, Office of Records
March 22-24	Sunday-Tuesday. Eid Al-Fitr** (No classes; Offices expected to be closed)
April 8	Wednesday. Last day to drop courses with no academic penalty (Q-drop), 4:30 PM Last day to officially withdraw from the university, 4:30 PM
April 21	Tuesday. Aggie Muster
April 22	Wednesday. Last day of spring term classes Redefined Day - Students attend their Tuesday classes Pursuant to Student Rule 8.3 (https://student-rules.tamu.edu/rule08 (https://student-rules.tamu.edu/rule08/)), no regular course examinations (except for laboratory and one-hour courses) shall be given after the 14th week of classes
April 23	Thursday. Reading Day (No classes: Offices remain open)
April 26-29	Sunday-Wednesday. Spring term final examinations
April 30	Thursday. Final grades due by 6:00 PM to the Office of Records
May 2	Friday. Commencement Ceremony
May 5	Tuesday. Qatar Foundation Convocation* Final grades due for all students by 6:00 PM to the Office of Records

Summer Semester 2026*

May 17	Sunday. First day of summer classes First day to apply for summer graduation
May 20	Wednesday. Official census date (4th class day) Last day to add/drop courses with no record for the summer term, 4:30 PM
May 27-31	Wednesday-Sunday. Eid Al-Adha** (Offices expected to be closed)
June 9	Tuesday. Last day to apply for summer graduation, 4:30 PM
June 23	Tuesday. Last day to drop courses with no academic penalty (Q-drop), 4:30 PM Last day to officially withdraw from the University, 4:30 PM
July 6	Monday. Redefined Day – Students attend their Wednesday classes
July 7	Tuesday. Last day of summer term classes

	Redefined Day – Students attend their Thursday classes
July 8-9	Wednesday-Thursday. Summer term final examinations
July 15	Wednesday. Final grades due by noon to the Office of Records

*Dates are subject to change without notice.

^Dates for the Eid holidays are subject to change; however, the University will be closed for a three-day period during Eid.

Tuition and Fees

Tuition and Fees for Texas A&M University at Qatar

Tuition and Fees

As a state institution, Texas A&M has held firmly to the premise that the Qatar campus should remain affordable, and therefore should follow the same tuition and fee structure as that of the main campus. All tuition and fee amounts provided herein represent the most accurate figures available at the time of this publication and are subject to change without notice.

Full details on tuition rates are available at www.qatar.tamu.edu/students/tuition-financial-aid-and-scholarships (<http://www.qatar.tamu.edu/students/tuition-financial-aid-and-scholarships/>).

Educational expenses for the nine academic months will vary according to personal needs. University rules regarding tuition and fees and all related payments in place at the time of publishing are reflected here. All are subject to change.

Payment of Tuition and Fees

Students must meet all financial obligations to the university by their due dates. Officials at Texas A&M at Qatar calculate the appropriate tuition and fees of each student enrolled, and the Qatar Foundation issues to each student his or her respective tuition statement. Students are then responsible for making payment to the Qatar Foundation's cashier office. Students will receive their invoices via their Texas A&M at Qatar email addresses. Failure to pay amounts owed may result in cancellation of the student's registration and being barred from future enrollment and receiving official transcripts. Qatar Foundation policy requires that tuition and fees be paid as early as possible in the semester. Arrangements for paying tuition in installments should be made with the Academic Services Office and the Qatar Foundation Finance Office.

Financial Obligation for Graduating Students

According to Texas A&M University Student Rules and Chapter § 54.007 (c) of the Texas Education Code, all financial obligations owed to the university and/or to the Qatar Foundation must be paid by the end of the semester. Failure to settle all financial obligations will result in withholding a student's diploma at graduation. Additionally, a block will be placed on the student's account, which will prohibit registration in subsequent semesters and the receipt of official transcripts.

Citations

- Section 14.15 of the Texas A&M University Student Rules states "The student must have settled all financial obligations to the University."

- Chapter § 54.007 (c) of the Texas Education Code states "A student who fails to make payment prior to the end of the semester may be denied credit for the work done that semester."

Cancelling of Registration

Once students have registered for classes and subsequently wish to withdraw from the university prior to the first day of classes, they must do the following to prevent being charged tuition/fees for the term:

1. Submit the online Student Withdrawal request via the Howdy Portal.
2. Once processed, submit the University Clearance Form found on the Office of Records website (<https://www.qatar.tamu.edu/students/office-of-records/student-forms/>).

Following this procedure is especially important for students in order to prevent being assessed tuition/fees for the term even if the student has decided not to attend. **Failure to request cancellation of an unwanted registration may result in grades of F or I in all courses for the semester. The student will be held responsible for paying all fees for the semester, regardless of whether they attended classes.**

Cancellation for Nonpayment of Tuition or Fees

If notified by the Qatar Foundation of nonpayment, the university reserves the right to cancel registration for any semester in which a student is enrolled.

Fees for Special Items or Services

Application Fees

The application-for-admission fee for undergraduate and graduate applicants is: QAR 330, or \$90 USD, and is non-refundable.

Diploma Fee

A non-refundable fee per degree sought is assessed the semester a student applies for graduation. This fee is payable each time a student applies for graduation. A late diploma fee is charged at the rate of QAR 185, or \$50 USD, in addition to the diploma fee above, to those who apply for graduation after the set deadline.

Refund Policy

Withdrawal from Texas A&M at Qatar

Once registered for classes, a student is considered officially enrolled unless otherwise restricted from enrolling. Stopping payment to the Qatar Foundation or allowing the check or bank draft to be returned unpaid by the bank for any reason does not constitute official withdrawal. The withdrawal process is specified in the section "Cancelling of Registration." Failure to follow procedures for withdrawing from the university may result in financial penalties and delays with future enrollment, and coursework may be recorded as incomplete and failed. Once a student registers, they are responsible for the total cost of the tuition and fees assessed if the withdrawal process is not followed properly, and refunds will occur only within the specified refund time periods as listed in the section "Tuition and Fee Adjustments." **Recipients of Qatar Foundation financial assistance should talk to a financial aid representative at the Qatar Foundation before withdrawing. Sponsored students should talk to a representative from their respective sponsoring agency prior to withdrawing.**

Tuition and Fee Adjustments

Fall and Spring Semester and Eight-Week Summer Semester

By 4 p.m. on the last business day 100%
before the first day of class

During the first five class days 80%

During the second five class days	70%
During the third five class days	50%
During the fourth five class days	25%
After the fourth five class days	None

Five-Week Summer Term

By 4 p.m. on the last business day before the first day of class	100%
During the first, second or third class day	80%
During the fourth, fifth or sixth class day	50%
Seventh day of class and thereafter	None

Financial Assistance/Scholarships

The financial assistance program is designed for all students who have a demonstrated financial need for assistance to meet college expenses and who are making satisfactory academic progress, as defined by the policies of the Qatar Foundation Financial Services Office's financial aid agreement that students sign upon receiving financial assistance. Texas A&M at Qatar submits academic program reports to Qatar Foundation, following the guidelines of the Family Educational Rights and Privacy Act (FERPA). University scholarships, on a limited basis, are available to selected students and are also awarded based on academic excellence. Students who are on conduct probation are not eligible for university-awarded scholarships.

In determining the type and amount of financial assistance necessary to meet a student's financial need, Qatar Foundation expects parents to make a maximum effort to assist with college expenses. The financial assistance resources of Qatar Foundation and university scholarships should be viewed only as supplementary to the financial resources of the applicant and family.

Only those students who have been accepted for enrollment into the university may apply for Qatar Foundation financial aid and/or for university scholarships. Information about Qatar Foundation financial aid can be found at www.qatar.tamu.edu/students/tuition-financial-aid-and-scholarships (<https://www.qatar.tamu.edu/students/tuition-financial-aid-and-scholarships/>).

Services

Services for Qatar Campus Students

Academic Advising

The primary purpose of academic advising at Texas A&M at Qatar is to assist students in the development of meaningful educational plans that are compatible with their personal abilities and goals. The ultimate responsibility for making decisions about personal goals and educational plans rests with the individual student. The academic advisor assists by helping to identify and assess alternatives and the consequences of decisions. Academic advising is a continuous process of clarification and evaluation.

The objectives for academic advising for the university and its component units include facilitating the following for each student:

- Clarifying personal and career goals
- Developing suitable educational plans
- Selecting appropriate courses and other educational experiences

- Interpreting institutional requirements
- Increasing student awareness of available educational resources
- Evaluating student progress toward established goals
- Enhancing decision-making skills
- Reinforcing responsible student self-direction
- Using referrals to other institutional and community support services, where appropriate

The advising system of Texas A&M at Qatar includes professional staff advisors, faculty liaisons and administrators working together to ensure the total educational development of students by meeting intellectual, academic, personal and career needs. All students are required to meet with an academic advisor each semester in order to register for courses in the subsequent semester, or they will be blocked from registration.

More information can be found at <https://www.qatar.tamu.edu/students/academic-services/academic-advising> (<https://www.qatar.tamu.edu/students/academic-services/academic-advising/>).

The Center for Teaching & Learning

The Center for Teaching & Learning (CTL) welcomes all students seeking to enhance their academic skills and to engage in deep learning. The CTL staff, which includes peer tutors and professional writing consultants, offers one-to-one tutoring and small-group collaborations that cover topics/subjects including writing, mathematics, physics, chemistry, core introductory and sophomore-level engineering courses, presentation skills, and digital composing. The CTL team also provides support for students who want to improve their overall study skills.

Aggie Life 101 for New Freshman and Transfer Students (Orientation)

Each year, Aggie Life 101 is held for undergraduate students entering Texas A&M at Qatar. New students are required to attend Aggie Life 101 after accepting their offer of admission and prior to registering for courses. Families are encouraged to attend Aggie Life 101 with their students and participate in sessions designed especially for them to learn more about what their students will be experiencing as Aggies.

Aggie Life 101 provides students with the tools they will need to begin their careers at Texas A&M at Qatar and offers a chance to learn about the many opportunities available to members of the Aggie community. During this program, new students will meet with academic advisors, register for their first semester courses, and learn the traditions and values of being a Texas A&M Aggie. Since the first year is important to continued success at Texas A&M at Qatar, the program will acquaint new students with student life activities and services available at the university. In addition, Aggie Life 101 offers social programs that provide an opportunity to make connections and interact with other students. Each year, current students volunteer as orientation leaders to help new students and their families learn about Texas A&M at Qatar. For questions concerning Aggie Life 101, please contact the Department of Student Affairs at dsa@qatar.tamu.edu or (+974) 4423-0047.

The Association of Former Students

The Association of Former Students traces its history to the Ex-Cadets Association that formed in 1879, and later to the A&M Alumni Association and Alpha Phi Fraternity. In 1919, a coalition of multiple alumni groups formed under the name The Association of Former Students. Since 1879, much has changed in organization and details, but the fundamental objectives of The Association remain the same: strengthening the Aggie Network, promoting Texas A&M, perpetuating the ties of affection formed

in university days, and serving the student body. More information can be found at <https://www.aggienetwork.com/>.

Campus Safety and Security

- In an emergency situation dial +974.4454.0999 from within Education City or 999 from outside Education City.
- Report incidents immediately to Texas A&M University at Qatar security (333 from a Texas A&M Engineering Building phone or +974.4423.0333 from a mobile or outside phone).

Information on campus safety and security is available here (<https://www.qatar.tamu.edu/other/safety-and-security/>); and the Annual Security Report is located here (<https://www.qatar.tamu.edu/other/safety-and-security/>).

Career Services

The Career Services unit offers advising and assistance to students seeking internships and full-time employment, while supporting the recruiting initiatives of local and international companies. Career Services assists students as they prepare for their job searches by coordinating informational sessions and workshops on topics such as resume writing, interview skills and career readiness. The office also hosts two annual recruiting events, the Career Networking Event at Texas A&M at Qatar and the spring career fair in collaboration with all Education City universities. A variety of guest speakers from industry are hosted each year. Students learn about opportunities in specific companies and on general issues related to the workplace. The Career Services Office provides students with other opportunities for industry engagement ranging from corporate competitions to participation in local and regional conferences.

More information can be found at <https://www.qatar.tamu.edu/students/career-services> (<https://www.qatar.tamu.edu/students/career-services/>)

Critical Incident Response Team

The purpose of the Critical Incident Response Team (CIRT) is to respond to incidents involving Texas A&M at Qatar students and to serve as the university contact when students are involved in incidents away from the campus.

Texas A&M at Qatar is committed to providing an educational climate that is conducive to the personal safety and professional development of each individual. Even with a small university community, Texas A&M at Qatar and the Department of Student Affairs realize that crises, or critical incidents, will occur and that these crises can have a significant effect on the entire university, Education City and local communities. Such critical incidents require an effective and timely response. The Department of Student Affairs has developed the CIRT consisting of Texas A&M at Qatar staff to best respond to these critical student incidents. More information can be found on the CIRT website (<https://www.qatar.tamu.edu/students/student-affairs/student-resources/>) and the team can be reached by calling (+974) 4423-0333.

The goals of the CIRT are as follows:

- To coordinate the university's response to critical incidents involving students while paying special attention to the safety and security needs of members of the university community.
- To offer counseling, guidance and appropriate support to members of the university community, their families and university caregivers.
- To use critical incidents, when appropriate, as teachable moments that may enhance the quality of life for all those affected.

Disability Services

The mission of Disability Services is to ensure accessibility for all students to University programs. The Department of Student Affairs Counseling and Wellness Program administers Disability Services at Texas A&M University at Qatar. Disability Services, with the assistance of Disability Services at Texas A&M University, offers accommodations counseling, evaluation referral, disability-related information, and adaptive technology counseling and equipment for academically related purposes. Disability Services does not offer disability evaluation and/or testing, tutoring, assistance with personal expenses, attendants or scholarships, but referral information is provided.

More information can be found at <https://www.qatar.tamu.edu/students/student-affairs/disability-services> (<https://www.qatar.tamu.edu/students/student-affairs/disability-services/>)

The Engineering Enrichment Program

The Engineering Enrichment Program (EEP) is designed to drive innovation and entrepreneurship and empower students with an exceptional engineering experience. The program offers a series of short training courses throughout the year, providing more hands-on experience in different engineering fields such as electronics, fabrication, machining, and programming. It inspires students and enriches their knowledge with new valuable skills to become experts and make a difference. Students will have the chance to complement their engineering degree with additional certifications and participate in international competitions. This program encourages all students to build competencies and share big ideas, as they work toward becoming unique engineering leaders.

Global Educational Opportunities

Higher education is not immune to the trend of globalization. To adapt to this phenomenon and prepare graduates for an increasingly interdependent global community, Texas A&M University at Qatar is committed to providing global learning opportunities for all students. Whether it be study abroad programs, service-learning trips, research abroad, language training, international conferences or workshops, or global leadership programs, students at Texas A&M University at Qatar can choose from a variety of experiences that can increase their cultural competence, expand their global worldview, and augment their marketability in a rapidly globalizing world. Opportunities include but are not limited to:

Study Abroad

Texas A&M University at Qatar students are able to study in a variety of different locations and countries. The flagship program is an exchange with the Texas A&M main campus in College Station, Texas. This program is offered every semester and during the summer term. The program operates as a cohort model, and students are selected through a competitive application process. Texas A&M University at Qatar assists in arranging flights, housing, transportation and university check-ins.

Texas A&M University at Qatar students are also eligible to participate in programs offered through the Education Abroad Office operated by the main campus. Students can choose from many different disciplines, programs and countries. These programs can differ in length from summer sessions, semester-long programs or intersessions.

Faculty-Led Programs

Every year, Texas A&M faculty lead groups of students on a variety of global academic experiences. Traveling with a faculty mentor, a group of students will travel to an international location, be exposed to engineering topics in a global context, and experience a different culture. Often,

students will be joined by fellow Texas A&M students from the main campus and students from the host institution. Faculty-led programs provide students a rich experience that can impact their academic and professional careers by providing them with unique networking opportunities and an enriching cultural experience that can assist with increasing cultural competence.

Research Exchange for Undergraduates

Texas A&M University is a Tier I research institution. Boasting world-renowned faculty, Texas A&M University is known for producing groundbreaking research. Students at Texas A&M University at Qatar are eligible to participate in the Texas Summer Research Experience, a program designed to partner Texas A&M at Qatar students with a faculty member on the main campus in College Station. This experience allows students to understand engineering research in a global context and contribute to the growing field of knowledge. This program provides students an opportunity to network with faculty members on the main campus, experience a new culture, and have the potential to publish their research.

Information Technology

The mission of the Information Technology (IT) department is to provide a robust, secure and innovative environment that supports Texas A&M University at Qatar's goals in teaching and lifelong learning, research, and engagement. IT strives to embody and uphold Texas A&M's tradition of organizational excellence. The department is comprised of five groups that provide services to faculty, staff and students.

Educational Technology

The Educational Technology group serves faculty and students by promoting and assisting in the use of technology for instruction. Providing systems such as Canvas and Echo360 Lecture Capture, the group also manages classroom technologies and academic software including audiovisual systems.

Enterprise Applications

The Enterprise Applications (EA) group performs business process analysis and develops, administers, and maintains automation to achieve greater efficiencies. EA oversees all electronic communication with the Texas-based administrative systems for student information, financial accounting and payroll, including troubleshooting the processes, applications, and data feeds employed and ensuring secure operation. EA also provides support for many of the university's web resources, including Marhaba, the intranet portal.

Network and Security

The Network and Security group provides and manages the network, telecommunications and security infrastructure of the branch campus. The group ensures compliance with all laws, policies, procedures, guidelines and industry best practices for operating and securing the Texas A&M at Qatar network. The group strives to increase community awareness regarding cyber-security, prevent cyber-attacks, and remediate the effects of viruses, worms, spyware and other malware.

Service Desk

The Service Desk provides a single point of contact for all IT-related queries, service requests and communications. The team provides user orientation and training. The Service Desk proactively communicates information regarding IT services, updates and policies.

Systems Engineering

The Systems Engineering group is responsible for providing computing infrastructure and services. This team maintains and supports mission-

critical systems including physical and virtual infrastructure, directory and authentication services, file and database services, e-mail services, data backups and disaster recovery, data center monitoring, desktop and server security, and print services.

Leadership Activities

The Department of Student Affairs offers a wide variety of leadership development programs that provide an excellent opportunity for students to develop personal leadership in a global and intercultural context. The Student Leadership Exchange Program takes place every spring break and allows a group of student leaders from the Doha campus to visit the College Station campus during their spring break and then a group of student leaders from College Station to visit Doha during their spring break. An emphasis is placed on these students using their Aggie connection to communicate across cultural differences and build leadership. The Department of Student Affairs offers service opportunities each year for students to give back to others. The most well known of these is the Aggie Service Learning Experience, which is an international service trip that allows Aggies to use collective strengths and talents in order to meet an expressed community need while learning about another culture and expanding personal horizons. Additional programs include LeaderShape, which is a six-day residential experience focused on introducing student leadership concepts to all students and challenges them to be a force for change within their student organizations and communities.

The Texas A&M Qatar Campus Library

The Texas A&M at Qatar Campus Library supports the teaching, research and outreach missions of the university in an environment that fosters learning and inquiry. A core professional collection of over 7,000 titles is complemented by a basic collection in the arts and humanities of around 3,000 volumes. The library also features collections dedicated to course reserve textbooks, devices and equipment, visual media, and test prep materials. Students may also request books and journal articles from the five libraries on main campus, where there is a print collection of around 5 million volumes.

Extensive online resources are available to students both within the library and on desktop or mobile devices via remote access. This includes more than 100,000 electronic journals and newspaper titles, over 1,000 databases, and more than 1.3 million electronic books.

Students can locate books and thousands of journals by author, title, subject and keyword using the basic online catalog at catalog.library.tamu.edu (<https://catalog.library.tamu.edu/>). Alternately, they can use the time-saving multi-search tool Quick Search, located on the library homepage, which allows searching of multiple databases at one time.

Experienced librarians are also available at main campus during Texas business hours via online chat, which is a great way to get help when starting a research project. GetItForMe (<https://getitforme.library.tamu.edu/>) is a document delivery service that supplies print books or electronic copies of journal articles and book chapters free of charge to all students. Print books borrowed from the main campus generally arrive in approximately two weeks. Electronic items are usually e-mailed within two working days. Material not available from the main campus libraries can often be obtained from other libraries around the world. Professional librarians are also available on campus to assist with using library tools and resources.

More information and resources can be found at library.qatar.tamu.edu (<https://qatar.library.tamu.edu/>). For questions or requests, please email library@qatar.tamu.edu.

Department of Student Affairs

The mission of the Department of Student Affairs at Texas A&M at Qatar is to create a vibrant campus culture that:

- Embodies the Texas A&M Core Values
- Resonates with Aggie Spirit
- Upholds Qatar's unique, rich culture
- Promotes the holistic and intercultural development of students
- Prepares students for excellence in the engineering discipline in a diverse global society

If students experience problems or difficulties or just need advice about where to go for assistance, they are encouraged to contact the Department of Student Affairs at dsa@qatar.tamu.edu or (+974) 4423-0047.

More information can be found at <https://www.qatar.tamu.edu/students/student-affairs/>

Student Activities

The Department of Student Affairs empowers students to organize into recognized organizations and clubs and plan their own campus activities. Program coordinators within the department advise student organizations and assist them in managing their own events.

Involvement in one or more of the campus's 30-plus organizations can add an important dimension to one's college experience. It is a way to balance one's life, meet new people, and develop interpersonal and leadership skills. In addition, prospective employers often look at what students have accomplished and experienced outside of their coursework. The recognized student organizations include the Institute of Electrical and Electronic Engineers, the American Society of Mechanical Engineers, the Society of Petroleum Engineers, the American Institute of Chemical Engineers, the Society of Women Engineers, the Qatari Student Association, and many others. The recognized student organizations schedule a variety of events such as business meetings, conferences, social events, sponsored guest speakers, workshops and field trips. For all these reasons, Student Affairs supports the belief that students can learn from experiences as well as from textbooks.

Texas A&M at Qatar sports teams are part of the activities offered and include basketball, soccer and cricket for men and basketball and soccer for women. Tryouts will be held for these teams each fall semester.

Student Government Association

The representative governing body for all students at Texas A&M at Qatar is the Student Government Association (SGA). This body is directly responsible for representing the interests of students to the administration and to the entire university community. SGA works with the administration on issues of concern to the general student population.

SGA consists of three representatives elected from each class, committee chairs, a vice president and the student body president. These officers are elected annually in April. SGA can be reached by email at SGA@qatar.tamu.edu.

More information can be found at <https://tamuqatar.campuslabs.com/engage/organization/student-government-association> ([https://](https://tamuqatar.campuslabs.com/engage/organization/student-government-association)

tamuqatar.campuslabs.com/engage/organization/student-government-association/)

Student Wellness and Counseling

The Student Wellness and Counseling Program promote the process of developing a healthy lifestyle. By participating in awareness activities, educational programs and counseling, Aggies can enhance their personal wellness with improved physical health, emotional stability, supportive relationships, spiritual growth and academic/career satisfaction. Services in the Wellness and Counseling Program include academic skills counseling and testing, career counseling and testing, personal counseling, stress management and biofeedback, outreach programming, crisis and consultation, and disability services.

More information can be found at <https://www.qatar.tamu.edu/students/student-affairs/health-and-wellness/>

Ombudsperson

Based in the Office of Student Affairs, the Undergraduate Ombuds assists students with resolving conflicts on an informal and confidential basis. The Ombuds is equally open and accessible to all parties in disputes that may arise when there are differing expectations or conflicting policies regarding academic issues. Such occurrences may happen to undergraduates in their roles as students, employees, interns, or in many of the other roles that affect their education. Students should visit the Department of Student Affairs in the Texas A&M Engineering Building for more information regarding Ombuds services.

On-Campus Housing

Student housing in Education City is available to students enrolled with Texas A&M University at Qatar (TAMUQ) on a first-come, first-served basis.

Living on campus can be an excellent way to make new friends from around the world in what will prove to be one of the most diverse living environments possible. In addition to making new friends, you will find a supportive community environment with staff members who are available to assist you and will offer programs and events for residents. To learn more about living on campus, visit the following website: <http://www.hbku.edu.qa/en/life-hbku/hbku-student-housing> (<http://www.hbku.edu.qa/en/life-hbku/hbku-student-housing/>)

If you wish to live in Education City student housing, please complete the following:

- Submit an online request for housing
- Once the Department of Student Affairs (DSA) receives a student's information, the Qatar Foundation will be notified the TAMUQ student is eligible for housing and wishes to submit an application for a space in the residence halls
- The Qatar Foundation will create an account for the student and send an email invitation to complete the full housing application, including:
 - the Housing Application Form filled in its entirety
 - a scanned passport photo and a scanned copy of the student's passport
 - a scanned receipt showing payment of the refundable Damage Deposit (2000 QR)
 - confirmation of the date of arrival in Doha, Qatar

Please note: If eligible for family housing, additional documentation is required (i.e., visa status, marriage certificate, dependent(s) birth certificate, residency permit, etc.).

Any remaining balance of the housing fees (depending on the housing option selected) will be due upon check in. The Housing Agreement for the academic year will be made available with the Housing Application. Please read this document carefully.

Assignments within student housing are open on a rolling basis where applications are processed in the order they were completed and submitted, and will be done based on eligibility, preference, and availability. There is no deadline to apply, but once all rooms are filled students will be placed on a waiting list and are not guaranteed housing.

There are separate residence halls for male and female students. In addition, students have access to a communal lounge with computers, printers, cable television, DVDs, and video in each residential area. Laundry facilities with washers and dryers are available. Wireless internet is available throughout the residence halls.

Qatar Foundation Housing and Residence Life staff work closely with student residents to maintain a safe, comfortable and healthy living-learning environment. Staff members are available to help students with life transitions associated with living in a community residential environment.

For more information about student housing or to check the status of your application after receiving notification from Qatar Foundation, please email housing@qf.org.qa.

For questions about the application process, contact TAMUQ DSA at dsa@qatar.tamu.edu.

Facilities

Texas A&M University at Qatar Facilities

The Texas A&M University at Qatar engineering building is one of the most advanced facilities for engineering education in the world. Designed by the famous father-son Mexican architect team Legoretta + Legoretta, the 55,000 square meter (592,000 square feet) facility combines modernist elements with traditional Islamic architectural motifs. The building is fully wireless and features high-tech classrooms, teaching laboratories and computer laboratories. The research rotunda provides additional research laboratories that give future Aggie engineers firsthand experience.

The campus's home in Education City also includes a library with a core professional collection of 10,000 titles and a number of journals and DVDs focused on engineering, but also covering the liberal arts, humanities, and basic sciences. Students have access to books and journals from the libraries on the main campus, which include collections that exceed 5 million volumes. Extensive online resources are available to students in the library and remotely, including more than 2 million electronic books and thousands of subscription electronic journals and databases.

Policies

University Statement for Individuals with Disabilities

Texas A&M University (TAMU) is committed to providing reasonable accommodations to qualified students, faculty, staff and visitors and to maintaining an accessible campus community, including making its web sites accessible and usable. Texas A&M University does not discriminate on the basis of an individual's disability and complies with Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act (ADA) as amended.

Students are protected from discrimination regarding access to and participation in Texas A&M's programs and activities. #Texas A&M provides academic adjustments and auxiliary aides to accommodate the needs of students with disabilities, as defined under the law, who are otherwise qualified to meet the institution's academic requirements.

Students with disabilities who would like to request accommodations may contact the following resources based on their campus location:

- Texas A&M University, College of Nursing, College of Dentistry, Irma Lerma Rangel College of Pharmacy-College Station, Naresh K. Vashisht College of Medicine, School of Public Health, Institute of Biosciences and Technology, EnMed Program, Bush School in Washington DC, Mays Business School – CityCentre, TAMU Engineering Academies, TAMU Higher Education Center at McAllen, and Texas A&M University at Galveston should contact Disability Resources (<https://disability.tamu.edu/>) at (979) 845-1637 or disability@tamu.edu.
- Texas A&M University School of Law should contact the Office of Student Affairs at (817) 212-4111 or law-disability@law.tamu.edu to request accommodations.
- Irma Lerma Rangel College of Pharmacy in Kingsville should contact the Disability Resource Center at Texas A&M University - Kingsville at (361) 593-3024 or drc.center@tamuk.edu to request accommodations.
- Texas A&M University College of Veterinary Medicine and Biomedical Sciences in Canyon should contact the Office of Student Accessibility at West Texas A&M University – Canyon at (806) 651-2335 or osa@wtamu.edu.
- Texas A&M University at Qatar (TAMUQ) should contact the campus psychologist, Dr. Steve Wilson +974-4423-0047 or stephen.wilson@qatar.tamu.edu.

Students with a disability who believe they have experienced discrimination may contact Jennifer Smith, Associate Vice President and Title IX Coordinator in the Office of Civil Rights and Title IX, at YMCA Building Ste 108, 365 Houston St. #108, College Station, TX 77843, civilrights@tamu.edu, or at (979) 458-8407. Students can also contact Julie Kuder, the Texas A&M ADA Coordinator, at (979) 845-8116 or ADA.Coordinator@tamu.edu. The office address is YMCA Building Ste 108, 365 Houston St. #108, College Station, TX 77843. Allegations of discrimination will be immediately forwarded to the Office of Civil Rights and Title IX for review, investigation, or resolution.

For more information about disability accommodations, see TAMU Student Rule 46, Disability Accommodations in Academic Programs (<http://student-rules.tamu.edu/rule46/>) or TAMUG Student Rule 46, Disability Accommodations in

Academic Programs (https://www.tamug.edu/studentrules/Student_Grievance_Procedures/46_Disability_Accommodations.html).

University Statement on Harassment and Discrimination

Texas A&M University is committed to providing a safe and non-discriminatory learning, living, and working environments for all members of the University community. The University provides equal opportunity to all employees, students, applicants for employment or admission, and the public regardless of race, color, sex (including pregnancy and related conditions), religion, national origin, age, disability, genetic information, and veteran status. Texas A&M University will promptly and equitably investigate and resolve all complaints of discrimination, harassment (including sexual harassment and sex-based misconduct), and related retaliation in accordance with applicable federal and state laws, University rules and standard administrative procedures.

The University's response to allegations of discrimination, harassment, and related retaliation will be 1) prompt and equitable, 2) intended to stop and prevent the recurrence of any harassment, and 3) intended to remedy discriminatory effects, as appropriate. A substantiated allegation of such conduct will result in disciplinary action, up to and including separation from the University. The University's student sanctioning guidance for substantiated allegations of discrimination on the basis of sex, including sexual harassment, sexual violence and related retaliation, can be found here: Title IX Cumulative Sanctioning Matrix. (<https://titleix.tamu.edu/wp-content/uploads/2019/03/title-ix-sanctioning-matrices.pdf>)

Students who have questions or believe they have experienced discrimination, harassment, sexual harassment/sex-based misconduct, and/or related retaliation are encouraged to contact Jennifer Smith, Associate Vice President and Title IX Coordinator, at YMCA Building Ste 108, 365 Houston St. #108, College Station, TX 77843, civilrights@tamu.edu, or at (979) 458-8167. The Office of Civil Rights & Title IX website can be found at titleix.tamu.edu (<https://titleix.tamu.edu/>).

To report incidents, request accommodations, or inquire about discrimination based on disability, you may contact Julie Kuder, ADA Coordinator, at (979) 845-8116 or ADA.Coordinator@tamu.edu. The office address is YMCA Building Ste 108, 365 Houston St. #108, College Station, TX 77843, or see the ADA website at <https://orec.tamu.edu/ada/>. Reported allegations of discrimination will be immediately forwarded to the Office of Civil Rights and Title IX for review, investigation, or resolution.

University Statement on Pregnancy and Related Conditions

Title IX prohibits discrimination on the basis of sex, including pregnancy and parental status in educational programs and activities. This includes harassment and discrimination against a student based on pregnancy, childbirth, false pregnancy, or recovery from any of these conditions.

The university is required to provide reasonable accommodations due to pregnancy and related conditions, including excused absences or alternative participation options when accommodations are medically necessary. Students seeking accommodations should contact Julie Kuder, Pregnancy Accommodations Coordinator, at YMCA Building Ste 108, 365 Houston St. #108, College Station, TX 77843 or (979) 845-8116 or email address TIX.Pregnancy@tamu.edu, or Jennifer Smith, Associate Vice President and Title IX Coordinator, at the YMCA Building Ste 108,

365 Houston St. #108, College Station, TX 77843. Her telephone number is: (979) 458-8167 and email address is civilrights@tamu.edu. For more information, go to <https://titleix.tamu.edu/>.

Students who have questions or believe they have experienced discrimination and/or harassment based on pregnancy, pregnancy related conditions, or parenting status are encouraged to contact Jennifer Smith, Associate Vice President and Title IX Coordinator, at the YMCA Building Ste 108, 365 Houston St. #108, College Station, TX 77843. Her telephone number is: (979) 458-8167 and email address is civilrights@tamu.edu. The Office of Civil Rights & Title IX website can be found at titleix.tamu.edu (<https://titleix.tamu.edu/>).

Aggie Honor Code

Integrity is a fundamental core value of Texas A&M University at Qatar. Academic integrity requires a commitment by all faculty, staff, and students to:

- Remain constantly focused on the quality of the academic programs;
- Achieve and maintain academic excellence in all courses and programs to assure the value of Texas A&M University at Qatar degrees; and,
- Demand high academic standards from all members of the Aggie community.

All Texas A&M University at Qatar students, graduate and undergraduate, part-time or full-time, in residence or in distance education, are expected to follow the guiding rule of the Aggie Honor Code:

"An Aggie does not lie, cheat or steal, or tolerate those who do."

Upon accepting admission to Texas A&M University at Qatar, a student immediately assumes a commitment to uphold the honor code, to accept responsibility for learning, and to follow the philosophy and rules of the Honor System, which are found at <https://aggiehonor.tamu.edu/>. Students are required to state their commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the Texas A&M community from the requirements or the process of the Honor System.

Academic Services at Texas A&M University at Qatar, in conjunction with the Honor System Office at Texas A&M, is charged with promotion of the honor code and administration of academic misconduct cases. Academic integrity violations are taken seriously, and are adjudicated by the Academic Services Office (ASO). ASO is responsible for educating the campus community regarding the Aggie Honor Code, responding to academic violation reports, and facilitating remediation efforts for students found to be in violation of the Aggie Honor Code. The website, <https://www.qatar.tamu.edu/students/academic-services/aggie-honor-system> (<https://www.qatar.tamu.edu/students/academic-services/aggie-honor-system/>), defines the types of infractions and the possible consequences. Students are urged to review this information.

In addition to adherence to the Honor Code, a student (graduate students in particular) who is completing a thesis, record of study, dissertation, and publication may fall under the additional federal requirements promulgated by the Office of Research Integrity (Scientific Misconduct Regulations – 42 CFR part 50), as well as Texas A&M System Regulations and Texas A&M University Rules (Texas A&M System Regulations – Ethics in Research and Scholarship – 15.99.03, and Texas A&M University rules and standard administrative procedures

– Responsible Conduct in Research and Scholarship – 15.99.03.M1, 15.99.03.M1.01-06).

University Student Rules

Each student enrolled at Texas A&M University Qatar Campus is responsible for being fully acquainted and complying with the Texas A&M University Student Rules. Specific rules, information and procedures are found in publications pertaining to each particular service or department. Students are encouraged to reference the website at <http://student-rules.tamu.edu> (<http://student-rules.tamu.edu/>) for current published rules and regulations.

For information concerning federal and state policies, please reference the appendices (p. 1411) in this catalog.

Division of Arts and Sciences

The Texas A&M Core Curriculum, in compliance with the Texas Core Curriculum, provides students with a foundation of knowledge of human cultures and the physical and natural world, develops principles of personal and social responsibility for living in a diverse world, and advances intellectual and practical skills that are essential for all learning. In support of the Core Curriculum, the Division of Arts and Sciences enhances the individual degree programs and university graduation requirements.

The core curriculum focuses on the development of six skills that have been shown to be effective in preparing students for the job market and their role in a diverse world and democratic society.

- *Critical Thinking Skills* – to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.
- *Communication Skills* – to include effective development, interpretation and expression of ideas through written, oral and visual communication.
- *Empirical and Quantitative Skills* – to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.
- *Teamwork* – to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal.
- *Personal Responsibility* – to include the ability to connect choices, actions and consequences to ethical decision-making.
- *Social Responsibility* – to include intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities.

For additional information, please reference <http://core.tamu.edu>.

Faculty

Bounds, Brittany, Instructional Associate Professor
Division of Arts and Sciences-Qatar Campus
PHD, Texas A&M University, 2015

Madrahimov, Sherzod T, Associate Professor
Division of Arts and Sciences-Qatar Campus
PHD, University of Illinois, 2012

Mir, Nordine, Professor
Division of Arts and Sciences-Qatar Campus
PHD, University of Rouen, France, 1998

Nha, Hyon Cheol, Professor
Division of Arts and Sciences-Qatar Campus
PHD, Seoul National University, 2002

Liberal Arts

Liberal Arts

Examples of history show us that a liberal arts education is the foundation of a strong and progressive society. The Division of Arts and Sciences offers students an opportunity to explore the intellectual achievements of humankind through a disciplined and responsible study of issues that have been of enduring importance to people. Thus, courses in liberal arts help students develop sensitivity to the questions and values that confront them in their daily lives. At the same time, skills are built that can be put to use in solving complex problems. One of the division's principal objectives is to achieve the hallmark of an educated person: a fundamental knowledge of the forces that have shaped and continue to direct our cultural identities.

Sciences

Sciences

Chemistry

An understanding of chemistry is critical to an understanding of life and its associated activities. Chemistry and chemical principles profoundly influence the way we live, communicate and interact with one another, so it is little wonder that a strong background in chemistry provides a solid foundation for a variety of careers of major importance in the 21st century. Chemistry is uniquely positioned at the crossroads between the biological and physical sciences. By exploiting their understanding of both realms, chemists and other professionals with strong backgrounds in chemistry have made, and continue to make, major contributions to improve the human condition. Major technological and biological discoveries almost always depend on a fundamental understanding of chemistry, and the pursuit of these discoveries, as a way to improve the world in which we live, drives those who seek to be part of the process.

The Division of Arts and Sciences at Texas A&M at Qatar offers coursework and research in various areas of chemistry, organized into a program leading to a minor in chemistry.

Mathematics

A comprehensive understanding of mathematics is a key foundation to engineering. The Texas A&M at Qatar mathematics curriculum is structured to teach mathematical concepts that enhance students' analytical abilities and to use quantitative mathematical tools and apply them to problems in engineering. Students will learn coordinate systems, vectors, analytical geometry, functions, differentiation and integration techniques, computer algebra systems (Maple and Matlab), multiple integration techniques, gradients, line and surface integrals, Stokes' theorems, differential equations, matrices, determinants, and topics in applied mathematics, such as Fourier series and wavelets with application to data compression and signal processing.

Physics

Physics is the science that investigates and tries to understand the basic laws of nature. In this pursuit, it deals with the entire range of natural

phenomena, from the smallest domain of subnuclear particles to the largest domain of distant objects in the universe.

This breadth of interests is reflected in the type of work pursued by physicists. Some physicists are interested in research on problems that are at the frontiers of knowledge. Some apply this newly acquired knowledge to make practical advances. Still others use knowledge of physics as a basis for careers in teaching or administration.

COURSE DESCRIPTIONS

All undergraduate courses offered in the University are described on each subject page. The course numbering scheme is as follows: 100–199, primarily open to freshmen; 200–299, primarily open to sophomores; 300–399, primarily open to juniors; and 400–499, primarily open to seniors.

Figures in parenthesis before the course description indicate the Texas Common Course Number(s). Those figures identified with an asterisk should reference the Texas Common Course Numbering System (p. 1417) in this catalog for additional information.

The unit of credit is the semester hour, which involves one hour of theory or from two to four hours of practice per week for one semester of 15 weeks. Figures following the credit hours indicate the contact hours per week devoted to theory and practice, respectively. Theory includes recitations and lectures; practice includes work done in the laboratory, shop, drawing room, field or other. When courses are cross-listed, credit cannot be received for both courses. Any course may be withdrawn from the session offerings in case the number of registrations is too small to justify offering the course.

Field trips may be required for which departmental fees may be assessed to cover costs.

AALO - Arabic & Asian Language (AALO)

AALO 285 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Individual supervision of readings or assigned projects in an Asian Language, selected for each student individually; written or oral reports. **Prerequisite:** Approval of Arabic and Asian Language Office Director.

AALO 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of an Asian language. May be repeated for credit. **Prerequisite:** Approval of Arabic and Asian Language Office Director.

AALO 485 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Individual supervision of readings or assigned projects selected for each student individually; written or oral reports. **Prerequisite:** Approval of Arabic and Asian Language Office Director.

AALO 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of an Asian language. May be repeated for credit. **Prerequisite:** Approval of Arabic and Asian Language Office Director.

ACCT - Accounting (ACCT)

ACCT 200 Opportunities in Accounting

Credit 1. 1 Lecture Hour. Introduction to career paths in accounting and assessment aptitudes and interests with respect to these career paths. **Prerequisite:** Business honors, business administration, or accounting majors.

ACCT 209 Survey of Accounting Principles

Credits 3. 3 Lecture Hours. Accounting survey for non-business majors; non-technical accounting procedures, preparation and interpretation of financial statements and internal control. May not be used to satisfy degree requirements for majors in business. Business majors who choose to take this course must do so on a satisfactory/unsatisfactory basis.

ACCT 210 Survey of Managerial and Cost Accounting Principles

Credits 3. 3 Lecture Hours. A survey of managerial and cost accounting for non-business majors; accounting responsibility of the manager, job and process cost systems, budgeting, cost-volume-profit analysis for decision-making. May not be used to satisfy degree requirements for majors in business. Business majors who choose to take this course must do so on a satisfactory/unsatisfactory basis. **Prerequisite:** ACCT 209 or ACCT 229.

ACCT 229 Introductory Accounting

Credits 3. 3 Lecture Hours. (ACCT 2301, 2401) Introductory Accounting. Analysis, recording and reporting of business transactions; partnership and corporation accounting; analysis and use of financial statements. **Prerequisite:** Business, Agribusiness, and Maritime Business Administration majors; also taught at Galveston campus.

ACCT 230 Introductory Accounting

Credits 3. 3 Lecture Hours. (ACCT 2302, 2402) Introductory Accounting. Continuation of ACCT 229. Use of budgets; introduction to cost accounting; cost control techniques and methods of measuring performance. **Prerequisites:** ACCT 229; Business, Agribusiness, and Maritime Business Administration majors; also taught at Galveston campus.

ACCT 321 Professional Development Seminar

Credits 2. 2 Lecture Hours. Exposure to professional issues of professional accounting practice using a workshop format. **Prerequisite:** Admission to Professional Program.

ACCT 322 Professional Development Seminar – BBA

Credit 1. 1 Lecture Hour. Exposure to professional issues in the practice of accounting, including potential careers and employers. **Prerequisite:** Accounting major or approval of instructor.

ACCT 327 Financial Reporting I

Credits 3. 3 Lecture Hours. Study of theoretical basis for financial accounting concepts and principles related to financial reporting; emphasizing income measurement and accounting for assets. BBA accounting majors must earn a minimum grade of C for graduation. **Prerequisite:** Grade of C or higher in ACCT 229; admission to upper division in Mays Business School.

ACCT 328 Financial Reporting II

Credits 3. 3 Lecture Hours. Continued study of accounting concepts and principles related to reporting long-debt and owners' equity; including reporting issues of leases, retirement benefits, income taxes and international accounting standards. **Prerequisite:** ACCT 327 with a grade of C or better.

ACCT 329 Cost Management and Analysis

Credits 3. 3 Lecture Hours. Theory, concepts and methods relating to use of information and design of systems to aid managers in planning, controlling, decision making, evaluating performance and reporting financial results. **Prerequisite:** ACCT 315 or ACCT 327 with a grade of C or better.

ACCT 403 Energy Accounting

Credits 3. 3 Lecture Hours. Overview of the oil and gas industry and specialized financial accounting procedures associated with the industry; emphasis on accounting for exploration, development, production, depletion and amortization, joint operations, asset impairment and retirement obligation; includes reserve accounting/disclosure related to the above topics. **Prerequisite:** ACCT 327 with C or better.

ACCT 405 Income Tax

Credits 3. 3 Lecture Hours. Introduction to federal income tax legislation pertaining primarily to corporations and individuals. **Prerequisite:** ACCT 327 with a grade of C or better.

ACCT 407 Auditing

Credits 3. 3 Lecture Hours. Introduction to auditing theory and procedures pertaining to financial statements, in the context of both external auditing, by certified public accountants, and internal auditing; preparation of working papers. **Prerequisite:** ACCT 327 with a grade of C or better.

ACCT 408 Internal Auditing

Credits 3. 3 Lecture Hours. Reading and evaluation of current theory and procedures used by internal auditors; selected case studies; statistical methods of forming auditing judgment. **Prerequisite:** Grade of C or better in ACCT 427.

ACCT 410 Fraud Examination

Credits 3. 3 Lecture Hours. Principles and methodologies of detecting and deterring fraud using accounting, auditing, and investigative skills; includes skimming, larceny, misappropriations, fraudulent statements, interviewing witnesses and support for litigation. **Prerequisites:** ACCT 327 with a grade of C or better; junior or senior classification.

ACCT 421 Critical Communication Skills for Accountants

Credits 3. 3 Lecture Hours. Development of oral and written communication skills necessary for successful careers in public and corporate accounting. **Prerequisite:** ACCT 327 with a grade of C or better.

ACCT 427 Accounting and Financial Information Systems

Credits 3. 3 Lecture Hours. Overall data flow systems emphasizing financial data and computerized systems, for accounting majors; flow and logic concepts, developing meaningful control concepts and data reporting techniques. **Prerequisite:** ACCT 229 with a grade of C or better.

ACCT 430/IBUS 430 Global Immersion in Accounting

Credits 3. 3 Lecture Hours. Combination of classroom work in the spring and a field trip to the selected country in summer; introduction to international opportunities within the public accounting firms; meet with former students to gain a local and corporate view of business in the selected country. May be taken two times for credit. **Prerequisites:** ACCT 327 and approval of instructor. **Cross Listing:** IBUS 430/ACCT 430.

ACCT 445/IBUS 445 International Accounting

Credits 3. 3 Lecture Hours. Introduction and examination of accounting issues unique to multinational enterprises and international business activity; only ACCT 445/IBUS 445 sections count for the accounting coursework requirements for the CPA exam. **Prerequisites:** ACCT 315 or ACCT 327; FINC 341. **Cross Listing:** IBUS 445/ACCT 445.

ACCT 447/FINC 447 Financial Statement Analysis

Credits 3. 3 Lecture Hours. Development of an analytical approach to financial statements, integrating relevant finance and accounting concepts and principles; current topics in financial analysis. **Prerequisites:** Grade of C or better in ACCT 327 and FINC 341. **Cross Listing:** FINC 447/ACCT 447.

ACCT 450 Accounting Ethics

Credits 3. 3 Lecture Hours. Integration of ethical reasoning, objectivity, independence and other core values into the development of a professional accountant; critical analysis of the ethical lapses which have occurred in business and the accounting profession; exploring ways to integrate ethical behavior into professional life. **Prerequisites:** ACCT 427; junior or senior classification.

ACCT 484 Accounting Internship

Credits 0 to 3. 0 to 3 Other Hours. A directed internship in an organization to provide on-the-job training under the supervision of accounting professionals in organizational settings appropriate to the student's professional objectives. May be taken for credit up to three hours. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** Accounting major or approval of department head.

ACCT 485 Directed Studies

Credits 1 to 3. 1 to 3 Other Hours. Directed study of selected problems in the area of accounting not covered in other courses. **Prerequisites:** Accounting major and approval of department head.

ACCT 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of accounting. May be repeated for credit. **Prerequisites:** Admission to upper division in Mays Business School and approval of instructor.

ACCT 491 Research

Credits 1 to 4. 1 to 4 Lecture Hours. Research conducted under the direction of an accounting faculty member in Mays Business School or a faculty member in the Office of Undergraduate Research. May be repeated one time for credit. **Prerequisites:** Junior or senior classification and approval of instructor.

AERO - Aerospace Engineering (AERO)

AERO 201 Introduction to Flight

Credits 3. 3 Lecture Hours. 1 Lab Hour. Standard atmosphere, basic aerodynamic theory, airfoil and wing descriptions, introduction to orbital mechanics, elementary aerospace vehicle performance, and experiential introduction to aerospace engineering. **Prerequisite:** Grade of C or better in ENGR 102 and PHYS 206; grade of C or better in ENGR 216/PHYS 216 or PHYS 216/ENGR 216; grade of C or better in MATH 251 or MATH 253 or concurrent enrollment; Aerospace Engineering majors only.

AERO 211 Aerospace Engineering Mechanics

Credits 3. 3 Lecture Hours. Fundamentals of Newtonian mechanics; static equilibrium of particles, system of particles and rigid bodies; free body diagrams; rectilinear and curvilinear motion of particles; linear momentum; angular momentum; friction; plane motion of rigid bodies; beams and trusses. **Prerequisites:** Grade of C or better in ENGR 102 and PHYS 206; grade of C or better in ENGR 216/PHYS 216 or PHYS 216/ENGR 216; grade of C or better in MATH 251 or MATH 253, or concurrent enrollment; Aerospace Engineering majors only.

AERO 212 Introduction to Aerothermodynamics

Credits 3. 3 Lecture Hours. 1 Lab Hour. Study of thermodynamic properties and processes, heat and work, first and second laws of thermodynamics, ideal cycles for power and refrigeration applications; emphasis on the Brayton jet-engine cycle. **Prerequisite:** Grade of C or better in CHEM 107 and CHEM 117, or CHEM 120; grade of C or better in MATH 251 or MATH 253, or concurrent enrollment; AERO majors.

AERO 214 Introduction to Aerospace Mechanics of Materials

Credits 3. 2 Lecture Hours. 2 Lab Hours. Fundamental concepts for deformable bodies (conservation of linear and angular momentum, kinematics and thermoelasticity); notions of stress and strain and illustrative examples for engineering applications; introduction to experimental methods and reporting, instrumentation and uncertainty analysis; measurement of elastic and thermal material properties.

Prerequisites: Grade of C or better in AERO 211; grade of C or better in MATH 308, or concurrent enrollment.

AERO 221 Analytical Methods for Aerospace Engineering

Credits 3. 3 Lecture Hours. 1 Lab Hour. Matrix operations, Gaussian elimination, linear transformations, coordinate transformations, eigenvalues, eigenvectors, diagonalization, including programming and computer implementation, applied to solid mechanics, fluid mechanics, dynamics and control of air and space vehicles. **Prerequisites:** Grade of C or better in ENGR 102, MATH 152, PHYS 206, and ENGR 216/PHYS 216 or PHYS 216/ENGR 216.

AERO 222 Introduction to Aerospace Computation

Credits 3. 2 Lecture Hours. 2 Lab Hours. Review of basic skills required for developing computer programs and introduction to more advanced concepts in scientific computing to solve aerospace engineering problems; numerical and analytical methods of solving engineering problems involving interpolation and extrapolation; function approximation; numerical differentiation; integration; solutions to linear and non-linear equations and systems of equations; eigenvalues and eigenvectors, numerical integration of differential equations with aerospace engineering applications. **Prerequisites:** Admitted to major degree sequence in aerospace engineering; grade of C or better in ENGR 102; grade of C or better in MATH 308 or concurrent enrollment.

AERO 285 Directed Studies

Credits 0 to 4. 0 Lecture Hours. 0 Lab Hours. 0 to 4 Other Hours. Directed study of special problems in aerospace engineering. **Prerequisites:** Freshman or sophomore classification, or approval of instructor. May be repeated for credit.

AERO 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of aerospace engineering. May be repeated for credit. **Prerequisite:** Approval of instructor.

AERO 291 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in aerospace engineering. May be taken three times. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

AERO 299 Mid-Curriculum Professional Development

Credits 0. 0 Other Hours. Participation in an approved high-impact learning practice; reflection on professional outcomes from engineering body of knowledge; documentation and self-assessment of learning experience at mid-curriculum point.

AERO 301 Theoretical Aerodynamics

Credits 3. 3 Lecture Hours. Conservation of mass and momentum; Reynolds transport theorem; fundamentals of incompressible flow, rotationality, potential flow, superposition, circulation, lift, thin airfoil theory, elliptic wing theory and induced drag. **Prerequisite:** Grade of C or better in AERO 201, AERO 212; grade of C or better in AERO 222 and MATH 308, or concurrent enrollment.

AERO 303 High Speed Aerodynamics

Credits 3. 3 Lecture Hours. Fundamentals of compressible flow; governing Euler equations; adiabatic and isentropic flow; normal and oblique shocks and expansion waves, moving shocks, shock interactions, wedge and cone flow; supersonic airfoils, exact and thin theory, choked flow and wind-tunnel design, two-dimensional gas dynamics, and method of characteristics. **Prerequisite:** Grade of C or better in AERO 301.

AERO 304 Aerospace Structural Analysis I

Credits 3. 3 Lecture Hours. Three-dimensional beam theory; applications of elasticity theory to beam extension and compression, bending, torsion and transverse shearing; combined loading; analysis of thin-walled structures; stress concentrations; analysis of stability of aerospace structures; elements of structural failure, buckling; structural design considerations. **Prerequisite:** Grade of C or better in AERO 214 and MATH 308; grade of C or better in AERO 222 or concurrent enrollment.

AERO 306 Aerospace Structural Analysis II

Credits 3. 3 Lecture Hours. Work and energy principles; analysis of indeterminate structures by classical virtual work and finite elements; introduction to elastic stability of columns; application of energy methods to determine stresses, strains and displacements in typical aerospace structures; design considerations in aerospace structures. **Prerequisite:** Grade of C or better in AERO 304.

AERO 307 Aerospace Engineering Laboratory

Credits 3. 2 Lecture Hours. 3 Lab Hours. Intermediate and advanced topics in instrumentation, signal conditioning, data acquisition analysis for aerospace-related measurements; emphasis on technical reporting and data presentation; measurements of materials strain, deformation, pressure, velocity and aerodynamic forces; experimental investigations of static and dynamic response of structures; use of nonintrusive optical techniques; uncertainty analysis; linear regression, Fourier transform and power spectra; tests for statistical significance; design of experiments. **Prerequisites:** Grade of C or better in ENGL 103 or ENGL 104; grade of C or better in AERO 222, AERO 301, AERO 304, AERO 310, ECEN 215, or concurrent enrollment.

AERO 310 Aerospace Dynamics

Credits 3. 3 Lecture Hours. Spatial kinematics; general motion of particles; Euler angles; Newton-Euler methods for translation and rotation of rigid bodies; work-energy and impulse momentum principles applied to aerospace systems; Linear theory of free dynamic response of single and multi-degree of freedom systems; frequency response of first and second order systems with instrumentation applications. **Prerequisite:** Grade of C or better in AERO 211 and MATH 308; grade of C or better in AERO 222 or concurrent enrollment.

AERO 321 Dynamics of Aerospace Vehicles

Credits 3. 3 Lecture Hours. Derivation of the nonlinear air and space vehicle dynamics equations; attitude representation with Euler angles and quaternions; forces and moments due to aerodynamics, thrust and gravity gradient; linearization; development of state-space models for aircraft and spacecraft; static and dynamic stability analysis for aircraft and satellites; spin and gravity gradient stabilization; stability derivatives; longitudinal and lateral modes and transfer functions for aircraft; aircraft flying qualities; elements of aircraft configuration design; response to control inputs. **Prerequisite:** Grade of C or better in AERO 301 and AERO 310.

AERO 351 Aerothermodynamics and Propulsion

Credits 3. 3 Lecture Hours. Aerothermodynamics of gases; laws of thermodynamics; equilibrium conditions; mixtures of gases; combustion and thermochemistry; compressible internal flows with friction, heat transfer and shock; turbojet cycle analysis and performance; chemical rockets. **Prerequisite:** Grade of C or better in AERO 303.

AERO 401 Aerospace Design Principles

Credits 3. 2 Lecture Hours. 3 Lab Hours. Study of systems engineering; project lifecycle; stakeholder, concept of operations (CONOPS) & requirements definition; cost assessment; risk management; trade studies; decomposition and design of an aerospace system; engineering ethics; technical communications. **Prerequisite:** Grade of C or better in AERO 306, AERO 307, AERO 321, and AERO 351, or concurrent enrollment.

AERO 402 Aerospace Systems Design

Credits 2. 6 Lab Hours. Continuation of AERO 401; detailed design; subsystem integration; realization of the system through prototyping, modeling, and/or simulation; verification and validation through experimentation and analysis; documentation and presentation of results. **Prerequisite:** Grade of C or better in AERO 306, AERO 307, AERO 321, AERO 351, and AERO 401.

AERO 404 Mechanics of Advanced Aerospace Structures

Credits 3. 3 Lecture Hours. Advanced analysis techniques for aerospace structures; material anisotropy, plasticity, fatigue and fracture; laminated materials; solution of plane elasticity, plate and multi-component structural configurations; buckling of beams and plates; application of finite element analysis. **Prerequisites:** Grade of C or better in AERO 304 and junior or senior classification.

AERO 405 Aerospace Structural Design

Credits 3. 3 Lecture Hours. Overall structural integrity of complete aerospace systems; structures subjected to critical loads; design considerations in aerospace structures. **Prerequisite:** Grade of C or better in AERO 306.

AERO 411 Applications of Fracture Mechanics to Aerospace Structures

Credits 3. 3 Lecture Hours. Foundations of linear elastic fracture mechanics of aerospace structure; calculation of stress intensity factors and energy release rates; crack growth under fatigue loading; ASTM standards for fracture testing; the role of fracture mechanics in the analysis and design of aerospace structures. **Prerequisite:** AERO 304 or equivalent with a grade of C or better.

AERO 413 Aerospace Materials Science

Credits 3. 3 Lecture Hours. Relationship between aerospace engineering material properties and microstructure; mechanical and thermal properties; environmental degradation; mechanical failure. **Prerequisite:** Grade of C or better in AERO 304.

AERO 414 Human Performance in Aerospace Environments

Credits 3. 3 Lecture Hours. Current physiological and psychological aspects affecting human performance during space missions using a quantitative approach and engineering methods. **Prerequisite:** Grade of C or better in AERO 321.

AERO 415 Computational Fluid Dynamics for Aerospace Applications

Credits 3. 3 Lecture Hours. Present methods for solving internal and external flow problems for inviscid and viscous compressible flow; Euler, Navier-Stokes and Large Eddy Simulation solvers, boundary conditions formulation, and basics of parallel processing. **Prerequisite:** Grade of C or better in AERO 303 and AERO 351.

AERO 417 Aerospace Propulsion

Credits 3. 3 Lecture Hours. Air breathing propulsion; design and analysis of inlets, compressors, combustors, turbines and nozzles; application to aeronautical and ground transportation. **Prerequisite:** Grade of C or better in AERO 351.

AERO 419 Chemical Rocket Propulsion

Credits 3. 3 Lecture Hours. Nozzles and heat transfer in rockets, liquid and solid propellant systems; combustion and combustion stability; flight performance including trajectories, multistaging and exchange rate curves; rocket testing. **Prerequisite:** Grade of C or better in AERO 351.

AERO 420 Aeroelasticity

Credits 3. 3 Lecture Hours. Classical analysis of fundamental aeroelastic phenomena with application to aerospace vehicles; flutter, divergence, control effectiveness. **Prerequisites:** Grade of C or better in AERO 303, AERO 306, and AERO 310.

AERO 422 Active Controls for Aerospace Vehicles

Credits 3. 3 Lecture Hours. Introduction to the Theory of Automatic Control specifically applied to aerospace vehicles; techniques for analysis and synthesis of linear control systems, stability criteria, systems response and performance criteria; design studies of active controls to improve aerospace vehicle performance. **Prerequisite:** Grade of C or better in AERO 321.

AERO 423 Orbital Mechanics

Credits 3. 3 Lecture Hours. Two-body problem, restricted three-body problem, orbital perturbations, orbital maneuvers, interplanetary trajectories, orbit determination and other selected topics. **Prerequisite:** Grade of C or better in AERO 310.

AERO 424 Spacecraft Attitude Dynamics and Control

Credits 3. 3 Lecture Hours. Introduces fundamental concepts of satellite attitude dynamics and control; includes derivations of environmental disturbances due to gravity gradient, aerodynamic, and solar radiation pressure; includes treatments of attitude control subsystems, such as thrusters, reaction wheels, CMGs, and magnetic torquers, and their designs. **Prerequisites:** Grade of C or better in AERO 321.

AERO 425 Flight Test Engineering

Credits 3. 2 Lecture Hours. 3 Lab Hours. Application of performance and stability and control theory to flight test measurements; standard atmosphere and airspeed equations for pilot-static system calibrations; flight test methods for evaluating performance, stability and control, and stall-spin characteristics; laboratory practice in planning and conducting small flight test project. **Prerequisite:** Grade of C or better in AERO 321.

AERO 426 Space System Design

Credits 3. 3 Lecture Hours. Introduces prevailing practices and processes used in modern space system design; applies knowledge in component engineering disciplines to a design challenge of interest to NASA or DoD; utilizes instruction in systematic methods of design and on dynamics of teamwork; when possible concludes with detailed design using an engineering design facility. **Prerequisites:** Grade of C or better in AERO 306, AERO 321, AERO 351.

AERO 428 Electromagnetic Sensing for Space-Borne Imaging

Credits 3. 3 Lecture Hours. Study IR and Visible range imaging systems to obtain high resolution imaging of objects from space; this area has numerous applications and areas of advanced development; following instruction in needed background on optics, telescopes, and interferometry, perform preliminary design of imaging system with a different imaging design offered each year. **Prerequisites:** Grade of C or better in AERO 306, AERO 321, AERO 351.

AERO 430 Numerical Simulation

Credits 3. 3 Lecture Hours. Numerical and analytical simulation of physical problems in sciences and engineering using applied methods; developing and using numerical techniques for physical problems described by nonlinear algebraic equations, ordinary and partial differential equations. **Prerequisite:** Grade of C or better in AERO 222 or MATH 417.

AERO 435 Aerothermochemistry

Credits 3. 3 Lecture Hours. Composition of chemically reacting gases (air and propellant); thermodynamic functions based on classical and quantum mechanical theories; calculation of gas temperatures; equilibrium, frozen and non-equilibrium flows through nozzles and shock waves. **Prerequisite:** Grade of C or better in AERO 303.

AERO 436/ISEN 432 Human Factors Engineering for Aerospace Designs

Credits 3. 3 Lecture Hours. Physiological and psychophysiological issues encountered in aviation and space environments and their effect on human cognitive and physical performance; survey methods for human workload and performance evaluations; apply human-systems design principles to an aerospace design project. **Prerequisites:** Junior or senior classification. **Cross Listing:** ISEN 432/AERO 436.

AERO 438/MEEN 407 Intuitive and Counter-Intuitive Mechanisms

Credits 3. 2 Lecture Hours. 2 Lab Hours. Spatial descriptions and transformations; forward and inverse kinematics of mechanical manipulators; manipulation; dexterity and manipulability; principles of manipulator-mechanism design; mobility; motion planning; control, reachability and complexity measures; workspace analysis. **Prerequisites:** Senior classification. **Cross Listing:** MEEN 407/AERO 438.

AERO 440 Cockpit Systems and Displays

Credits 3. 3 Lecture Hours. Design, development, and implementation of cockpit systems and multi-function displays; cockpit system requirements and specifications; human-machine interfaces, Flight Management Systems, navigation and guidance systems; 3-D real-time displays of weather, traffic, and terrain; characteristics and missions of air vehicles; project design and cost analysis. **Prerequisite:** Grade of C or better in AERO 321 or junior or senior classification in computer science.

AERO 445 Vehicle Management Systems

Credits 3. 3 Lecture Hours. Introduction to vehicle management systems for manned and unmanned air and space vehicles; system centric concepts, requirements definition, specifications, and architectures; reliability analysis, health monitoring, and mission management; SISO digital design of integrated flight control, propulsion control and structural control; introduction to vehicle autonomy; design and analysis methods, industrial examples. **Prerequisite:** Grade of C or better in AERO 422.

AERO 451 Human Spaceflight Operations

Credits 3. 3 Lecture Hours. Essential aspects of human spaceflight operations as performed by NASA; in-depth understanding of the state-of-the-art in spacecraft operations, including spacecraft systems, ground and launch operations, mission management and on-orbit activities such as science, robotics, spacewalking and human health maintenance; applications to future space systems. **Prerequisite:** Grade of C or better in AERO 310 or equivalent; senior classification.

AERO 452 Heat Transfer and Viscous Flows

Credits 3. 3 Lecture Hours. Navier-Stokes and boundary layer equations; exact and approximate solutions; laminar boundary layers; basic concepts of transition and turbulence; turbulent boundary layers; one and two dimensional heat transfer; methods for steady and transient heat conduction; thermal boundary layers; convection; radiation. **Prerequisite:** Grade of C or better in AERO 303 and AERO 351.

AERO 455 Helicopter Aerodynamics

Credits 3. 3 Lecture Hours. Hovering theory, hovering and vertical flight performance, factors affecting hovering and vertical flight performance, auto-rotation in vertical descent, concepts of blade motion and control, aerodynamics of forward flight, forward flight performance, operational envelope and introduction to conceptual design of helicopters. **Prerequisites:** Grade of C or better in AERO 222, AERO 301, and AERO 310.

AERO 472 Airfoil and Wing Design

Credits 3. 3 Lecture Hours. Subsonic airfoil design and analysis, subsonic wing design and analysis, swept and delta wings, vortex lift, transonic flow methods, viscous transonic phenomena, transonic airfoil and wing design, optimization and advanced topics such as supersonic panel methods. **Prerequisite:** Grade of C or better in AERO 303.

AERO 478 Low Temperature Plasma - Theory, Modeling, Applications

Credits 3. 3 Lecture Hours. Basic theory and fundamentals of low-temperature plasma, elements of plasma kinetic theory, equilibrium and non-equilibrium plasma, modeling approaches, plasma discharges. **Prerequisites:** Grade of C or better in AERO 303 and MATH 308.

AERO 481 Seminar

Credit 1. 1 Lecture Hour. Readings, reports, conferences and discussion. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisite:** Senior classification in aerospace engineering.

AERO 485 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Special problems in aerospace engineering assigned to individual students or groups. **Prerequisite:** Junior or senior classification or approval of instructor.

AERO 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified field of aerospace engineering. May be repeated for credit. **Prerequisite:** Approval of instructor.

AERO 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in aerospace engineering. May be repeated 3 times for credit. **Prerequisites:** Junior or senior classification and approval of instructor.

AERS - Aerospace Studies (AERS)

AERS 101 Air Force Heritage and Values I

Credit 1. 1 Lecture Hour. Introduction to the Department of the Air Force (DAF) and Air Force Reserve Officer Training Corps (AFROTC); overview of officership, officer opportunities and benefits, and DAF heritage and values and operations. **Prerequisites:** Concurrent enrollment in AERS 105.

AERS 102 Air Force Heritage and Values II

Credit 1. 1 Lecture Hour. Continuation of AERS 101; introduction to the Department of the Air Force (DAF) and Air Force Reserve Officer Training Corps (AFROTC); overview of officership, officer opportunities and benefits, and DAF heritage and values and operations. **Prerequisites:** AERS 101; concurrent enrollment in AERS 106.

AERS 105 AFROTC Leadership Lab I

Credit 1. 2 Lab Hours. Dynamic leadership development activities designed to prepare prospective Department of the Air Force second lieutenants and complement the AFROTC academics with experiential learning. May be taken six times for credit. Must be taken on a satisfactory/unsatisfactory basis.

AERS 106 AFROTC Leadership Lab II

Credit 1. 2 Lab Hours. Continuation of AERS 105; dynamic leadership development activities designed to prepare prospective Department of the Air Force second lieutenants and complement the AFROTC academics with experiential learning. May be taken four times for credit. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** AERS 105.

AERS 201 Team and Leadership Fundamentals I

Credit 1. 1 Lecture Hour. Fundamental survey of leadership and team building through topics such as followership, listening, ethical decision-making, and conflict management. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** Grade of C or better in AERS 102; concurrent enrollment in AERS 105; or approval of department head.

AERS 202 Team and Leadership Fundamentals II

Credit 1. 1 Lecture Hour. Continuation of AERS 201; fundamental survey of leadership and team building through topics such as followership, listening, ethical decision-making, and conflict management.

Prerequisites: Grade of C or better in AERS 201; concurrent enrollment in AERS 106 if seeking a military contract; or approval of department head.

AERS 303 Leading People and Effective Communication I

Credits 3. 3 Lecture Hours. In-depth look at leadership through topic-guided discussions and verbal communications in Department of the Air Force formats; leadership, management fundamentals, professional knowledge, Air Force personnel and evaluation systems, and leadership ethics with case studies of leadership and management situations as a means of demonstrating and exercising practical application of concepts.

Prerequisites: Grade of C or better in AERS 202; concurrent enrollment in AERS 105 if seeking a military contract; or approval of department head.

AERS 304 Leading People and Effective Communication II

Credits 3. 3 Lecture Hours. Continuation of AERS 303 with an in-depth look at leadership through topic-guided discussions and verbal communications in Department of the Air Force formats; leadership, management fundamentals, professional knowledge, Air Force personnel and evaluation systems, and leadership ethics with case studies of leadership and management situations as a means of demonstrating and exercising practical application of concepts. **Prerequisites:** Grade of C or better in AERS 303; concurrent enrollment in AERS 106 if seeking a military contract; or approval of department head.

AERS 403 National Security Affairs, Leadership Responsibilities, and Commissioning Preparation I

Credits 3. 3 Lecture Hours. Examination of the Constitution, national security processes, the military's role in society, and the military justice system; preparation for life as a second lieutenant in the Department of the Air Force. **Prerequisites:** Grade of C or better in AERS 304; concurrent enrollment in AERS 105 if seeking a military contract; or approval of department head.

AERS 404 National Security Affairs, Leadership Responsibilities, and Commissioning Preparation II

Credits 3. 3 Lecture Hours. Continuation of AERS 403; examination of the Constitution, national security processes, the military's role in society, and the military justice system; prepares students for life as a second lieutenant in the Department of the Air Force. **Prerequisites:** Grade of C or better in AERS 403; concurrent enrollment in AERS 106 if seeking a military contract; or approval of department head.

AERS 485 Directed Studies

Credits 1 to 3. 1 to 3 Other Hours. Directed study of problems in the field of aerospace studies. **Prerequisites:** Grade of C or better in AERS 404; Air Force ROTC Cadet; approval of department head.

AFST - Africana Studies (AFST)

AFST 201 Introduction to Africana Studies

Credits 3. 3 Lecture Hours. Introduction to the field of Africana Studies; interdisciplinary approach drawing from history, philosophy, sociology, political studies, literature and performance studies; explores the African foundational relationship to and connections with its diaspora populations; covers Africa, the United States, the Caribbean, Europe and South America; also taught at Qatar.

AFST 204/ENGL 204 Introduction to African-American Literature

Credits 3. 3 Lecture Hours. Introduction to the writings of African Americans from the 18th century to the present, emphasizing the major themes and traditions; ENGL-204 also taught at Galveston campus. **Cross Listing:** ENGL 204/AFST 204.

AFST 205/ENGL 205 Introduction to Africana Literature

Credits 3. 3 Lecture Hours. Works, literary movements and genres of authors of African descent in the Americas, Europe and Africa. **Cross Listing:** ENGL 205/AFST 205.

AFST 206/PBSI 206 Black Psychology

Credits 3. 3 Lecture Hours. Critical examination of psychological experience, theories, and methods from perspectives grounded in the "Black experience." **Cross Listing:** PBSI 206/AFST 206.

AFST 209/PBSI 209 Psychology of Culture and Diversity

Credits 3. 3 Lecture Hours. Introduction to various issues surrounding an increasingly interconnected and globalized world by critically examining the dynamic relationship between psychological processes and diverse (e.g., motivation, memory, self, prejudice) socio-cultural contexts. **Prerequisite:** PBSI 107. **Cross Listing:** PBSI 209/AFST 209.

AFST 225 Reframing Public Memory - Texas and the African American

Credits 3. 3 Lecture Hours. Exploration of the connections between Texas and the African American cultural lens and their impact on the understanding of memory and mythmaking; examination through class lectures, readings, viewings, visits, reaction/research papers, and individual projects of public memory and the creation, maintenance, promotion, contestation, erasure, and remaking of ideas of race, dispositions, behaviors, and histories in Texas and globally.

AFST 252/PHIL 252 Introduction to Hip-Hop Philosophy

Credits 3. 3 Lecture Hours. Introduction to philosophy by way of the major themes and subjects of Hip-Hop; critical advocacy of various philosophical ideals. **Cross Listing:** PHIL 252/AFST 252.

AFST 261/INTA 261 Contemporary Issues in the Global South

Credits 3. 3 Lecture Hours. Exploration of current political and cultural issues in the Global South. May be repeated once for credit. **Cross Listing:** INTA 261/AFST 261.

AFST 285 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Directed studies in the field of Africana Studies. May be taken two times for credit. **Prerequisite:** AFST 201; Freshman or sophomore classification; approval of instructor and director.

AFST 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in Africana Studies. May be repeated for credit.

AFST 291 Research

Credits 0 to 3. 0 to 3 Other Hours. Research conducted under the direction of a faculty member in Africana Studies. May be taken three times for credit. **Prerequisites:** AFST 201; freshman or sophomore classification; and approval of instructor.

AFST 300/HIST 300 Blacks in the United States, 1607-1877

Credits 3. 3 Lecture Hours. Blacks in the United States from the colonial period to 1877; the slave trade, slavery, free blacks and the impact of the Civil War and Reconstruction on blacks. **Prerequisite:** Junior or senior classification. **Cross Listing:** HIST 300/AFST 300.

AFST 301/HIST 301 Blacks in the United States Since 1877

Credits 3. 3 Lecture Hours. Blacks in the United States from the end of Reconstruction to the present; ideologies of black leaders, disfranchisement, lynching and the quest for equality in the 1950s and 1960s. **Prerequisite:** Junior or senior classification; HIST-301 also taught at Qatar campus. **Cross Listing:** HIST 301/AFST 301.

AFST 302 Gateway Course

Credits 3. 3 Lecture Hours. Gateway to a series of courses offered for the minor in Africana Studies; explores topics such as Afrocentrism, postcolonial studies, black cultural studies, black feminist theory for a close study of issues among African and African diaspora populations in Africa, the United States, Caribbean, Europe and South America.

AFST 303 Psychology of Women of Color

Credits 3. 3 Lecture Hours. Interdisciplinary theories to study the unique yet intersectional experiences of women from different racial groups, ethnicities, nationalities and cultural backgrounds; scholarly research from the diversity science field; contemporary topics that have developed in a global context; examination of complex issues, which affect women of color across the lifespan. **Prerequisites:** Grade of C or better in AFST 201, PBSI 107, or WGST 200, or approval of instructor. **Cross Listing:** PBSI 303 and WGST 303.

AFST 317/SOCI 317 Racial and Ethnic Relations

Credits 3. 3 Lecture Hours. Status of racial and ethnic groups such as Native Americans, African Americans, Latino Americans, Asian Americans, European Americans, and other groups in the political, economic, legal and social systems of the United States. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** SOCI 317/AFST 317.

AFST 323/SOCI 323 Sociology of African Americans

Credits 3. 3 Lecture Hours. Major elements of the Afro-American subculture in relation to white American society and its major social institutions. **Prerequisites:** SOCI 205. **Cross Listing:** SOCI 323/AFST 323.

AFST 324 Africana Social Sciences

Credits 3. 3 Lecture Hours. Exploration of a significant topic pertaining to Africa and/or its diaspora in the social sciences. **Prerequisite:** Junior or senior classification.

AFST 325 Africana Humanities

Credits 3. 3 Lecture Hours. Exploration of a significant topic pertaining to Africa and/or its Diaspora in the humanities and arts. **Prerequisite:** Junior or senior classification.

AFST 326 Africana Popular Culture

Credits 3. 3 Lecture Hours. Dynamics of popular culture and classic theories of society; popular and public cultural forms in context of globalization and the Africana Diaspora. **Prerequisite:** Junior or senior classification or approval of instructor.

AFST 327/MUSC 327 Popular Musics in the African Diaspora

Credits 3. 3 Lecture Hours. Examination of a range of popular musics from the twentieth century that have emerged in conjunction with the historical global spread of peoples and cultures from the African continent; technical knowledge about music is not required; focus on social and cultural contexts for popular music. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** MUSC 327/AFST 327.

AFST 329/ENGL 329 African-American Literature Pre-1930

Credits 3. 3 Lecture Hours. Major works of the African-American literary tradition from the 18th century to 1930 studied within cultural and historical context. **Prerequisites:** 3 credits of literature at 200-level or above. **Cross Listing:** ENGL 329/AFST 329.

AFST 338/COMM 338 Critical Race Discourse

Credits 3. 3 Lecture Hours. Critical analysis of communication and dialogue on race; causes and symptoms of structural racism; social/racial hierarchies as they influence and are influenced by communication and dialogue. **Prerequisites:** Junior or senior classification or approval of instructor. **Cross Listing:** COMM 338/AFST 338.

AFST 339/ENGL 339 African-American Literature Post-1930

Credits 3. 3 Lecture Hours. Major works of the African-American literary tradition from the 1930s to the present studied in their cultural and historical context. **Prerequisites:** 3 credits of literature at 200-level or above. **Cross Listing:** ENGL 339/AFST 339.

AFST 344/HIST 344 History of Africa to 1800

Credits 3. 3 Lecture Hours. Origins of humankind in Africa; development and spread of pastoralism, agriculture and iron-working; formation of states and empires; impact of Christianity and Islam; rise of international trade in gold, ivory and slaves; African diaspora. **Prerequisite:** Junior or senior classification. **Cross Listing:** HIST 344/AFST 344.

AFST 345/HIST 345 Modern Africa

Credits 3. 3 Lecture Hours. Survey of Africa since 1800; pre-colonial African states and societies; establishment and impact of European colonial rule; rise of nationalist movements; achievement of independence; problems of political stability and economic development in contemporary Africa; South Africa's apartheid regime and its opponents. **Prerequisite:** Junior or senior classification. **Cross Listing:** HIST 345/AFST 345.

AFST 346/HIST 346 History of South Africa

Credits 3. 3 Lecture Hours. Selected themes in the history of South Africa from the African Iron Age to the Apartheid regime; history of race relations in the 19th and 20th centuries and the rise of modern industrial state. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** HIST 346/AFST 346.

AFST 352/PHIL 352 Africana Philosophy

Credits 3. 3 Lecture Hours. Presentation of the seminal ideas of several influential Africana thinkers; recovery of the neglected traditions in which these thinkers locate themselves. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** PHIL 352/AFST 352.

AFST 353/PHIL 353 Radical Black Philosophies of Race and Racism

Credits 3. 3 Lecture Hours. Critical evaluation of white supremacy, colonialism and the modern construction of race; examination of the historical background for contemporary theories of race. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** PHIL 353/AFST 353.

AFST 357/HIST 357 Out of Africa: The Black Diaspora and the Modern World

Credits 3. 3 Lecture Hours. History and cultures of the peoples of the African Diaspora from the fourteenth through the nineteenth centuries; social, political, and economic impact on Africa, the Americas, Europe, and the Arab World; emphasis on race, gender, identity, and migration. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** HIST 357/AFST 357.

AFST 362/HIST 302 Women and War in the African Diaspora

Credits 3. 3 Lecture Hours. Case studies of women and war in the African diaspora in a wide historical and comparative context; social, economic, and cultural influence of war on women's lives; women as victims, combatants, and refugees; historical construction of race, ethnic and gender identity during times of conflict. **Prerequisite:** Junior or senior classification. **Cross Listing:** HIST 302.

AFST 377 Africana Women's History

Credits 3. 3 Lecture Hours. Black women's history from the precolonial era to the present; emphasis on the cultural, political, legal, economic, sexual, social, and religious factors that shaped their experiences across the African Diaspora and the world. **Prerequisites:** Junior or senior classification. **Cross Listing:** HIST 377 and WGST 377.

AFST 379/ENGL 379 Postcolonial Literatures

Credits 3. 3 Lecture Hours. Exploration of key terms, themes and debates within global literature written by colonized, occupied and diasporic peoples. **Prerequisites:** 3 credits of literature at the 200-level or above. **Cross Listing:** ENGL 379/AFST 379.

AFST 391 Africana Feminisms

Credits 3. 3 Lecture Hours. Exploration of a significant topic in feminist theory by and about women from Africa and/or its Diaspora, from various disciplinary perspectives and historical periods, and with application to societal debates and controversies. **Prerequisite:** Junior or senior classification.

AFST 393/ENGL 393 Studies in Africana Literature and Culture

Credits 3. 3 Lecture Hours. Literary movements, genres, groups of authors, topics or issues in the literature and culture of people of African descent. **Prerequisites:** 3 credits of literature at 200-level or above; junior or senior classification or approval of instructor. **Cross Listing:** ENGL 393/AFST 393.

AFST 398/FILM 398 Africana Cinema

Credits 3. 3 Lecture Hours. Overview of African cinema; historical survey of cinema from Africa and the African Diaspora; introducing films produced in several geographical regions and reflecting different filmmaking traditions. May be taken two times for credit. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** FILM 398/AFST 398.

AFST 400/GLST 400 Global Africa

Credits 3. 3 Lecture Hours. Exploration of African diaspora around the world; examination of the historic globality of Africa with a focus on Black artistic expression and its impact on global culture; investigation of Black cultures' interactions with music, literature, performing arts, visual arts, religions, and social movements. **Prerequisites:** Junior or senior classification or approval of instructor. **Cross Listing:** GLST 400/AFST 400.

AFST 401 Slavery in World History

Credits 3. 3 Lecture Hours. Comparative history of human slavery; slavery in the Ancient World, Asia, Africa; varieties of modern slavery in the New World since 1500; abolition of slavery and continuing forms of human bondage in the contemporary world. **Prerequisite:** Junior or senior classification. **Cross Listing:** ASIA 401 and HIST 401.

AFST 422 Race, Ethnicity, Crime and Justice

Credits 3. 3 Lecture Hours. Racial/ethnic disparities in criminal offending and victimization, as well as different experiences with law enforcement, judicial, and correctional agencies. **Prerequisites:** SOCI 220 or equivalent. **Cross Listing:** SOCI 422 and LMAS 422.

AFST 425/COMM 425 Communication and Black Freedom Dreams

Credits 3. 3 Lecture Hours. Examination of historical and contemporary communication practices of Black freedom activities, movements, and organizations in the United States and around the globe. **Prerequisite:** Junior or senior classification. **Cross Listing:** COMM 425/AFST 425.

AFST 430/RELS 430 African American Muslim Culture

Credits 3. 3 Lecture Hours. Exploration of popular culture and its impact on African American Muslims' intersectional identity formation and faith tradition through films, documentaries, readings, and lectures on and about Muslims emanating from enslaved narratives and the colonial period to the contemporary era. **Prerequisites:** Junior or senior classification, or approval of instructor. **Cross Listing:** RELS 430/AFST 430.

AFST 481 Seminar

Credits 3. 3 Lecture Hours. Comparative studies of slave societies in the modern world; history and analysis of African American feminism; comparative analyses of the social, political, and economic condition of African Americans and other African peoples of the diaspora. **Prerequisite:** AFST 302; junior or senior classification.

AFST 484 Internship

Credits 0 to 4. 0 to 4 Other Hours. Directed internship in a public or private organization to provide students with applied experience; opportunity to observe first hand issues and problems covered in Africana Studies courses; designed to enhance and clarify the student's career objectives. **Prerequisite:** Approval of instructor.

AFST 485 Directed Studies

Credits 0 to 3. 0 to 3 Other Hours. Selected fields of Africana Studies not covered in depth by other courses. Reports and extensive reading required. May be repeated for credit. **Prerequisite:** AFST 201; junior or senior classification; approval of instructor.

AFST 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in Africana Studies. May be repeated for credit.

AFST 491 Research

Credits 0 to 3. 0 to 3 Other Hours. Research conducted under the direction of a faculty member in Africana Studies. May be taken for a maximum of 18 hours credit. **Prerequisites:** AFST 201; junior or senior classification; and approval of instructor.

AGCJ - Ag Comm & Journalism (AGCJ)

AGCJ 105 Introduction to Agriculture and Life Sciences Communications

Credits 3. 3 Lecture Hours. Introduction to journalism and mass communication, its history, role in society, and unique role in agriculture; importance of journalism mass communication and the communication methods used in modern society; foundation for an understanding of agricultural news and information and how it is delivered to broad audiences. Only one of the following will satisfy the requirements for a degree: AGCJ 105 or JOUR 102.

AGCJ 281 Media Concepts in Agriculture and Life Sciences

Credits 3. 3 Lecture Hours. Preparation for the job and internship search process, practicing interview skills, and identification of the skills necessary to grow in and contribute to the agricultural communications and journalism profession; identification of challenges and opportunities facing professional agricultural communicators and journalists; identification and analysis of industry-wide issues; learning how to think critically about the news. **Prerequisite:** Grade of C or better in AGCJ 105 or concurrent enrollment.

AGCJ 285 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Directed study of selected issue in field of agricultural communications with emphasis on collection, synthesis and interpretation of information. **Prerequisite:** Approval of department advisor.

AGCJ 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Special topics in an identified area of agricultural development. May be repeated for credit. **Prerequisite:** Approval of department advisor.

AGCJ 291 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of faculty member in agricultural communications and journalism. May be repeated 2 times for credit. **Prerequisites:** Freshman or sophomore classification and approval of department advisor.

AGCJ 301 Media Production in Agriculture and Life Sciences

Credits 3. 3 Lecture Hours. Application of principles of media production in photography, videography, and podcasting within the context of agriculture and life sciences; exploration of pre-production planning and writing, production, post-production, camera techniques, equipment use, video editing and graphics, and sound editing; exploration of unique techniques used for media production in the complex fields of agriculture and life sciences. **Prerequisites:** Grade of C or better in AGCJ 105 and AGCJ 281.

AGCJ 306 Theory and Practice of Public Relations in Agriculture and Life Sciences

Credits 3. 3 Lecture Hours. Exploration of the unique relationships among agricultural stakeholders; topics include writing public relations objectives, strategies, tactics, and evaluation of public relations plans and strategies. **Prerequisites:** Grade of C or better in AGCJ 105 or concurrent enrollment.

AGCJ 307 Design for Agricultural Media

Credits 3. 2 Lecture Hours. 2 Lab Hours. Principles and practices of agricultural media design, including design and production of printed publications and graphics; computer assisted design and production of media pieces. Required for AGCJ majors and minors. **Prerequisite:** Junior or senior classification.

AGCJ 308 Agricultural Photography

Credits 3. 2 Lecture Hours. 2 Lab Hours. Develop knowledge of photography, editing software, and composition techniques used in the agricultural communications field; develop photography and photo editing skills to a satisfactory level as demonstrated by performance on assignments and exams. **Prerequisite:** Junior or senior classification.

AGCJ 309 Data Storytelling in Agriculture & Life Sciences Communications

Credits 3. 3 Lecture Hours. Data Storytelling in Agriculture & Life Sciences Communications. Fundamentals of effective data-driven storytelling; detection and articulation of the stories behind datasets; communication in visual, oral, and written contexts for various audiences and publics; use of data analysis, evaluation, and other tools to create media stories in the context of agricultural and life sciences.

Prerequisites: Grade of C or better in AGCJ 281 and AGCJ 311.

AGCJ 311 Introduction to Research in Agriculture and Life Sciences Communications

Credits 3. 3 Lecture Hours. Explanation of research and its ethics; development of research questions for audience, journalism and communications research; analysis of research designs and methods use of journalism, audience and communications research; topics include describing data collection methods and strategies, including interviews, observations, focus groups, surveys and content analyses; identification of research problems. **Prerequisites:** Grade of C or better in AGCJ 105 and AGCJ 281.

AGCJ 312 Editing in Agriculture and Life Sciences

Credits 3. 2 Lecture Hours. 2 Lab Hours. Principles and practices of editing for agricultural and technical audiences including improving and tightening copy; writing headlines, titles, and subheads; photo editing and captions, graphics and layout; print, broadcast, interactive and other media. **Prerequisites:** Grade of C or better in AGCJ 105; junior or senior classification.

AGCJ 313 Media Writing in Agriculture and Life Sciences I

Credits 3. 2 Lecture Hours. 2 Lab Hours. Newsgathering, writing, editing and ethics for all types of media used in agriculture and life sciences communications. **Prerequisites:** Grade of C or better in AGCJ 312.

AGCJ 314 Media Writing in Agriculture and Life Sciences II

Credits 3. 2 Lecture Hours. 2 Lab Hours. Examination of interpretative news gathering and writing for all types of media; basic media law and ethics, interviewing skills with assigned practice writing about agriculture; science and technology topics. **Prerequisites:** Grade of C or better in AGCJ 313; junior or senior classification.

AGCJ 355 Digital Storytelling in Agriculture and Life Sciences I

Credits 3. 3 Lecture Hours. Identification and pitching of digital story ideas in the agriculture and life sciences; recognition of technical and aesthetic aspects of visual design and storytelling that appeal to scientific and non-scientific audiences; design and creation of digital stories for dissemination through broadcast channels; composition of compelling and engaging stories for scientific and non-scientific audiences; management of digital storytelling projects. **Prerequisites:** Grade of C or better in AGCJ 301 and AGCJ 313.

AGCJ 366 Radio Broadcasting

Credits 3. 2 Lecture Hours. 2 Lab Hours. Survey of American broadcasting, development, and impact; influence on society, basic principles, mass communication theory, station operating programming, advertising, rating services, regulation, and censorship; in-depth analysis of current issues and developments. **Prerequisite:** Junior or senior classification.

AGCJ 404 Science Communications and Public Engagement in Agriculture and Life Sciences

Credits 3. 3 Lecture Hours. Integration of science communications experience in agriculture and life sciences research, education, and extension; overview of how to communicate effectively about science, technology, engineering, and math; application of the basics of science communication; examination of conducting science communication research and becoming an effective science influencer. **Prerequisite:** Grade of C or better in AGCJ 313 or approval of instructor.

AGCJ 405 Design and Publication in Agriculture and Life Sciences

Credits 3. 3 Lecture Hours. 0 Lab Hours. Examination of how to design, publish, and disseminate a print magazine; includes writing a journalism feature story for the print publication; designing and selling advertising for the publication. May be taken two times for credit. **Prerequisite:** Grade of C or better in AGCJ 312 and AGCJ 313.

AGCJ 406 Public Relations and Campaigns in Agriculture and Life Sciences

Credits 3. 3 Lecture Hours. Analysis of agricultural public relations campaign; topics include examination of public relations case studies and methods including writing public relations plans for agricultural entities, production of public relations components and evaluation of public relations objectives, strategies and tactics. **Prerequisites:** Grade of C or better in AGCJ 306 and AGCJ 313.

AGCJ 408 Advertising Copy and Design in Agriculture and Life Sciences

Credits 3. 2 Lecture Hours. 2 Lab Hours. Examination of creative aspects of advertising strategy, copywriting, typography and design in a variety of visual media; topics include learning to make and evaluate advertising. **Prerequisites:** Grade of C or better in AGCJ 313.

AGCJ 410 Risk Communications in Science and Society

Credits 3. 3 Lecture Hours. Expansion of understanding of risk communications and public-focused risk communication related to environmental, agricultural and public health contexts; examination of how risk is defined, assessed, quantified, perceived, and communicated; application of best practices of risk communication to crisis and risk-related events. **Prerequisites:** Grade of C or better in AGCJ 306 and AGCJ 313.

AGCJ 411 Advanced Research in Agriculture and Life Sciences Communications

Credits 3. 3 Lecture Hours. Development of research hypothesis, questions, and variables for audience and communications research; implementation of qualitative and quantitative research designs; collection, analysis, visualization, and reporting of qualitative and quantitative data; participation in research activities to apply research methods and analyses guided by sociological, psychological, and anthropological theories. **Prerequisite:** Grade of C or better in AGCJ 311; junior or senior classification.

AGCJ 413 Emerging Media in Agriculture and Life Sciences

Credits 3. 3 Lecture Hours. Examination of the use of popular emerging media in agriculture to communicate; exploration of building and marketing a brand online; understanding the strategy behind the posts and other communications; creation of emerging media communications strategies for academic or business entities that may be implemented upon completion of course. **Prerequisite:** Grade of C or better in AGCJ 313; junior or senior classification.

AGCJ 455 Digital Storytelling in Agriculture and Life Sciences II

Credits 3. 3 Lecture Hours. Application of advanced storytelling, shooting, and editing techniques for digital storytelling within the context of agriculture and life sciences; building of visual narratives using a combination of still images, HD video, ambient audio, and natural voices that appeal to scientific and non-scientific audiences; application of the journalistic standards of truth, fairness and accuracy with the tools and techniques of digital storytelling to tell compelling stories in the agriculture and life sciences. **Prerequisites:** Grade of C or better in AGCJ 301 and AGCJ 355.

AGCJ 481 Seminar

Credits 3. 3 Other Hours. Identification of communication-related issues; examination of the effects of media on the dissemination of scientific information and consumers' behavioral change; write, design, create and distribute communications products; exposure to work in teams. **Prerequisites:** Grade of C or better in AGCJ 314; senior classification.

AGCJ 485 Directed Studies

Credits 1 to 4. 1 to 4 Lecture Hours. Directed individual study of selected problems in agricultural communications, communication methods and the communication profession with emphasis on collection, analysis and presentation of information. **Prerequisites:** Junior or senior classification; approval of department advisor.

AGCJ 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Special topics in an identified area of agricultural communications and journalism. May be repeated for credit. **Prerequisite:** Junior or senior classification.

AGCJ 491 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of faculty member in agricultural communications and journalism. May be repeated 3 times for credit. Registration in multiple sections of this course are possible within a given semester provided that the per semester credit hour limit is not exceeded. **Prerequisites:** Junior or senior classification and approval of department advisor.

AGCJ 494 Internship

Credits 1 to 6. 1 to 6 Other Hours. Supervised internship and independent study related to the student's professional interest. **Prerequisites:** Junior or senior classification; approval of department advisor.

AGEC - Agricultural Economics (AGEC)

AGEC 101 Concepts in Agricultural Economics - First Year Experience

Credits 0-1. 0-1 Lecture Hours. 0 Lab Hours. 0 Other Hours. Discussion-based designed to connect first-year AGECE and AGBL students with peers, faculty and staff while providing an overview of the experiential learning and high impact opportunities available in these majors; highlights key issues at Texas A&M University, in agriculture, and in the field of Agricultural Economics.

AGEC 105 Introduction to Agricultural Economics

Credits 3. 3 Lecture Hours. (AGRI 2317) Introduction to Agricultural Economics. Characteristics of our economic system and basic economic concepts; survey of the farm and ranch firm and its organization and management; structure and operation of the marketing system; functional and institutional aspects of agricultural finance; government farm programs.

AGEC 117 Critical Thinking and Decision Making in Agricultural Economics

Credit 1. 1 Other Hour. An introductory seminar in the Department of Agricultural Economics; emphasis on resources and opportunities available in the department; awareness and understanding of professional development; emphasis on writing as a critical communication skill. **Prerequisite:** AGECE 105, ECON 203, or grade of C or better in ECON 202; ENGL 103 or ENGL 104; Agricultural Economics and Agribusiness majors.

AGEC 216 Fundamentals of the AgriFood Sales Industry

Credit 1. 1 Lecture Hour. Fundamentals of professional business to business sales in AgriFood firms; opportunities to interact with successful salespeople in AgriFood firms; focus on career development, exploration of undergraduate internships in professional sales and identification of basic sales theories currently in use in AgriFood firms; learning to network extensively with AgriFood industry professionals and developing a mentor relationship.

AGEC 217 Fundamentals of Agricultural Economics Analysis

Credits 3. 2 Lecture Hours. 2 Lab Hours. Relates contemporary agribusiness issues to economic and financial management, illustrating their integration toward pragmatic applications in the agricultural industry; lab focuses on the integration of mathematics and economics with computer skills directed toward spreadsheets, databases, web pages, and communications software. **Prerequisites:** Grade of C or better in AGECE 105; grade of C or better in AGECE 117 or concurrent enrollment; grade of C or better in MATH 141 or MATH 168 or MATH 140; grade of C or better in MATH 142; sophomore or junior agricultural economics or agribusiness majors; or approval of department head.

AGEC 223 Establishing Agribusiness Entrepreneurship Networks I

Credit 1. 1 Lecture Hour. Introduction to successful entrepreneurs and other professionals, identifying suggested strategies and tactics in starting and sustaining viable rural and metropolitan business ventures; emphasis on importance of and how to develop relationships with a broad spectrum of mentors. **Prerequisite:** Freshman or sophomore classification.

AGEC 285 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Directed study of selected problems in agricultural economics. **Prerequisite:** AGECE 105 or concurrent enrollment; freshman or sophomore classification in agricultural economics, agribusiness, or approval of instructor and department head; 2.5 GPR in major, overall, and CBK courses, if applicable; see an academic advisor in Room 214 AGLS.

AGEC 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of agricultural economics. May be repeated for credit. **Prerequisites:** Freshman or sophomore classification and approval of department head.

AGEC 291 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in agricultural economics. May be repeated 3 times for credit. **Prerequisites:** Freshman or sophomore classification and approval of department head; see an academic advisor in Room 214 AGLS.

AGEC 314 Marketing Agricultural and Food Products

Credits 3. 3 Lecture Hours. Operations involved in movement of agricultural commodities from farmer to consumer via several intermediaries; functions involve buying, selling, transportation, storage, financing, grading, pricing and risk bearing; agricultural supply chain or value chain is studied in detail; marketing aspects of commodities and differentiated goods. **Prerequisites:** AGECE 105 or 3 hours of economics; and junior or senior classification.

AGEC 315 Food and Agricultural Sales

Credits 3. 3 Lecture Hours. Principles of professional sales techniques used in food and agricultural firms; develop a professional sales presentation; study current agribusiness industry professional salespersons. **Prerequisite:** Junior or senior classification.

AGEC 316 Building Customer Relationships in AgriFood Selling

Credits 3. 3 Lecture Hours. Use of emotional intelligence factors in developing business-to-business customer relationships for AgriFood, real estate, finance and other industrial products and services; developing customer relationships with regard to the unique aspects of technical products and services in these industries. **Prerequisite:** Grade of C or better in AGECE 315; junior or senior classification; approval of instructor.

AGEC 317 Economic Analysis for Agribusiness Management

Credits 3. 3 Lecture Hours. Quantitative methods used to address managerial problems, specifically calculus-based optimization, marginal analysis, elasticities, statistical and forecasting techniques, linear programming, and risk analysis; emphasis on theoretical aspects and applied analysis of managerial problems faced by agricultural firms. **Prerequisites:** AGECE 217; ECON 323; BUSN 203 for agribusiness majors or STAT 301, 302, or 303 for agricultural economics majors; junior or senior classification; agricultural economics, agribusiness majors only; or approval of department head.

AGEC 324 Agribusiness Entrepreneurship – Budgeting

Credits 3. 2 Lecture Hours. 2 Lab Hours. Case study approach to demonstrate a process for evaluating the economic feasibility of a single-enterprise rural or metropolitan business venture; relevant production, marketing and financing costs, in combination with capital ownership and overhead costs; computer spreadsheets including attention to deterministic sensitivity analyses; computer capabilities are essential. **Prerequisites:** Grade of C or better in AGECE 105 or ECON 202; grade of C or better in ACCT 209 or ACCT 229; junior or senior classification or approval of instructor.

AGEC 325 Principles of Farm and Ranch Management

Credits 3. 3 Lecture Hours. 0 Lab Hours. Agribusiness managerial decision making and analysis in different market environments; emphasis is on profit maximization; focuses on using computerized methods for evaluating management alternatives for farming and ranching problem situations. **Prerequisites:** AGECE 105 or ECON 202; junior or senior classification; knowledge of Excel.

AGEC 330 Financial Management in Agriculture

Credits 3. 3 Lecture Hours. Principles of financial management of farms, ranches, and other agribusiness firms; financial statements, financial statement analysis, time value of money, investment analysis, firm growth, risk management, credit analysis and best business management practices. **Prerequisites:** AGECE 105 or 3 hours of economics; ACCT 209 or ACCT 229; and junior or senior classification.

AGEC 340 Agribusiness Management

Credits 3. 3 Lecture Hours. Survey of management practices using case studies to evaluate management issues in agribusiness firms in the context of the four functions of management such as planning, organizing, leading and controlling; emphasis on best practices throughout the food marketing chain; examination of how businesses and business executives succeed; application of previously learned knowledge in making business decisions similar to those encountered in professional careers. **Prerequisites:** AGECE 105 or 3 hours of economics; and junior or senior classification.

AGEC 344 Food and Agricultural Law

Credits 3. 3 Lecture Hours. Legal principles relevant to the farm family and business; characteristics of legal decisions and rules on property rights, and fencing laws; analysis of global, national, state, and local legal issues in contracts, torts, water, pollution, and natural resources. **Prerequisite:** Junior or senior classification.

AGEC 350 Environmental and Natural Resource Economics

Credits 3. 3 Lecture Hours. Inspection of issues such as environmental degradation, population growth, recycling, water use and depletion, natural habitat protection, water and air pollution, acid deposition, fishery management, and global warming using economically derived principles and tools. **Prerequisite:** Junior or senior classification.

AGEC 401 Global Agri-Industries and Markets - Study Abroad

Credits 3. 3 Lecture Hours. Understanding agriindustries and markets; analysis of production; importing; exporting; provides classroom experience with an exposure to a variety of global cultures in an international setting. May be taken three times for credit. **Prerequisites:** AGECE 105 or 3 hours of economics; junior or senior classification or approval of department head.

AGEC 402 Survey of International Agricultural Economics: Study Abroad

Credits 3. 3 Lecture Hours. Examine, from an international setting, the shape of international agriculture; how culture, history, politics and geography in foreign countries affect the production and management of agricultural products; agricultural policy formation; countries' natural resources and competitive strategies; may be taken 3 times for credit. **Prerequisites:** AGECE 105 or 3 hours of economics; junior or senior classification or approval of department head.

AGEC 408 Economics of Foreign Intervention, Conflict and Development

Credits 3. 3 Lecture Hours. Economic models of conflict and development; dynamic socio-political models of conflict; conflict and vulnerable groups; quantitative techniques and methods in conflict and development research; interaction between poverty, natural resources and conflict in developing countries; role of multilateral, bilateral, and strategic stakeholders in conflict resolution and promotion of economic development. **Prerequisites:** AGECE 105 or ECON 202 or equivalent; ENGL 104; or approval of instructor.

AGEC 413 Agricultural Cooperatives

Credits 3. 3 Lecture Hours. Historical development and principles of cooperative associations in our economic system; organizational and operational aspects of cooperatives; legal considerations, financing, management, and member relations; and future role of cooperatives. **Prerequisites:** AGECE 105; AGECE 314; and junior or senior classification.

AGEC 414 Agribusiness and Food Market Analysis

Credits 3. 3 Lecture Hours. Application of economic and marketing principles to contemporary food and agribusiness marketing; practical marketing management for agribusiness firms; market analysis; and marketing strategy and planning as related to the emerging trends in the global food and agribusiness sector of the economy. **Prerequisites:** AGECE 317; MKTG 321; and junior or senior agribusiness majors only.

AGEC 415 Food and Agribusiness Strategic Market Planning

Credits 0 to 3. 0 to 3 Lecture Hours. Development of a market plan targeting the food and agribusiness market sector; market analysis; business propositions; action plans for executing the 4 P's (Product, Price, Place, Promotion); monitoring and measurement. **Prerequisites:** AGECE 314 or MKTG 321 or MKTG 409; AGECE 315; junior or senior classification or approval of instructor.

AGEC 416 Sales Management and Advanced Techniques in Professional Technical Selling for AgriFood Firms

Credits 3. 3 Lecture Hours. Principles and practices of sales management in food and agricultural firms; focus on business-to-business selling situations, theoretical and practical information about sales management for AgriFood firms; application of principles. **Prerequisites:** Grade of C or better in AGECE 216, AGECE 315, and AGECE 316.

AGEC 420 Food Security, Climate and Conflict

Credits 3. 3 Lecture Hours. Economic models of food production and consumption in conflict regimes; the micro-economics of violence; the dynamic relationships of climate and agricultural production; potential impacts of climate change on food and socio-political security; food security among insurgent groups; conflict resistant food systems; and the shifting relationships between poor and rich nations in relationship to climate, food and conflict. **Prerequisites:** AGECE 105 or ECON 202, junior or senior classification, or approval of instructor.

AGEC 422 Land Economics

Credits 3. 3 Lecture Hours. Economic, institutional, and physical factors involved in the use and control of natural resources; includes elements of introductory land economics as a discipline, economic foundations of land economics, institutional influences on land use, and the effects of public policy on land use. **Prerequisites:** AGECE 105 or 3 hours economics; and junior or senior classification.

AGEC 423 Establishing Agribusiness Entrepreneurship Networks II

Credit 1. 1 Lecture Hour. Engagement opportunities with successful agri/metropolitan entrepreneurs and other professionals, focusing on strategies and tactics for starting and sustaining viable rural and metropolitan business ventures; emphasis on importance of, and how to, develop relationships with a broad spectrum of mentors. **Prerequisites:** Junior or senior classification or approval of instructor. May not enroll in AGECE 223 and AGECE 423 during the same semester.

AGEC 424 Agribusiness Entrepreneurship – Economic Analysis

Credits 3. 2 Lecture Hours. 2 Lab Hours. Strategic planning regarding economic feasibility of a single-enterprise rural or metropolitan business venture; emphasis on processes for developing a comprehensive enterprise budget and construction and evaluation of risk management alternatives; exchanges with “real-world” entrepreneurs, financial experts and other management personnel; computer capabilities essential. **Prerequisites:** Grade of C or better in AGECE 105 or ECON 202; grade of C or better in ACCT 209 or ACCT 229; junior or senior classification or approval of instructor.

AGEC 425 Agribusiness Entrepreneurship – Financial Analysis

Credits 3. 2 Lecture Hours. 2 Lab Hours. Strategic planning regarding rural and metropolitan business ventures; emphasis on processes for developing comprehensive economics and financial prospectuses, including enterprise budgets, risk management planning, cash flow budgeting, net worth statements, income budgets, reconciliation statements and shock analysis; mentoring exchanges with “real-world” entrepreneurs, financial experts and other management personnel. **Prerequisites:** AGECE 424; and junior or senior classification.

AGEC 429 Agricultural Policy

Credits 3. 3 Lecture Hours. Analysis of the causes, nature, and effects of government participation in agriculture; and interrelationship of the American agriculture and agribusiness sector with the political and economic system, public administration, and interest group representation. **Prerequisites:** AGECE 105, ECON 202 or ECON 203; ENGL 103 or ENGL 104; and junior or senior classification.

AGEC 430 Macroeconomics of Agriculture

Credits 3. 3 Lecture Hours. Basic functioning of U.S. economy and relationship to agriculture; the differential effects of macroeconomic policy on disposable income, interest rates, unemployment, inflation and exchange rates; impact on agricultural commodity prices, farm input costs, net farm income, farmland values and key financial indicators. **Prerequisites:** AGECE 105 or 3 hours of economics; AGECE 317 or concurrent enrollment; AGECE 429; AGECE 330 or FINC 341 or FINC 409; and junior or senior classification.

AGEC 431 Cases in Agribusiness Finance

Credits 3. 3 Lecture Hours. Financial management of agribusiness firms; advanced topics in financial statement analysis, liquidity management, investment analysis, and capital structure illustrated through examination of agribusiness cases. **Prerequisites:** AGECE 317; AGECE 340; FINC 341; and junior or senior agribusiness majors only.

AGEC 432 Rural Real Estate and Financial Analysis

Credits 3. 3 Lecture Hours. Advanced topics in investment analysis; financial intermediation in agriculture; real estate markets and market analysis; and appraisal valuation. **Prerequisites:** AGECE 317 (waived for nonmajors); AGECE 330 or FINC 341 or FINC 409; AGECE 422; and junior or senior classification.

AGEC 434 Rural Financial Markets and Financial Planning

Credits 3. 3 Lecture Hours. Organization, structure, conduct and regulation of lending institutions serving commercial agriculture and rural borrowers; borrower financial statement analysis, business forecasting, investment analysis and loan application process; lender credit application underwriting standards, credit scoring and loan decision making process; agricultural loan portfolio analysis. **Prerequisites:** ACCT 209 or ACCT 229; ACCT 210 or ACCT 230; AGECE 330 or FINC 341 or FINC 409; junior or senior classification.

AGEC 440 Agribusiness Strategic Analysis

Credits 3. 3 Lecture Hours. Strategic management and economic principles for the agribusiness system; problem recognition and applied managerial/economic decision making with related considerations in marketing, production, or finance for agribusiness firms. **Prerequisites:** AGECE 317; AGECE 340; MGMT 363; and junior or senior agribusiness majors only.

AGEC 447 Food and Agricultural Price Analysis

Credits 3. 3 Lecture Hours. Factors influencing the level of food and agricultural prices; price trends and seasonal variation; methods of forecasting demands and prices; and futures trading. **Prerequisites:** AGECE 314; AGECE 317; and junior or senior classification.

AGEC 448 Agricultural Commodity Futures

Credits 3. 3 Lecture Hours. Activities of commodity futures exchanges; the mechanics of trading futures contracts; the use of futures trading for hedging and forward pricing; and options, basis behavior, and hedging strategies for selected commodities. **Prerequisites:** AGECE 105 or 3 hours of economics; AGECE 314; AGECE 317 or concurrent enrollment; and junior or senior classification; or approval of department head.

AGEC 452 International Trade and Agriculture

Credits 3. 3 Lecture Hours. Changing role of U.S. agriculture in a dynamic world economy; national and international policies and institutions affecting agriculture; and exchange rates, tariffs, and non-tariff barriers. **Prerequisites:** AGECE 105 or 3 hours of economics; and junior or senior classification.

AGEC 453 International Agribusiness Marketing

Credits 3. 3 Lecture Hours. Basic competencies in international marketing of agri-foods; and market entry, pricing, payment, finance, and promotion. **Prerequisites:** AGECE 105 or 3 hours of economics; and junior or senior classification.

AGEC 460 Cross-Cutting Issues in Agricultural Economics

Credits 0 to 3. 0 to 3 Lecture Hours. Examination of economic theory and its history; emphasis on the areas of agricultural business, finance, macroeconomics, management, marketing, microeconomics, quantitative analysis, resources, and economics policy; emphasis on the ability to properly analyze economic problems. **Prerequisites:** AGECE 317; AGECE 314 or MKTG 321 or MKTG 409; AGECE 330 or FINC 341 or FINC 409; AGECE 429; agricultural economics and agribusiness majors only; junior or senior classification or approval of instructor.

AGEC 481 Ethics in Agribusiness and Agricultural Economics

Credit 1. 1 Lecture Hour. Examination of the principals of ethical business behavior; context created through assigned readings, guest speakers from various law enforcement branches and private industry; written reports about personal experiences relative to this context; attention given to establishing personal principles for an ethical business career.

Prerequisites: AGECE 217; senior classification; agricultural economics or agribusiness majors only.

AGEC 484 Internship

Credits 0 to 6. 0 to 6 Other Hours. Supervised experience program conducted in the area of the student's interest in agricultural economics and agribusiness. May be taken two times. **Prerequisite:** See an advisor in Room 214 AGLS Building.

AGEC 485 Directed Studies

Credits 0 to 6. 0 to 6 Other Hours. Special problems not covered by other courses. Content will depend upon problem studied. **Prerequisite:** See an advisor in Room 214 AGLS Building.

AGEC 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of agricultural economics. May be repeated for credit. **Prerequisite:** Junior or senior classification.

AGEC 491 Research

Credits 0 to 6. 0 to 6 Other Hours. Research conducted under the direction of faculty member in agricultural economics. May be repeated 3 times for credit. Registration in multiple sections of this course are possible within a given semester provided that the per semester credit hour limit is not exceeded. **Prerequisites:** Junior or senior classification and approval of department head; see an advisor in Room 214 AGLS Building.

AGEC 495 International Agribusiness and Industry Practices

Credits 0 to 3. 0 to 3 Lecture Hours. Exposure to agribusiness operations in a international cross-cultural context and production operations, marketing and distribution of agriculture products from around the world; quantitative methods used for engaging in critical thinking about issues confronting the agribusiness industry. **Prerequisite:** AGECE 105 and junior classification.

AGLS - Ag & Life Sciences (AGLS)

AGLS 101 Modern Agricultural Systems and Renewable Natural Resources

Credit 1. 1 Lecture Hour. (AGRI 1131) Modern Agricultural Systems and Renewable Natural Resources. An introduction to modern agriculture and the natural, human and scientific resources upon which it depends. **Prerequisite:** Freshman or sophomore classification.

AGLS 125 Life Sciences Learning Community I

Credits 0-1. 0-1 Lecture Hours. Development of personal and professional competencies in the life sciences: learning styles, leadership skills, appreciation for the arts; ethics in science, problem solving skills, experimental design, data gathering and interpretation, introduction to life sciences literature, critical analysis skills, and the connectivity between life science disciplines. May be taken two times for credit. **Prerequisites:** Freshman classification and approval of instructor.

AGLS 225 Life Sciences Learning Community II

Credits 0 to 6. 0 to 6 Lecture Hours. Continuation of the development of personal and professional competencies in the life sciences: ethics in science, problem solving skills, experimental design, data gathering and interpretation, examination of life sciences literature, critical analysis skills, and the connectivity between life science disciplines. May be taken two times for credit. **Prerequisites:** Approval of instructor.

AGLS 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of agriculture and life science. May be repeated for credit. **Prerequisite:** Freshman or sophomore.

AGLS 292 Cooperative Education in Agriculture

Credits 2. 4 Other Hours. Educational work assignment by a student in the field of his or her career interest and course of study; supervision of the student by the cooperating employer and the instructor; a technical report, approved by the instructor, on a related subject area required. **Prerequisite:** Approval of the college coordinator of cooperative education.

AGLS 301 College of Agriculture and Life Sciences Study Abroad

Credits 1 to 18. 1 to 18 Other Hours. For students in approved programs abroad. May be repeated for credit. **Prerequisites:** Admission to approved program and approval of academic dean.

AGLS 392 Cooperative Education in Agriculture

Credits 2. 40 Other Hours. Educational work assignment by a student in the field of his or her career interest and course of study. Supervision of the student by the cooperating employer and the instructor; a technical report, approved by the instructor, on a related subject area required.

Prerequisite: AGLS 292.

AGLS 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of agricultural and life sciences.

AGLS 492 Cooperative Education in Agriculture and Natural Resource Policy

Credits 0 to 3. 0 to 3 Other Hours. Educational work assignment by a student in the field of his or her career interest and course of study; supervision of the student by the cooperating employer and the instructor; a technical report, approved by the instructor, on a related subject area required. **Prerequisites:** AGLS 392 or approval of Agricultural and Natural Resources Policy Internship Program staff.

AGSC - Agricultural Science (AGSC)

AGSC 285 Directed Studies

Credits 1 to 4. 1 to 4 Lecture Hours. Directed individual study of selected problems in agricultural science with emphasis on collection, analysis and presentation of information. May be repeated for credit. **Prerequisite:** Approval of instructor.

AGSC 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Special topics in an identified area of agricultural science. May be repeated for credit. **Prerequisite:** Approval of department head.

AGSC 291 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of faculty member in agricultural science. May be repeated 2 times for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

AGSC 302 Teaching School-Based Agricultural Education & Clinical Professional Experience

Credits 4. 3 Lecture Hours. 3 Lab Hours. Teaching School-Based Agricultural Education & Clinical Professional Experience. Foundations of school-based agricultural education (SBAE) teaching; an overview of preparing teachers for a changing world including knowledge of learners, subject matter and teaching within the context of agricultural science; clinical field experience for teaching agricultural science in public schools of Texas. **Prerequisites:** Junior or senior classification.

AGSC 305 Management of Supervised Agricultural Experiences

Credits 3. 3 Lecture Hours. Overview of supervised agricultural experiences (SAEs) and content that can be used in the secondary agricultural science program; engagement in SAE programs; management practices for SAE projects including record keeping and student reports. **Prerequisite:** Junior or senior classification.

AGSC 363 Teaching Skills in Agricultural Metal Technology

Credits 3. 2 Lecture Hours. 2 Lab Hours. Instructional design using science, technology, engineering and math and computer aided design (CAD); teaching methods in agricultural metal technology and fabrication; metalworking skills, electric arc welding, oxyfuel torch and plasma arc.

Prerequisite: Junior or senior classification or approval of instructor.

AGSC 373 Managing Safety in the Agricultural Science Program

Credits 3. 2 Lecture Hours. 2 Lab Hours. Safety principles and procedures, methods of teaching and motivating students in agricultural mechanics; design for those preparing to teach agricultural science in Texas public schools. **Prerequisite:** Junior or senior classification; grade of C or better in AGSC 302.

AGSC 380 Workshop in Agricultural Science

Credits 1 to 4. 1 to 4 Other Hours. The study, understanding and solution of human-agricultural problems based on theory learned in the classroom, library, laboratory and fieldwork completed by individuals and teams. **Prerequisite:** Junior or senior classification.

AGSC 383 Teaching Agricultural Mechanics

Credits 3. 2 Lecture Hours. 3 Lab Hours. Methods of teaching and motivating students in agricultural mechanics; designed for students preparing to teach agricultural science in Texas public schools. **Prerequisite:** Grade of C or better in AGSC 302.

AGSC 402 Designing Instruction for Secondary Agricultural Science Programs

Credits 3. 2 Lecture Hours. 3 Lab Hours. Theory and practice in designing instruction for secondary agricultural science programs including effective planning and delivery methods; designed for students preparing to teach agricultural science in Texas public schools. **Prerequisite:** Grade of C or better in AGSC 302; grade of C or better or concurrent enrollment in AGSC 405, AGSC 373, AGSC 383, and INST 210.

AGSC 405 Facilitating Complete Secondary Agricultural Science Programs

Credits 3. 2 Lecture Hours. 3 Lab Hours. Theory and practice in facilitating secondary agricultural science programs: includes classroom instruction, supervised experience, and youth leadership development; designed for students preparing to teach agricultural science in Texas public schools. **Prerequisite:** Grade of C or better in AGSC 302; grade of C or better or concurrent enrollment in AGSC 402, AGSC 373, AGSC 383, and INST 210.

AGSC 425 Learner Centered Instruction in Agricultural Science

Credits 3. 3 Lecture Hours. Preparing curriculum materials for secondary agricultural science and adult education programs. **Prerequisites:** Grade of C or better in AGSC 402 and AGSC 405 and concurrent enrollment in AGSC 436, AGSC 481, and AGSC 484.

AGSC 436 Professional Teaching Internship in AGSC

Credits 6. 2 Lecture Hours. 12 Lab Hours. Planning for and teaching secondary agricultural science in selected high schools in Texas; includes 12 weeks of professional teaching experience under the guidance of a university supervisor and a cooperating teacher in the school. **Prerequisites:** Grade of C or better in AGSC 402 and AGSC 405 and concurrent enrollment in AGSC 425, AGSC 481, and AGSC 484.

AGSC 481 Seminar

Credit 1. 1 Lecture Hour. Review of current literature and research as related to program development in light of legislation and policies affecting education in agriculture. **Prerequisite:** Grade of C or better in AGSC 402 and AGSC 405.

AGSC 484 Field Experience

Credits 1 to 6. 1 to 6 Other Hours. An on-the-job supervised experience program conducted in the area of the student's specialization. **Prerequisites:** Grade of C or better in AGSC 402 and AGSC 405 and concurrent enrollment in AGSC 425, AGSC 436, and AGSC 481.

AGSC 485 Directed Studies

Credits 1 to 4. 1 to 4 Lecture Hours. Directed individual study of selected problems in agricultural science with emphasis on collection, analysis and presentation of information. May be repeated for credit. **Prerequisite:** Junior or senior classification; approval of instructor.

AGSC 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Special topics in an identified area of agricultural science. May be repeated for credit. **Prerequisite:** Approval of department head.

AGSC 491 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of faculty member in agricultural science. May be repeated 3 times for credit. Registration in multiple sections of this course are possible within a given semester provided that the per semester credit hour limit is not exceeded. **Prerequisites:** Junior or senior classification; approval of instructor.

AGSM - Agricultural Systems Mgmt (AGSM)

AGSM 105 The World Has a Drinking Problem - Global Water Scarcity

Credits 3. 3 Lecture Hours. Study of how drinking water maintains and improves human health, availability of fresh water throughout the world; includes how population changes, cultural influences, and political power affect quality, distribution and cost of water for children, rural communities and under-represented peoples.

AGSM 125 Introduction to Agricultural Systems Management

Credit 1. 2 Lab Hours. Introduction to technical management of agricultural systems using management projects presented by agricultural managers from industry; problem definition, information search, idea generation and development of management solutions. **Prerequisite:** Freshman or sophomore classification or approval of instructor; majors only.

AGSM 201 Agricultural Energy and Power Systems

Credits 3. 2 Lecture Hours. 2 Lab Hours. (AGRI 2301) Agricultural Energy and Power Systems. A study of the types of power and energy sources used in agricultural equipment and systems; management considerations for selecting, operating and maintaining internal combustion engines, electric equipment and motors, and renewables as power sources.

AGSM 284 Internship

Credits 0. 0 Lecture Hours. 0 Lab Hours. 0 Other Hours. No Credit. Practical experience working in a professional agricultural systems management setting. May be taken three times. **Prerequisite:** Freshman or sophomore classification; approval of the instructor.

AGSM 285 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Selected problems in any phase of agricultural systems management; credit and specific content dependent upon background, interest, ability and needs of student enrolled; individual consultations and reports required. **Prerequisites:** Freshman or sophomore classification; approval of department head.

AGSM 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of agricultural systems management. May be repeated for credit. **Prerequisite:** Approval of instructor.

AGSM 291 Research

Credits 0 to 3. 0 to 3 Other Hours. Research conducted under the direction of faculty member in agricultural systems management. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

AGSM 301 Systems Analysis in Agriculture

Credits 3. 3 Lecture Hours. Operations research and systems theory applied to management problems in food and agricultural industries; linear programming, queuing theory, simulation and critical path method; provides the knowledge and computer skills to better manage resources for the evolving agricultural industries. **Prerequisites:** Grade of C or better in MATH 140 or MATH 168 and MATH 142 or MATH 151.

AGSM 310 Agricultural Machinery Management

Credits 3. 2 Lecture Hours. 2 Lab Hours. Selection of a matched complement of power units and machines for farming operations; consider constraints such as crops, season, weather, personnel and capital; apply systems techniques such as linear programming, optimization, queuing theory and inventory models; utilize available software programs and learn to develop electronic spreadsheets and other customized software. **Prerequisites:** AGSM 201; grade of C or better in AGSM 301 or concurrent enrollment; grade of C or better in PHYS 201 or PHYS 206.

AGSM 315/FSTC 315 Food Process Engineering Technology

Credits 3. 2 Lecture Hours. 2 Lab Hours. Elementary mechanics, physical and thermal properties of food and processing materials, heat transfer, mass and energy balances, psychrometrics (properties of air), insulation. **Prerequisites:** Grade of C or better in PHYS 201 or PHYS 206, or approval of instructor. **Cross Listing:** FSTC 315/AGSM 315.

AGSM 325 Agri-Industrial Applications of Electricity

Credits 3. 2 Lecture Hours. 2 Lab Hours. Elements of electric current generation and transmission, applications of electric heating, lighting and power, wiring, motors, energy rates, meter reading, safety rules and regulations. **Prerequisite:** AGSM 201; AGSM majors or minors only.

AGSM 335 Water and Soil Management

Credits 3. 2 Lecture Hours. 3 Lab Hours. Elementary principles of surface and ground water supply, flood control, water distribution systems and irrigation systems; principles of drainage, soil conservation and erosion control; elementary surveying, chaining, leveling and mapping applied to agricultural and natural resource needs; illustrated by practical examples of terracing and farm pond design. **Prerequisite:** Grade of C or better in MATH 140 or MATH 168; grade of C or better in CHEM 107 and CHEM 117, or CHEM 119; or approval of instructor.

AGSM 337 Technology for Environmental and Natural Resource Engineering

Credits 3. 3 Lecture Hours. For the nonengineering student in the environmental and management sciences; concentrates on the application of technology for solving local environmental problems while considering global issues; reduction of water, air and hazardous waste pollutants; legislative issues and modeling. **Prerequisites:** Grade of C or better in MATH 140 or MATH 168 and MATH 142, or MATH 151 and MATH 152, or AGSM 301.

AGSM 360 Occupational Safety Management

Credits 3. 3 Lecture Hours. 0 Lab Hours. Safety considerations in the work environment, including safety mandates, safety mission, personal and business liability, fire, chemical, dust, machine noise, personal protective devices; design and implementation of safety programs. **Prerequisite:** Junior or senior classification.

AGSM 403 Processing and Storage of Agricultural Products

Credits 3. 2 Lecture Hours. 2 Lab Hours. Factors influencing the nature of biological materials and the preservation of quality throughout the harvesting, handling and processing system; a systems approach to cereal grains includes principles of drying, quality deterioration, storage, conveying and handling; processing of fiber crops. **Prerequisites:** AGSM 310 and AGSM 315/FSTC 315; or approval of instructor.

AGSM 411 Cotton Gin Management

Credits 3. 3 Lecture Hours. Principles of cotton operation, selection, maintenance, repair of machinery used in ginning; discussion of unit operations in ginning, determination of appropriate operating parameter; introduction to the industry, classification, textile processing; management of safety, labor, regulatory issues in gins and other processing facilities; economics of gin operation and machinery investment decisions. **Prerequisites:** Junior or senior classification or approval of instructor.

AGSM 417 Food Process Engineering Technology II

Credits 3. 3 Lecture Hours. Applications of basic engineering concepts to understand common unit operations in the food (and related) industry. **Prerequisites:** AGSM 315/FSTC 315 or FSTC 315/AGSM 315; approval of instructor.

AGSM 435 Irrigation Principles and Management

Credits 3. 2 Lecture Hours. 3 Lab Hours. Principles of irrigation and management for efficient use of water; soil-water-plant relationships; methods of application; power and labor requirements; automated systems and components. **Prerequisite:** Grade of C or better in MATH 140 or MATH 168; grade of C or better in CHEM 107 and CHEM 117 or CHEM 119.

AGSM 437 Landscape Irrigation

Credits 3. 3 Lecture Hours. Design, installation, operation, and management of landscape irrigation systems; includes principles of hydraulics such as friction losses and design pressure, customer service, site evaluation, and a final design project; fulfills the education requirements for obtaining a State of Texas Irrigation License. **Prerequisites:** Junior or senior classification or approval of instructor.

AGSM 439 Management of Agricultural Systems I

Credits 3. 3 Lecture Hours. Application of agricultural systems management principles in solving realistic problems faced by agribusiness managers; project selection from problems posed by biological and agricultural industrial consultants; project feasibility study and outline; management and application philosophy; teamwork and communication, economics; product liability and reliability; standards and codes; goal setting and time management. **Prerequisites:** ENGL 210, AGSM 310, AGSM 325, and AGSM 360; AGECE 330 or FINC 409 or concurrent enrollment; must be taken prior to AGSM 440; AGSM majors only.

AGSM 440 Management of Agricultural Systems II

Credits 3. 3 Lecture Hours. Management of agricultural systems through team solution of management problems posed by agribusiness managers, farmers, extension specialists and other industry consultants; application of management principles to give experience in solving realistic problems faced by agribusiness managers; critical evaluation of results by students, staff and consultants. **Prerequisite:** COMM 203; grade of C or better in AGSM 439; should be taken last spring semester prior to graduation.

AGSM 461 Geographic Information Systems for Resource Management

Credits 3. 2 Lecture Hours. 2 Lab Hours. Geographic Information Systems (GIS) approach to solving spatial problems and managing natural resources, including the acquisition, management, manipulation, analysis, and mapping of spatial and non-spatial databases; identification of natural and relevant features from various data sources; integration of relevant technologies and data; extensive use of GIS software to solve real-world problems. Only one of the following will satisfy the requirements for a degree: AGSM 461, ECCB 351, ECCB 651, BAEN 651, or RENR 651. **Prerequisites:** Junior or senior classification or approval of instructor. **Cross Listing:** ECCB 351 and RWFM 351.

AGSM 470 Agricultural Electronics and Control

Credits 3. 2 Lecture Hours. 2 Lab Hours. Technology of electronic systems in agricultural production and processing, sensors, actuators, and controllers, controller hardware and computer bases. **Prerequisite:** AGSM 325; or approval of instructor.

AGSM 473 Project Management for Agricultural Systems Technology

Credits 3. 3 Lecture Hours. Development of fundamental skill set in project management; basic knowledge of project management methods, tools and techniques; includes organization and life cycle, management processes, integration management, time management, cost management, quality management, communications management, risk management, procurement management, stakeholder management. **Prerequisites:** Grade of C or better in AGSM 301; senior classification.

AGSM 477 Air Pollution Control and Regulatory Compliance

Credits 3. 3 Lecture Hours. Overview of federal and state environmental regulations focusing on permitting requirements for agricultural operations; operation of air pollution abatement systems to include cyclones, bag filters, and scrubbers; dispersion modeling; National Ambient Air Quality Standards. **Prerequisite:** Grade of C or better in AGSM 301, or grade of C or better in MATH 140 and MATH 142, or equivalent.

AGSM 481 Seminar

Credit 1. 1 Lecture Hour. Professional development; ethics; career opportunities and topics of interest related to the practice of agricultural systems management. **Prerequisite:** Senior classification.

AGSM 484 Internship

Credits 0 to 6. 0 to 6 Other Hours. Practical experience working in a professional agricultural and/or food systems management setting. May be taken three times. **Prerequisites:** Junior or senior classification; approval of the instructor.

AGSM 485 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Selected problems in any phase of agricultural systems management; credit and specific content depend on background and interest of student; individual consultations and reports required. **Prerequisites:** Junior classification; approval of department head; 2.0 GPR.

AGSM 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Special topics in an identified area of agricultural systems management. May be repeated for credit.

AGSM 491 Research

Credits 0 to 3. 0 to 3 Lecture Hours. Research conducted under the direction of faculty member in agricultural systems management. May be repeated 2 times for credit. Registration in multiple sections of this course are possible within a given semester provided that the per semester credit hour limit is not exceeded. **Prerequisites:** Junior or senior classification and approval of instructor.

ALEC - Ag Leadrshp, Ed & Comm (ALEC)

ALEC 285 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Directed study of selected issue in field of agricultural leadership, education, and communications with emphasis on collection, synthesis and interpretation of information. May be taken four times for credit. **Prerequisite:** Approval of department advisor.

ALEC 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Special topics in an identified area of agricultural development. May be repeated for credit. **Prerequisite:** Approval of department advisor.

ALEC 291 Research

Credits 1 to 4. 1 to 4 Lecture Hours. Research conducted under the direction of faculty member in agricultural communications and journalism. May be taken two times for credit. **Prerequisites:** Freshman or sophomore classification and approval of department advisor.

ALEC 350 Global Agricultural Issues

Credits 3. 3 Lecture Hours. Review of global agricultural issues (products, environment, people, and culture) affecting international agricultural development; concepts and principles underlying the processes of teaching, research, and service opportunities in international agricultural development and education situations. **Prerequisites:** Junior or senior classification or approval of instructor.

ALEC 370 Principles of Positive Youth Development

Credits 3. 3 Lecture Hours. Fundamental concepts of youth development practices, programs, organizations and services; development of a critical understanding of the changing views of adolescence and youth culture; overview of youth development theories and principles of positive youth development; aspects of youth development programs; developmental outcomes associated with participation in youth development programs.

Prerequisite: Junior or senior classification.

ALEC 371 Skills and Techniques for Youth Development Professionals

Credits 3. 3 Lecture Hours. Development of skills for effective activity leadership to meet the needs of diverse youth populations; focus on applying experiential learning approaches, multiple activity styles, the role of intentionality, specificity, and application in activity selection, activity sequencing, and activity debriefing. **Prerequisite:** Junior or senior classification.

ALEC 372 Designing and Delivering Effective Youth Programs

Credits 3. 3 Lecture Hours. Comprehensive concepts of program design for youth programs; focuses on key programming issues; development of implementation plans; overview of equipment and facilities; focus on program flexibility, risk management and evaluation (formative and summative). **Prerequisites:** Junior or senior classification.

ALEC 375 Youth Development Programming in Sport and Physical Activities

Credits 3. 3 Lecture Hours. Role of community-based sports in developing healthy youth; ways in which sport programs can be designed to maximize physical, intellectual, emotional, and social outcomes; role of key adults and institutions in the delivery of youth sport experiences. **Prerequisites:** Junior or senior classification.

ALEC 377 Camp Management and Administration

Credits 3. 3 Lecture Hours. Structure and organization, administration and leadership, and challenges and opportunities facing professionals interested in careers in residential camping for youth. **Prerequisites:** Junior or senior classification.

ALEC 380 Workshop in Agricultural Leadership, Education, and Communications

Credits 1 to 4. 1 to 4 Lecture Hours. The study, understanding and solution of human-agricultural problems based on theory learned in the classroom, library, laboratory and fieldwork completed by individuals and teams. May be taken three times for credit. **Prerequisite:** Junior or senior classification.

ALEC 399 High-Impact Experience

Credits 0. 0 Lecture Hours. Participation in an approved high-impact learning practice; documentation and self-assessment of learning experience. **Prerequisites:** Junior or senior classification; or approval of instructor.

ALEC 412 Technology-Enhanced Instructional Design Strategies for Agriculture

Credits 3. 3 Lecture Hours. Techniques and applications of technology to enhance instruction of agricultural topics; instructional design principles, instructional strategies, technological tools; the design, development and delivery of technology-enhanced instruction for agriculture and the life sciences. Not intended for majors in education. **Prerequisite:** Junior or senior classification.

ALEC 425 Principles of Program Evaluation

Credits 3. 3 Lecture Hours. Evaluation principles applied to educational programs in agriculture and life science; basic understanding of skills in program evaluation processes, concepts, and theories; develop expertise needed to design and conduct evaluations of youth and adults in extension, community, and school-based programs. **Prerequisite:** Junior or senior classification.

ALEC 450 Global Social Justice Issues in Agriculture

Credits 3. 3 Lecture Hours. An in-depth evaluation of global social justice issues and leadership skills necessary to effectively solve and manage issues in agricultural development; topics include awareness, knowledge and understanding of teaching, research and service opportunities for those seeking careers in global social justice and agricultural leadership. **Prerequisite:** Junior or senior classification or approval of instructor.

ALEC 460 Applying International Development Theories in Agriculture

Credits 3. 2 Lecture Hours. 2 Lab Hours. Practical application of agricultural development theories (geographical, communal, societal, etc.) in real-world settings; high-impact learning, research skill development, international travel or participation in a service-learning project with an international organization. **Prerequisites:** Junior or senior classification or approval of instructor.

ALEC 472 Grant Writing and Program Evaluation for Youth Development Organizations

Credits 3. 3 Lecture Hours. Development of knowledge and skills to successfully write grant proposals and design program evaluation plans for youth development organizations; appropriate funding opportunities and considerations; grant guidelines; budget, timeline, and personnel; program evaluation plan development; evaluating grant proposals. **Prerequisites:** Grade of C or better in ALEC 370 or RPTS 370; or approval of instructor; junior or senior classification.

ALEC 473 Diversity, Equity, and Inclusion in Youth Development Organizations

Credits 3. 3 Lecture Hours. 0 Lab Hours. Understanding of youth diversity (e.g., ability and disability, socio-economic background, race, ethnicity, and cultural background, beliefs and religion, and gender characteristics); implementation of inclusive and equitable programming; development of cultural competencies. **Prerequisites:** Grade of C or better in ALEC 370.

ALEC 474 Positive Youth Development in the Age of Artificial Intelligence

Credits 3. 3 Lecture Hours. Understanding the intersection of positive youth development and artificial intelligence; exploration of data science and machine learning techniques and how they can be leveraged to support and enhance the well-being and potential of young people.

Prerequisites: Grade of C or better in ALEC 370; junior or senior classification.

ALEC 478 Youth Development Practice

Credits 3. 3 Lecture Hours. Application of youth development philosophy in community settings; principles and practices of community youth development and existing youth development models; local efforts related to community youth development. **Prerequisite:** Grade of C or better in ALEC 370 and ALEC 371 and junior or senior classification.

ALEC 485 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Directed individual study of selected problems in international agriculture leadership, education and communications. **Prerequisites:** Junior or senior classification; approval of department advisor.

ALEC 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Special topics in an identified area of international agriculture leadership, education, and communications. May be taken four times for credit. **Prerequisite:** Junior or senior classification.

ALEC 491 Research

Credits 1 to 4. 1 to 4 Lecture Hours. Research conducted under the direction of faculty member in international agricultural leadership, education, and communications. May be taken three times for credit.

Prerequisites: Junior or senior classification; approval of department advisor.

ALEC 494 Internship

Credits 1 to 6. 1 to 6 Other Hours. Supervised internship and independent study related to the student's professional interest. May be taken six times for credit. **Prerequisites:** Junior or senior classification; approval of departmental advisor.

ALED - Ag Leadership & Dev (ALED)

ALED 125 Leadership Learning Community I

Credit 1. 1 Lecture Hour. Offered to students living in the Freshmen Leadership Living Learning Community; fundamentals of developing personal leadership while participating in co-curricular activities; emphasis on the relational model of leadership and global perspective building. **Prerequisites:** Freshman classification or approval of instructor; on-campus residence.

ALED 202 Introduction to Leadership

Credits 3. 3 Lecture Hours. Introduction to the academic and scholarly development of leadership theory and leadership models; investigation of leadership theory when applied to a specific context; development of a leadership definition as an inquiry investigation.

ALED 225 Leadership Learning Community II

Credit 1. 1 Lecture Hour. Offered to students living in the Freshmen Leadership Living Learning Community; fundamentals of peer mentoring while participating in co-curricular activities; emphasis on building supportive relationships on a college campus. **Prerequisites:** Freshman classification or approval of instructor; on-campus residence; ALED 125.

ALED 285 Directed Studies in Agricultural Leadership and Development

Credits 1 to 4. 1 to 4 Other Hours. Directed study of selected issue in agricultural leadership and development with emphasis on collection, synthesis and interpretation of information. **Prerequisite:** Approval of department advisor.

ALED 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Special topics in an identified area of agricultural development. May be repeated for credit. **Prerequisite:** Approval of department advisor.

ALED 291 Research

Credits 1 to 4. 1 to 4 Lecture Hours. Research conducted under the direction of faculty member in agricultural development. May be repeated 2 times for credit. Please see academic advisor in department. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

ALED 301 Personal Leadership Education

Credits 3. 3 Lecture Hours. Development, application and reflection of personal leadership capabilities through self-assessments and experiential learning activities; development of leadership identity through personal leadership inventories including strengths, personality type, values, vision and emotional intelligence. **Prerequisite:** ALED or USAL-LED major; junior, or senior classification; grade of C or better in ALED 202.

ALED 322 Cultural Leadership and Exploration for Society

Credits 3. 3 Lecture Hours. Social theories in terms of class, gender, race, ethnicity, and nationality; multidisciplinary approach to the study of leadership with a special emphasis on culture.

ALED 323 Leadership for a Multicultural World

Credits 3. 3 Lecture Hours. Principles of multicultural leadership; how to be an effective leader while understanding the self in terms of class, gender, race, ethnicity, and nationality; special emphasis on culture through experiential learning.

ALED 324 Leadership and Identity Development

Credits 3. 3 Lecture Hours. Identity development and leadership; dialogue about the implications of their multiple identities in the classroom organizations and in their careers; self-reflections concerning leadership development and active community-based service learning. **Prerequisites:** Junior or senior classification.

ALED 339 Agricultural Extension Philosophy and the Land-Grant Mission

Credits 3. 3 Lecture Hours. Philosophy of Cooperative Extension and roles within the land-grant system; history, organization, program areas and guiding principles; relationship with the teaching and research branches of the land-grant system. **Prerequisite:** Junior or senior classification or approval of instructor.

ALED 340 Survey of Leadership Theory

Credits 3. 3 Lecture Hours. Exploration of leadership as a scholarly discipline; critical analysis of and evolution of multiple leadership models and theories; synthesis of leadership theory through experiential learning; integration of course content with personal experiences. **Prerequisites:** ALED or USAL-LED major, junior or senior classification.

ALED 341 Team Learning

Credits 3. 3 Lecture Hours. Team development theory; emphasizes research on team member behaviors, team decision making models and positive conflict in team environments. **Prerequisites:** Grade of C or better in ALED 340; junior or senior classification.

ALED 344 Leadership of Volunteers

Credits 3. 3 Lecture Hours. Principles, theories, concepts, techniques and applications for leading volunteers in agriculture and life sciences nonprofit, governmental and community organizations. **Prerequisites:** Grade of C or better in ALED 340; junior or senior classification.

ALED 400 Public Leadership Development

Credits 3. 3 Lecture Hours. Major issues in the study of public leadership, development of leadership skills, and a field investigation done in conjunction with local public leaders. **Prerequisites:** Junior classification and approval of instructor.

ALED 401 Advanced Professional Leadership Development

Credits 3. 3 Lecture Hours. Investigation of the best practices of successful leaders representing various organizational contexts; merging of scholarly mastery of theory with practice. **Prerequisites:** Selection for ALED Leadership Fellows Program; grade of C or better in ALED 340 or ALED 301; junior or senior classification.

ALED 419 Followers and Followership

Credits 3. 3 Lecture Hours. Examination of the role of followers and followership; identification of follower motivations, followership styles, leader and follower dynamics, and characteristics of courageous followers. **Prerequisites:** Grade of C or better in ALED 340; junior or senior classification.

ALED 422 Cultural Pluralism in Agriculture

Credits 3. 3 Lecture Hours. Selected topics on the diversity of human resources in agriculture; emphasis on working in a multicultural society and developing a sensitivity toward different cultures; explores the interrelationships between the contributions of diverse individuals and the state, nation and global success of agriculture. **Prerequisite:** Junior or senior classification.

ALED 424 Applied Ethics in Leadership

Credits 3. 3 Lecture Hours. Exploration of ethical and moral theories and the application to multiple leadership contexts and situations. **Prerequisites:** Junior or senior classification.

ALED 426 Leading and Training Adult Learners

Credits 3. 3 Lecture Hours. Planning educational training programs, including leadership programs, to implement with an adult audience; includes needs assessment, instructional design, lesson plan development, evaluation and other items related to leading adults.

Prerequisites: Grade of C or better in ALED 340, junior or senior classification.

ALED 440 Leading Change

Credits 3. 3 Lecture Hours. Analysis of change models and theories and the leadership application on individual, organizational and societal changes. **Prerequisite:** Junior or senior classification; grade of C or better in ALED 202.

ALED 441 Agricultural Extension Organization and Methods

Credits 3. 3 Lecture Hours. Cooperative extension in agriculture and home economics; development, objectives, organization, program building and methods of teaching. **Prerequisite:** Junior or senior classification.

ALED 481 Seminar

Credits 3. 3 Lecture Hours. Individual and team approaches to the review of leadership concepts and their application; observation and discussion of current leadership trends and issues. **Prerequisites:** ALED or USAL-LED major; senior classification; grade of C or better in ALED 202, ALED 301, ALED 340, ALED 440, and ALED 424.

ALED 485 Directed Studies in Agricultural Leadership Development

Credits 1 to 4. 1 to 4 Other Hours. Directed individual study of selected problems in agricultural leadership and development with emphasis on collection, analysis and presentation of information. **Prerequisites:** Junior or senior classification and approval of instructor.

ALED 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Special topics in an identified area of agricultural development. May be repeated for credit. **Prerequisite:** Junior or senior classification.

ALED 491 Research

Credits 1 to 4. 1 to 4 Lecture Hours. Research conducted under the direction of faculty member in agricultural development. May be repeated 2 times for credit. Registration in multiple sections of this course are possible within a given semester provided that the per semester credit hour limit is not exceeded. Please see academic advisor in department. **Prerequisites:** Junior or senior classification; approval of instructor.

ALED 494 Internship

Credits 1 to 6. 1 to 6 Other Hours. Supervised internship and independent study related to student's professional interest. **Prerequisites:** Grade of C or better in ALED 301; junior or senior classification; 2.0 GPR; approval of instructor.

ANSC - Animal Science (ANSC)

ANSC 101 Introductory Seminar for Animal Science

Credit 1. 1 Lecture Hour. Orientation to programs and opportunities in the Department of Animal Science, to create an awareness of campus resources for financial aid and tutoring, to develop goals for college career and to initiate planning for internship and job opportunities.

ANSC 107 General Animal Science

Credits 3. 3 Lecture Hours. (AGRI 1319, 1419*) General Animal Science. General understanding of all aspects of the livestock industry; basic agriculture nomenclature of breeds, species and types of livestock; reproduction, nutrition, genetics, food safety, growth and development of beef cattle, sheep, horses, swine, dairy cattle and poultry; brief description of the companion animal industry.

ANSC 108 General Animal Science Laboratory

Credit 1. 2 Lab Hours. (AGRI 1119, AGRI 1419*) General Animal Science Laboratory. General overview of the beef cattle, dairy cattle, horse, sheep, swine and poultry industries; information on major breeds, anatomy, phenotypic and genotypic selection criteria and production practices for each species; major disciplines of the animal industry including breeding and genetics, nutrition, reproductive physiology and products; utilization of live animals, models and feedstuffs/equipment to enhance experiential learning approach. **Prerequisite:** Concurrent enrollment in ANSC 107.

ANSC 111 Animal Production Systems

Credits 3. 2 Lecture Hours. 2 Lab Hours. Transformative experiences related to beef cattle, dairy cattle, equine, sheep, swine, goats, companion animals, meats, food products and food safety; exposure to available animal science careers and potential areas of future/additional study. **Prerequisites:** Grade of C or better in ANSC 101 or AGLS 101, ANSC 107, and ANSC 108.

ANSC 113 Farm Animal Biosystems

Credits 2. 2 Lecture Hours. Information regarding the processes by which networks of cells are controlled and coordinated within the farm animal. **Prerequisites:** Grade of C or better in ANSC 107 and ANSC 108.

ANSC 117 Texas Barbecue

Credit 1. 1 Lecture Hour. Survey, demonstration and participation in preparation techniques of Texas barbecue; comparison of regional and international barbecue methods. **Prerequisite:** First year students.

ANSC 201 Introductory Equine Care and Use

Credits 2. 2 Lecture Hours. Survey of basic equine care and use; breeds of horses and their use; care and maintenance of equines including feeding, health care, housing and equipment.

ANSC 205 Animal Science Laboratory Preparation Methods

Credits 2. 1 Lecture Hour. 2 Lab Hours. . Study of basic animal production systems knowledge and effective pedagogical techniques to prepare animal science laboratories and animal handling methods; includes high-impact learning opportunity to allow the practice of pedagogical techniques learned in a controlled and supported environment.

Prerequisite: Grade of C or better in ANSC 107, ANSC 108, and ANSC 111.

ANSC 207 Art and Heritage of Livestock

Credits 3. 3 Lecture Hours. Using art as a venue to understand the legacy and heritage of livestock production and livestock's contribution to civilization and society; from man as hunter, agriculturalist, and finally, as industrialist; from cave paintings to Russell and Remington; history of the effects of painting, poetry, architecture and sculpture on agriculture.

ANSC 210 Companion Animal Science

Credits 3. 3 Lecture Hours. Types, care, physiology, common diseases and common treatments of companion animals (dogs, cats, exotic pets); careers including biomedical research; solutions for problems such as behavior and overpopulation.

ANSC 211 Equine Industry and Career Preparation

Credits 2. 2 Lecture Hours. Identify opportunities and skill sets required to pursue a career in the equine industry; development of resume, communication, professional etiquette and interview skills.

ANSC 215 Introduction to Livestock Evaluation

Credits 2. 1 Lecture Hour. 3 Lab Hours. (AGRI 2321) Introduction to Livestock Evaluation. Live market animal appraisal in relation to carcass and composition; criteria for selection of breeding livestock; techniques for preparation and delivery of oral reason.

ANSC 221 Equine Handling and Safety

Credits 3. 2 Lecture Hours. 2 Lab Hours. Working around horses safely and effectively; includes equine behavior, proper handling techniques, controlling movement of horses, health assessment and basic management. **Prerequisite:** ANSC 201.

ANSC 235 Animal Welfare Judging

Credits 2. 1 Lecture Hour. 3 Lab Hours. . Preparation for competition in Intercollegiate Animal Welfare Judging/Assessment competition; use of primary literature to strengthen knowledge of welfare issue present in the species chosen for competition scenario; required for participation on the Animal Welfare Judging Team. **Prerequisites:** ANSC 107.

ANSC 242 Growth and Development of Livestock

Credits 3. 2 Lecture Hours. 2 Lab Hours. Evaluation of slaughter livestock as related to growth and development, production efficiency, carcass value; selection of breeding animals based on performance, production records, visual appraisal; principles of growth biology; biotechnological tools used to manage growth and development. **Prerequisites:** ANSC 107 and ANSC 108.

ANSC 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an indented area of animal science. May be repeated for credit.

Prerequisite: Approval of instructor.

ANSC 291 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in animal science. May be repeated 2 times for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor; 2.0 GPR in major and overall.

ANSC 302 Basic Beef Cattle Production

Credits 3. 3 Lecture Hours. Fundamental concepts of beef management and production principles; service course recommended for non-animal science majors. **Prerequisites:** ANSC 107 and ANSC 108.

ANSC 303/NUTR 303 Principles of Animal Nutrition

Credits 3. 3 Lecture Hours. Scientific approach to nutritional roles of water, carbohydrates, proteins, lipids, minerals, vitamins, and other dietary components; emphasis on the comparative aspects of gastrointestinal tracts and on digestion, absorption, and metabolism of nutrients.

Prerequisites: CHEM 119 and a grade of C or better in ANSC 113, or CHEM 222, CHEM 227 or CHEM 257; junior classification or approval of instructor. **Cross Listing:** NUTR 303/ANSC 303.

ANSC 305 Animal Breeding

Credits 3. 2 Lecture Hours. 2 Lab Hours. A systems approach to selection and mating of livestock; gene frequency, heritability, relationship, inbreeding, linebreeding, heterosis, crossbreeding, direct and correlated response to selection, and use of pedigree, family, progeny testing and indices for selection. **Prerequisites:** Grade of C or better in ANSC 111 and ANSC 113; GENE 301; STAT 301, STAT 302, STAT 303, or ANSC 309; junior classification or approval of instructor.

ANSC 307 Meats

Credits 3. 2 Lecture Hours. 3 Lab Hours. Integrated studies of the meat animal processing sequence regarding the production of meat-type animals and the science and technology of their conversion to human food. **Prerequisites:** Grade of C or better in ANSC 113; junior classification or approval of instructor.

ANSC 309 Applied Animal Record Keeping

Credits 3. 2 Lecture Hours. 2 Lab Hours. Keeping, analyzing and interpreting records to make fully-informed decisions on a day-to-day basis for production and management scenarios; practical application unique to animal science and meat processing. **Prerequisite:** Junior or senior classification.

ANSC 311 Equine Behavior and Training

Credits 2. 1 Lecture Hour. 3 Lab Hours. Equine behavior and application of principles of psychology to training horses; systematic approaches to horse training emphasizing principles of learning; equipment and its use; stable management and preparation of horses for competition; separate laboratory sections for students with varying backgrounds. **Prerequisite:** Junior or senior classification.

ANSC 314 Wool Evaluation and Grading

Credits 2. 1 Lecture Hour. 3 Lab Hours. Evaluation of U.S.D.A. grades for wool and mohair; steps involved in processing raw wool into finished fabric; genetic and environmental factors affecting quality characteristics of wool and mohair; grading, evaluation and selection of fleeces for economic value; oral and written defense of judgments.

ANSC 315 Livestock Judging

Credits 2. 1 Lecture Hour. 3 Lab Hours. Selection and evaluation of beef cattle, swine, sheep and horses. Ability to present accurate, clear and concise oral and written reasons stressed. **Prerequisites:** ANSC 107 and ANSC 108; junior or senior classification.

ANSC 316 Equine Selection and Judging

Credits 2. 1 Lecture Hour. 3 Lab Hours. Detailed evaluation and comparison of horses; selection and critique of athleticism and performance in horses; industry trends addressed; oral and written defense of judgments also explained and expected; required for participation on the Horse Judging Team. **Prerequisite:** Junior or senior classification or approval of instructor.

ANSC 317 Meat Selection, Evaluation and Grading

Credits 2. 1 Lecture Hour. 3 Lab Hours. Selection and grading of carcasses and wholesale cuts of beef, pork and lamb; principles of evaluation included in carcass contests and progeny testing. **Prerequisites:** ANSC 107 and ANSC 108.

ANSC 318 Animal Feeds and Feeding

Credits 3. 2 Lecture Hours. 3 Lab Hours. Scientific approaches associated with precision feeding and diet formulation to match nutrient availabilities of feedstuffs with requirements of various classes of livestock species; emphasis on cost-effective feeding strategies to optimize animal productivity, and end-product quality and safety, while mitigating environmental impacts and enhancing animal health and welfare. **Prerequisite:** Grade of C or better in ANSC 111, ANSC 113 and ANSC 303/NUTR 303; junior classification or approval of instructor.

ANSC 320 Animal Nutrition and Feeding

Credits 3. 3 Lecture Hours. Nutritional functions of water, protein, carbohydrates, fats, minerals and vitamins and their digestion, absorption, use and excretion; energy, protein and forage feedstuff characteristics and processing; nutritional requirements, ration formulation and feeding methods for farm animals; general course for non-animal science majors. **Prerequisite:** Junior or senior classification or approval of instructor; restricted to students in the college of agriculture and life sciences.

ANSC 325 Advanced Livestock and Product Evaluation

Credits 2. 1 Lecture Hour. 3 Lab Hours. Advanced evaluation of cattle, swine, sheep and equine; products produced or associated with each species; advanced oral or written defense of judgments associated with changing trends in these industries. May be repeated three times for credit. **Prerequisite:** Junior or senior classification.

ANSC 326/FSTC 326 Food Bacteriology

Credits 3. 3 Lecture Hours. Microbiology of human foods and accessory substances; raw and processed foods; physical, chemical and biological phases of spoilage; standard industry techniques of inspection and control. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** FSTC 326/ANSC 326.

ANSC 327/FSTC 327 Food Bacteriology Lab

Credit 1. 3 Lab Hours. Laboratory to accompany ANSC 326/FSTC 326 or FSTC 326/ANSC 326. **Cross Listing:** FSTC 327/ANSC 327.

ANSC 333 Reproduction in Farm Animals

Credits 2. 2 Lecture Hours. Physiological principles of reproductive processes in cattle, sheep, swine, and horses including sperm and ova production, estrus, fertilization, gestation and parturition. **Prerequisites:** Grade of C or better in ANSC 113 or ANSC 303/NUTR 303.

ANSC 334 Reproduction in Farm Animals Laboratory

Credit 1. 0 Lecture Hours. 2 Lab Hours. . Laboratory techniques relevant to reproductive processes in cattle, sheep, swine, and horses including sperm and ova production, estrus, fertilization, gestation, and parturition. **Prerequisite:** Grade of C or better in ANSC 333 or concurrent enrollment.

ANSC 337 Meat Merchandising

Credits 2. 1 Lecture Hour. 3 Lab Hours. Steps of meat processing and merchandising of retail and foodservice; merchandising practices such as selection, identification, fabrication, pricing, packaging and distribution. **Prerequisites:** ANSC 307; junior or senior classification.

ANSC 360 System Dynamics for Animal Sciences

Credits 2. 2 Lecture Hours. . System dynamics modeling for the analysis of business policy and strategy; study of visualization of a business organization in terms of structures and policies that create dynamics and regulate performance; emphasis on animal production. **Prerequisite:** Grade of C or better in ANSC 303/NUTR 303 or ANSC 320, or approval of the instructor.

ANSC 380 Animal Science for Agricultural Science

Credits 3. 3 Lecture Hours. . Preparation to become agriculture, food and natural resources (AFNR) teachers with an opportunity for the expansion of knowledge of the primary livestock species; information relating to breeding and genetics, reproduction, physiology, nutrition, management systems, products and disease; a brief exploration of companion animals. **Prerequisite:** ANSC 107 and Agricultural Science major.

ANSC 399 Animal Science Experience

Credits 0. 0 Lecture Hours. Participation in an approved high-impact learning practice; reflection on professional outcomes from animal science body of knowledge; documentation and self-assessment of learning experience at mid and final curriculum points. **Prerequisite:** Junior or senior classification.

ANSC 404 Behavior and Management of Domestic Animals

Credits 4. 3 Lecture Hours. 2 Lab Hours. Application of behavior of cattle, horses, sheep, goats and swine to their management; basic principles, physiology of behavior, perception, training, predators, use of dogs in livestock production, stress and animal welfare. **Prerequisites:** Grade of C or better in ANSC 305, ANSC 307, ANSC 318 and ANSC 333; junior or senior classification or approval of instructor.

ANSC 406 Beef Cattle Production and Management

Credits 4. 3 Lecture Hours. 2 Lab Hours. Principles involved for profitable and sustainable, integrated beef cattle production as considered from the perspective of the U.S. cow-calf sector and from an overall systems-based approach. **Prerequisites:** Grade of C or better in ANSC 305, ANSC 307, ANSC 318, and ANSC 333; junior or senior classification or approval of instructor.

ANSC 408 Management of Stocker and Feedlot Cattle

Credits 4. 3 Lecture Hours. 2 Lab Hours. Basic principles involved in feeding, management, marketing and disease control of stocker and feeder cattle from weaning through slaughter for economical production of beef. **Prerequisites:** Grade of C or better in ANSC 305, ANSC 307, ANSC 318, and ANSC 333; STAT 301, STAT 302, STAT 303, or ANSC 309; junior or senior classification.

ANSC 411 Equine Nutrition and Health

Credits 3. 3 Lecture Hours. Designed to provide knowledge of nutrition and health in the horse; gastrointestinal anatomy, nutrient utilization, feeding management and nutritional requirements; metabolic diseases, infectious diseases, internal and external parasites, and herd health management. **Prerequisite:** Junior or senior classification.

ANSC 412 Swine Production and Management

Credits 4. 3 Lecture Hours. 2 Lab Hours. Basic principles and their practical application in efficient, economical pork production; all areas of production—breeding and selection, nutrition, housing and equipment, marketing, herd health and economic management. **Prerequisites:** Grade of C or better in ANSC 305, ANSC 307, ANSC 318, and ANSC 333; junior or senior classification or approval of instructor.

ANSC 414 Sheep and Goat Production and Management

Credits 4. 3 Lecture Hours. 2 Lab Hours. In-depth hands-on experiences related to sheep and goat production and management providing an advanced understanding of small ruminant production. **Prerequisites:** Grade of C or better in ANSC 305, ANSC 307, ANSC 318, and ANSC 333; junior or senior classification or approval of instructor.

ANSC 415 Brazil: Comparative Ruminant Production

Credits 3. 3 Lecture Hours. Contrast two scenarios of ruminant production in Brazil; the effects of globalization on the two different production systems. **Prerequisites:** ANSC 303/NUTR 303 or ANSC 320 or approval of instructor.

ANSC 418 Equine Exercise Physiology

Credits 3. 2 Lecture Hours. 2 Lab Hours. Changes within the systems of the horse resulting from the physical stresses of exercise, adaptations of systems in response to a training regimen; methodology for measuring improvement in physical condition; foundation for development of training programs for horses in moderate, intense or prolonged performance activities. **Prerequisites:** Junior or senior classification and approval of instructor.

ANSC 420 Equine Production and Management

Credits 4. 3 Lecture Hours. 2 Lab Hours. Application of biological and biotechnological principles and concepts in areas including genetics, breeding, nutrition, reproduction, immunology, parasitology, anatomy and exercise physiology to efficient production of horses for market; management of equine enterprises. **Prerequisite:** Grade of C or better in ANSC 305, ANSC 307, ANSC 318, and ANSC 333; junior or senior classification or approval of instructor.

ANSC 423 Issues in the Equine Industry

Credit 1. 1 Lecture Hour. Integration of cumulative knowledge acquired in the equine science curriculum to demonstrate critical thinking and communication skills to address critical issues in the equine industry. **Prerequisite:** Junior or senior classification; approval of instructor.

ANSC 429 Dairy Production Management

Credits 4. 3 Lecture Hours. 2 Lab Hours. Major principles for profitable and sustainable dairy production for a commercial dairy operation; provides hands-on experiences in dairy cattle management; develops critical thinking skills to make dairy cattle management decisions. **Prerequisite:** Grade of C or better in ANSC 305, ANSC 307, ANSC 318 and ANSC 333; junior or senior classification or approval of instructor.

ANSC 432 Equine Industry Tour

Credits 2. 2 Lecture Hours. All facets of the Texas Equine Industry, including breed associations, large events, breeding and production operations, large ranches, performance horse training barns, media, history, veterinary medicine, retail, sports medicine, and nutrition; network and gain a holistic perspective on the inner workings of the equine industry. **Prerequisites:** Junior or senior classification; approval of instructor.

ANSC 434 Animal Reproduction Management

Credits 4. 3 Lecture Hours. 2 Lab Hours. Available and emerging technologies including control of ovulation, artificial insemination, embryo manipulation and transfer, in vitro fertilization and animal cloning for managing reproduction of farm animals; hands-on sessions using available technologies including artificial insemination of cattle. **Prerequisites:** Grade of C or better in ANSC 305, ANSC 307, ANSC 318 and ANSC 333; junior or senior classification or approval of instructor.

ANSC 436 Texas Panhandle Beef Production Tour

Credits 2. 2 Lecture Hours. Facets of beef production from cow/calf operations to retail product; experiential knowledge of technologies and practices to enhance efficiency to enlighten students regarding the array of career opportunities in the beef production industry. **Prerequisites:** Junior or senior classification or approval of instructor.

ANSC 437 Marketing and Grading of Livestock and Meat

Credits 4. 3 Lecture Hours. 2 Lab Hours. Study of USDA livestock and carcass grades; understanding current market trends for beef, pork, lamb and goat; review of branded and certified programs; principles applied in contracting, breakeven determination, hedging, and grid or formula pricing. **Prerequisite:** Junior or senior classification or approval of instructor.

ANSC 439 Feedlot Risk Management

Credits 2. 2 Lecture Hours. Advanced study of livestock marketing techniques; cash sales, video sales, futures and options markets, forward contracting; problem solving in real-time livestock marketing situations; risk of ownership of hypothetical livestock operations. **Prerequisites:** junior or senior classification or approval of instructor.

ANSC 447 Advanced Meat Science and Technology

Credits 4. 3 Lecture Hours. 3 Lab Hours. Advanced basic and applied studies of meat science and/or technology utilizing the underlying physiological and structural components for conversion to human food; understanding the influence of pre- and post-harvest factors on meat quality, composition, color, packaging, sensory and preparation factors; applying scientific and business principles to manufacturing and process flow of commercial meat food products and demonstrating knowledge of these principles through development of meat products. **Prerequisites:** Grade of C or better in ANSC 305, ANSC 307, ANSC 318 and ANSC 333; GENE 301; STAT 301, 302, 303, or ANSC 309; junior or senior classification or approval of instructor.

ANSC 451 Current Issues in Animal Agriculture

Credits 4. 3 Lecture Hours. 2 Lab Hours. Preparation to project a professional image and the use of communication skills to describe animal agriculture; converse about the strengths and weaknesses of animal agriculture. **Prerequisites:** Junior or senior classification or approval of instructor.

ANSC 455 System Dynamics for Animal Science

Credits 2. 2 Lecture Hours. Exploration of system dynamics modeling emphasizing animal science; mapping of complex system structures; development and testing of computer-based models of animal science. **Prerequisites:** Grade of C or better in ANSC 303/NUTR 303 or ANSC 320, or approval of instructor.

ANSC 457/FSTC 457 Hazard Analysis and Critical Control Point System

Credits 3. 3 Lecture Hours. Hazard Analysis and Critical Control Point (HACCP) principles specifically related to meat and poultry; microbiological and process overviews; good manufacturing practices and standard operating procedures development. **Prerequisite:** FSTC 326/ANSC 326 or ANSC 326/FSTC 326, or approval of instructor. **Cross Listing:** FSTC 457/ANSC 457.

ANSC 467 Processed Meat Food Operations

Credits 3. 2 Lecture Hours. 2 Lab Hours. Application of scientific and business principles to manufacturing and process flow of commercial meat food products. **Prerequisites:** ANSC 307 or FSTC 307 or approval of department head.

ANSC 470/FSTC 470 Quality Assurance for the Food Industry

Credits 3. 3 Lecture Hours. Principles of food system process control including statistical process control (SPC) and the tools required to assure uniform communication and understanding of quality assurance systems. **Prerequisite:** Junior or senior classification. **Cross Listing:** FSTC 470/ANSC 470.

ANSC 481 Seminar

Credit 1. 1 Lecture Hour. Review of literature and research problems related to the livestock and food industries; preparation of a technical report including an oral presentation supported by a written technical paper. **Prerequisite:** Senior classification.

ANSC 484 Livestock Practicum

Credit 1. 2 Other Hours. Provides an opportunity to learn skills required in livestock production; planned for students who have had limited farm and ranch experience in one or more species. **Prerequisite:** Junior or senior classification in animal science or approval of instructor.

ANSC 485 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Directed individual study of selected problem in field of animal science. **Prerequisites:** Junior or senior classification; written approval of professor supervising the activity; 2.0 GPR in major and overall.

ANSC 487/FSTC 487 Sensory Evaluation of Foods

Credits 3. 2 Lecture Hours. 2 Lab Hours. Application of sensory science principles and practices to food systems including an understanding of discriminative, descriptive and consumer sensory techniques. **Prerequisites:** CHEM 222 or CHEM 228; junior or senior classification. **Cross Listing:** FSTC 487/ANSC 487.

ANSC 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 8 Lab Hours. Selected topics in an identified area of animal science. May be repeated for credit. **Prerequisite:** Junior or senior classification.

ANSC 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in animal science. May be repeated 3 times for credit. Registration in multiple sections of this course is possible within a given semester provided that the per semester credit hour limit is not exceeded. **Prerequisite:** Junior or senior classification and approval of instructor; 2.0 GPR in major and overall.

ANSC 494 Animal Science Internship

Credits 0 to 5. 0 to 5 Other Hours. Independent study and supervised field experience related to the student's professional interest. **Prerequisites:** Junior or senior classification or approval of instructor; 2.0 GPR in major and overall.

ANSC 495 International Agriculture and Animal Production

Credits 3. 3 Lecture Hours. Study of international agriculture and animal production in the world market; impact on foreign economies and culture; considerations of import and export marketing on products to and from the U.S. to provide students the exposure to international economies and cultures; study abroad. **Prerequisites:** Grade of C or better in ANSC 107 or approval of instructor.

ANSC 498 Animal Science Capstone

Credits 4. 4 Lecture Hours. Senior capstone project for students preparing to enter a career related to animal science or a professional school; individual projects based on a self-selected topic in animal science; includes a paper containing both translational and technical descriptions plus statements regarding the expected financial and social impacts of selected topic. **Prerequisites:** Grade of C or better in ANSC 303/NUTR 303, ANSC 307, ANSC 333, and ANSC 334; senior classification.

ANTH - Anthropology (ANTH)

ANTH 201 Introduction to Anthropology

Credits 3. 3 Lecture Hours. (ANTH 2346, HUMA 2323) Introduction to Anthropology. An introduction to the discipline of anthropology through the examination of its four sub-fields: archaeology, physical anthropology, sociocultural anthropology and linguistics; also taught at Qatar campus.

ANTH 202 Introduction to Archaeology

Credits 3. 3 Lecture Hours. (ANTH 2302) Introduction to Archaeology. An introduction to the study of the human past through the retrieval, analysis, and interpretation of material remains; also taught at Galveston campus.

ANTH 204 The Prehistoric World

Credits 3. 3 Lecture Hours. Exploration of the development of human societies and world prehistory from the beginnings of humanity more than two million years ago to emergence of complex civilizations.

ANTH 205 Peoples and Cultures of the World

Credits 3. 3 Lecture Hours. Survey of human cultures around the world using case studies of customs and cultural organization; case studies exemplifying contrasting types of cultures and societies.

ANTH 210 Social and Cultural Anthropology

Credits 3. 3 Lecture Hours. (ANTH 2351) Social and Cultural Anthropology. Evolution of cultures; differences, similarities and effects of material and non-material culture on economic, social and political organization; also taught at Galveston campus.

ANTH 222 Cross Cultural Competency

Credits 3. 3 Lecture Hours. Development of skills vital for effective engagement in an increasingly diverse and interconnected world; personal awareness of biases, attitudes, values, beliefs and ways of knowing; exploration of the impact of culture on our ability to think critically and communicate effectively.

ANTH 225 Introduction to Biological Anthropology

Credits 3. 3 Lecture Hours. (ANTH 2301, 2401*) Introduction to Biological Anthropology. Study of human biology including an examination of evolutionary processes acting on human populations; human genetics; non-human primate anatomy, classification and ecology of primates; the primate paleontological record, and human variation and adaptation. **Prerequisites:** Concurrent registration in ANTH 226 recommended; also taught at Galveston campus.

ANTH 226 Introduction to Biological Anthropology Laboratory

Credit 1. 3 Lab Hours. (ANTH 2101, 2401*) Introduction to Biological Anthropology Laboratory. Exploration of basic evolutionary principles through population genetics; hands-on exposure to the fossils of primate and human evolution along with opportunity to measure, compare, contrast and observe trends that have occurred throughout the Cenozoic era. **Prerequisites:** Concurrent registration in ANTH 225 is recommended; also taught at Galveston campus.

ANTH 229 Introduction to Folklore

Credits 3. 3 Lecture Hours. Study of folklore through selected examples of traditional cultures, their beliefs, customs and art forms such as: tales, folksongs, proverbs, riddles and material culture.

ANTH 285 Directed Studies

Credits 0 to 3. 0 to 3 Other Hours. For individual research in anthropology on subjects not included in established courses. May be taken two times for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

ANTH 289 Special Topics In...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of anthropology. May be repeated for credit.

ANTH 291 Research

Credits 0 to 3. 0 to 3 Other Hours. Research conducted under the direction of a faculty member in Anthropology. May be taken two times for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

ANTH 300 Cultural Change and Development

Credits 3. 3 Lecture Hours. Anthropological strategies for the study of cultural change and the implication of these strategies for the development of Western and non-Western societies.

ANTH 301 Indians of North America

Credits 3. 3 Lecture Hours. Native North American cultures from the Arctic to Mesoamerica; their origins, cultures prior to extensive acculturation and their contemporary situations.

ANTH 302 Archaeology of North America

Credits 3. 3 Lecture Hours. Overview of archaeology and prehistory of North America from the arrival of humankind through the development of agriculture to Euro-American contact. **Prerequisite:** ANTH 201, ANTH 202, ANTH 204, ANTH 205, or ANTH 210.

ANTH 304 Archaeology Roadshow

Credits 3. 3 Lecture Hours. Interdisciplinary field-trip in the archaeology and paleoecology of a specific region; high-impact learning experiences in a field setting. May be repeated two times for credit. **Prerequisites:** ANTH 201, ANTH 202, ANTH 204, ANTH 205, or ANTH 225; approval of instructor.

ANTH 305 Fundamentals of Anthropological Writing

Credit 1. 1 Lecture Hour. Basic types of writing expected of anthropology students; emphasis on the subject matter of an upper-division anthropology course in which the student is currently enrolled. **Prerequisites:** Junior or senior classification and co-enrollment in another upper-division anthropology course (the "companion course").

ANTH 308 Archaeology of Mesoamerica

Credits 3. 3 Lecture Hours. Development of Indian civilizations in Mexico and Guatemala, including prehistory of the Olmec, Maya, Aztec and other regional cultures to the time of the Spanish conquest.

ANTH 312 Fossil Evidence of Human Evolution

Credits 3. 3 Lecture Hours. Detailed review of fossil antecedents of humans including theoretical implications for an understanding of human evolution. **Prerequisite:** ANTH 225 or approval of instructor.

ANTH 313 Historical Archaeology

Credits 3. 3 Lecture Hours. Use and methods of historical archaeology in locating, documenting, restoring and preserving our historical resources; also taught at Galveston campus.

ANTH 316 Nautical Archaeology

Credits 3. 3 Lecture Hours. Nautical Archaeology Underwater shipwrecks, sunken harbors, and other submerged evidence of human activities; relationship to cultural geography in general; problems of diving technology, surveying and preservation; relevance to modern problems. **Prerequisite:** Junior or senior classification; also taught at Galveston campus.

ANTH 317/RELS 317 Introduction to Biblical Archaeology

Credits 3. 3 Lecture Hours. Application of archaeology in biblical research; basic overview of the material cultures that are the setting for the biblical narratives. **Cross Listing:** RELS 317/ANTH 317.

ANTH 318 Nautical Archaeology of the Americas

Credits 3. 3 Lecture Hours. Seafaring in the Americas from the 16th to the 20th centuries based on shipwreck archaeology; ship construction, exploration, commerce, naval warfare and related activity; influence of seafaring on the cultures, economics and history of the Western Hemisphere; also taught at Galveston campus.

ANTH 323 Nautical Archaeology of the Mediterranean

Credits 3. 3 Lecture Hours. The archaeology of ancient seafaring in the Mediterranean from the Stone Age through the Roman Empire. **Prerequisite:** Junior or senior classification.

ANTH 324/MUSC 324 Music in World Cultures

Credits 3. 3 Lecture Hours. Examination of music from an ethnomusicological perspective focusing on musical performance and the complex interrelationship of music to culture, society and daily life; examination of music from a variety of cultures through a series of case studies. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** MUSC 324/ANTH 324.

ANTH 330 Field Research in Anthropology

Credits 1 to 9. 1 to 9 Other Hours. Training for students in formulating and solving anthropological problems through field research; problem oriented field research under supervision. **Prerequisites:** Grade of C or better in ANTH 201, ANTH 202, ANTH 204, ANTH 205, ANTH 210, or ANTH 225; approval by instructor.

ANTH 335 Cultures of Central Asia

Credits 3. 3 Lecture Hours. Study of anthropological research in Central Asia: ecological adaptations; colonialism and post-colonialism; ethnic politics and ethnic conflict; religion and identity; gender and family; globalization and modernization. **Prerequisite:** Junior or senior classification.

ANTH 340/RELS 340 Folklore and the Supernatural

Credits 3. 3 Lecture Hours. Traditional expressions of the supernatural such as superstition, belief tale and divination classified as folklore genres and their relationships to the cultures in which they develop; theories drawn from anthropology, folklore and related social sciences. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** RELS 340/ANTH 340.

ANTH 350 European Archaeology

Credits 3. 3 Lecture Hours. Overview of archaeology and prehistory of Europe from the evolution of the hominids to the development of agriculture and the rise of civilization; also taught at Galveston campus.

ANTH 351 Classical Archaeology

Credits 3. 3 Lecture Hours. Origins and spread of Western civilization through the material remains of Minoan, Mycenaean, Etruscan, and early Greek and Roman cultures. **Prerequisite:** Junior or senior classification or approval of instructor; Galveston campus.

ANTH 353/CLAS 353 Archaeology of Ancient Greece

Credits 3. 3 Lecture Hours. Archaeology of ancient Greece from the Stone Age until the ascent of Rome in the Hellenistic Period; remains of ancient Greek art (sculpture, mosaic, painting), architecture (temples, homes, civic structures), religion (figurines, votive offerings), and social history (coins, inscriptions). **Prerequisite:** Junior or senior classification. **Cross Listing:** CLAS 353/ANTH 353.

ANTH 354/CLAS 354 Archaeology of Ancient Italy

Credits 3. 3 Lecture Hours. Archaeology of ancient Italy from the Stone Age until the collapse of the Roman Empire in the fourth century; remains of ancient Etruscan and Roman art (sculpture, mosaic, painting), architecture (temples, homes, civic structures), religion (figurines, votive offerings), and social history (coins, inscriptions). **Prerequisite:** Junior or senior classification. **Cross Listing:** CLAS 354/ANTH 354.

ANTH 360 Ancient Civilizations of the World

Credits 3. 3 Lecture Hours. Explores recent discoveries and efforts by archaeologists to understand the rise and fall of states and civilizations that emerged in the Near East, Africa, India, Europe, China, Mesoamerica, and Peru between 3500 BCE and 1500 CE. **Prerequisite:** Junior or senior classification.

ANTH 370 Cultural Diversity and Ethics

Credits 3. 3 Lecture Hours. Examination of the cultural construction of ethical values and how cultural diversity, including beliefs, values and ways of doing business, impacts human technological innovation; focuses on developing a holistic, social-science mindset and application of critical thinking skills.

ANTH 382/HIST 382 Conflict Archaeology and Military History

Credits 3. 3 Lecture Hours. Military history; conflict archaeology; human conflict; diplomacy, ethics, and leadership in conflicts; warfare; modern global issues; public service. **Prerequisites:** Junior or senior classification or approval of instructor. **Cross Listing:** HIST 382/ANTH 382.

ANTH 401 Ice Age Humans in North America

Credits 3. 3 Lecture Hours. Archaeological, environmental and geological evidence related to the timing of human entry into the Americas and megafaunal extinctions at the end of the Pleistocene. **Prerequisite:** ANTH 202 or equivalent.

ANTH 402 Archaeological Artifact Conservation

Credits 4. 3 Lecture Hours. 3 Lab Hours. Analysis of the treatments for artifacts of clay, stone, glass, wood, shell, bone, fiber and metal from archaeological excavations or ethnographic, and historic collections presented in an integrated series of lectures and hands-on laboratory experience. **Prerequisite:** Junior or senior classification or approval of instructor.

ANTH 403/RELS 403 Anthropology of Religion

Credits 3. 3 Lecture Hours. Cross-cultural, theoretical analysis of religion as a cultural phenomenon; exploring the relationships between religion, culture, society and the individual; also taught at Galveston campus. **Cross Listing:** RELS 403/ANTH 403.

ANTH 404/WGST 404 Women and Culture

Credits 3. 3 Lecture Hours. Examines women's lives in evolutionary and cross-cultural perspective; women's roles in subsistence, politics, religion and economics in traditional cultures; women's roles in international development; the cultural and social construction of women's biology cross-culturally including circumcision, menstruation, pregnancy, childbirth and motherhood. **Prerequisite:** Junior or senior classification; approval of instructor. **Cross Listing:** WGST 404/ANTH 404.

ANTH 405 Introduction to the Primates

Credits 3. 3 Lecture Hours. Survey of nonhuman primates from ecological and evolutionary perspectives covering numerous topics including: taxonomy; primate evolution; behavioral observation; reproductive strategies; diet; and conservation. **Prerequisite:** Junior or senior classification.

ANTH 409 Science, Pseudoscience and Critical Thinking in Anthropology

Credits 3. 3 Lecture Hours. Close scrutiny of fantastic claims made across a broad spectrum of media regarding anthropology, biological anthropology and archaeology; distinction of science from pseudoscience; critical evaluation of scientific and pseudoscientific research; evaluation of media portrayal of science; development of critical thinking skills for skeptical investigation of extraordinary claims. **Prerequisite:** Junior or senior classification or approval of instructor; also taught at Galveston campus.

ANTH 410 Anthropological Theory

Credits 3. 3 Lecture Hours. A systematic examination of the basic principles of anthropology. **Prerequisite:** ANTH 210 or ANTH 205.

ANTH 412 Archaeological Theory

Credits 3. 3 Lecture Hours. History of scientific archaeological exploration; major theoretical paradigms and movements in archaeological theory; current trends in archaeology; intellectual developments from other disciplines that influenced archaeological thought. **Prerequisites:** Junior or senior classification, ANTH 202 or approval of instructor.

ANTH 415 Anthropological Writing

Credits 3. 3 Lecture Hours. Reading and discussion of the classic genres of anthropological literature; instruction in writing styles and techniques appropriate to each genre, followed by guided writing assignments. **Prerequisite:** Junior or senior classification.

ANTH 417/CLAS 417 Naval Warfare and Warships in Ancient Greece and Rome

Credits 3. 3 Lecture Hours. Extensive survey of Greek and Roman warships, naval warfare, naval strategy and tactics drawing upon archaeological evidence, literary documentation and iconographic material, from the Bronze Age (Ancient Egypt and the mythical Trojan War) to the Imperial Roman Navy. **Prerequisite:** Junior or senior classification. **Cross Listing:** CLAS 417/ANTH 417.

ANTH 418 Romans, Arabs, and Vikings-- Seafaring in the Mediterranean during the early Christian Era

Credits 3. 3 Lecture Hours. Examination of seafaring, maritime commerce, naval affairs, and shipbuilding in the Mediterranean from the late Roman Period until the fall of Constantinople in 1453. **Prerequisite:** Junior or senior classification.

ANTH 419 Indians of Texas

Credits 3. 3 Lecture Hours. Study of diverse native/immigrant Texas Indian lifeways/cultures from late pre-European to contemporary times; exploration of historical underpinnings, traditional cultures, especially land-use patterns; assessment of tribal relationships with colonial powers, U.S., and Texas governments as evidenced in ethnographic, ethnohistoric, and historical materials; application toward anthropological, archaeological, and human ecology research. **Prerequisites:** Junior or senior classification; ANTH 201, ANTH 202, ANTH 205, ANTH 210, ANTH 301, HIST 258, or HIST 308, or approval of instructor.

ANTH 420 Pirates, Privateers, and Sea Raiders

Credits 3. 3 Lecture Hours. History and archaeology of piracy, privateering, and sea raiding from ancient times in the Mediterranean, through the Viking Era in the Northern Atlantic, and the advent of piracy in the New World and Caribbean; sociology of contemporary piracy in Africa and the Indian Ocean; sensationalism of pirate legend and the cultural responses to the influences of the pirate phenomenon, both cinematographic and literary. **Prerequisites:** Junior or senior classification.

ANTH 421/MUST 421 Advanced Museum Studies

Credits 3. 2 Lecture Hours. 3 Lab Hours. Exploration of advanced topics in museum programs; preservation, research, education, outreach; development and implementation; emphasis on historical contexts, disciplinary intersections, ethical obligations and professional responsibilities; service to community, state and national interest and advancement of sciences. **Prerequisite:** Grade of C or better in MUST 221/ARCH 221, ARCH 221/MUST 221, or MAST 220; junior or senior classification. **Cross Listing:** MUST 421/ANTH 421.

ANTH 423 Bioarchaeology

Credits 3. 3 Lecture Hours. Role of human skeletal studies in reconstructing the biological and cultural past of humans; evidence gleaned from human skeletal remains recovered from archaeological sites such as data regarding diet, health, genetics and migration.

Prerequisites: ANTH 225; junior or senior classification; also taught at Galveston campus.

ANTH 424 Human Evolutionary Ecology: Culture and Cooperation

Credits 3. 3 Lecture Hours. Examination of evolutionary perspective to explore culture, cooperation and sociality and subsistence behaviors across a wide variety of human cultures; part of the Human Evolutionary Ecology series along with ANTH 434. **Prerequisite:** Junior or senior classification.

ANTH 425 Human Osteology

Credits 3. 2 Lecture Hours. 3 Lab Hours. Concepts and methods used by anthropologists to identify, describe and analyze human skeletal remains from forensic and archaeological contexts. **Prerequisites:** ANTH 225 and ANTH 226, or VIBS 305; junior or senior classification.

ANTH 426 Anthropology of Food and Nutrition

Credits 3. 3 Lecture Hours. Anthropological study of human foodways and their nutritional consequences; how environmental, biological and cultural factors interact to produce patterns of food intake, and the effects of such patterns on health, growth and fertility; examples drawn primarily from non-Western societies. **Prerequisite:** ANTH 201 or ANTH 210 or ANTH 225 or NUTR 202 or approval of instructor.

ANTH 427 Human Biological Variation

Credits 3. 3 Lecture Hours. Biological basis of variation in the physical features of modern humans; details of anatomical and physiological differences of living populations to understand their adaptive and historical significance; history of human variation studies rooted in the historical notion of "race." **Prerequisites:** ANTH 225 and ANTH 226, or BIOL 214 or BIOL 225; junior or senior classification.

ANTH 430 Applied Anthropology

Credits 3. 3 Lecture Hours. Theory, ethics and practical applications of anthropological methods and concepts as they relate to planned programs of sociocultural change. **Prerequisites:** ANTH 210; junior or senior classification.

ANTH 434 Human Evolutionary Ecology: Reproduction and Parenting

Credits 3. 3 Lecture Hours. Evolutionary ecology perspective on family-formation patterns, sexuality, reproduction and parenting of humans throughout the life course and across different cultures; part of a Human Evolutionary Ecology series along with ANTH 424. **Prerequisites:** Junior or senior classification.

ANTH 435 Medical Anthropology

Credits 3. 3 Lecture Hours. Overview of medical anthropology, a subfield in anthropology which examines the biological and cultural basis of health and disease in order to understand the influence of culture on the illness experience and treatment. **Prerequisite:** Junior or senior classification or approval of instructor.

ANTH 436/RELS 436 Ancient Egypt I

Credits 3. 3 Lecture Hours. Archaeology and history of ancient Egypt from earliest times to the end of the New Kingdom period. **Prerequisites:** Junior or senior classification or approval of instructor. **Cross Listing:** RELS 436/ANTH 436.

ANTH 437 Ethnobotany

Credits 3. 3 Lecture Hours. Interdisciplinary study of the complex and dynamic relationships that exist between people and plants. **Prerequisite:** Junior or senior classification or approval of instructor.

ANTH 438/RELS 438 Ancient Egypt II

Credits 3. 3 Lecture Hours. Archaeology and history of ancient Egypt from the end of the New Kingdom to the end of the Graeco-Roman period. **Prerequisites:** Completion of ANTH 436/RELS 436 or RELS 436/ANTH 436 recommended but not required; junior or senior classification or approval of instructor. **Cross Listing:** RELS 438/ANTH 438.

ANTH 440 Studies in Globalization

Credits 3. 3 Lecture Hours. Selected issues on the anthropology of globalization such as the impact of global circulations of media, money and people on local cultures, identities and politics, migration and political economy. May be taken three times for credit. **Prerequisites:** Junior or senior classification or approval of instructor.

ANTH 444/CLAS 444 Classical Archaeology

Credits 3. 3 Lecture Hours. History of the discipline through the individuals, organizations, excavations, theoretical models and ethical issues that have shaped it. **Prerequisites:** Junior or senior classification. **Cross Listing:** CLAS 444/ANTH 444.

ANTH 445 Studies in African Diaspora

Credits 3. 3 Lecture Hours. Examination of topics related to global African diaspora including African descent populations outside of Africa wherever found (the Americas, the Caribbean, Europe, Asia, etc.); construction of blackness in Latin America; diversity of past and present African descent populations in the Old World; social and political mobilization; religion; popular culture; cultural politics; politics of identity. May be taken three times for credit. **Prerequisite:** Junior or senior classification.

ANTH 447 Lithic Artifact Analysis

Credits 3. 2 Lecture Hours. 3 Lab Hours. Laboratory-based course reviewing methods archaeologists use to analyze stone tools and debitage, including identification of tool-stone sources, reconstruction of technology, explanation of assemblage variability, and microscopic use-wear analysis. **Prerequisite:** ANTH 202 and approval of instructor; junior or senior classification.

ANTH 448 Quantitative Methods in Anthropology

Credits 3. 3 Lecture Hours. Quantitative analytical methods employed by anthropologists; includes statistical analyses, statistical software and sampling theory commonly used in anthropological research. **Prerequisites:** Junior or senior classification; STAT 302 or STAT 303.

ANTH 458 Quantitative Ethnographic Methods

Credits 3. 3 Lecture Hours. Quantitative data collection and analytical methods employed by anthropologists; includes standardized observation, structured interviews, demography and network analysis; hands-on assignments involving data collection among local community. **Prerequisite:** Junior or senior classification.

ANTH 461 Environmental Archaeology

Credits 3. 2 Lecture Hours. 3 Lab Hours. Exploration of the paleoecological context in which past humans interacted with the natural environment encompassing plants, animals and landscape; advanced method, theory and applications in paleoenvironmental reconstruction.

Prerequisites: ANTH 202 or approval of instructor; junior or senior classification.

ANTH 464 Cultural Heritage and Resource Management

Credits 3. 3 Lecture Hours. Evaluation of modern ideas about how and why archaeological, architectural, ethnographic, and natural resources should be preserved and presented to current and future societies; critical examination of the theories, methods, regulations, and ethics that guide efforts to preserve and protect cultural heritage within a context of past endeavors and future directions. **Prerequisites:** Junior or senior classification or approval of instructor.

ANTH 484 Anthropology Internship

Credits 0 to 3. 0 to 3 Other Hours. Provides students with the opportunity to gain practical experience in a variety of settings, including local, state or federal agencies; museums; non-profit organizations; non-governmental organizations; private firms. May be taken four times for credit. **Prerequisite:** Junior or senior classification.

ANTH 485 Directed Studies

Credits 0 to 9. 0 to 9 Other Hours. For individual research in anthropology on subjects not included in established courses. May be repeated for credit. **Prerequisite:** Junior or senior classification or approval of instructor; also taught at Galveston campus.

ANTH 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of anthropology. May be repeated for credit.

ANTH 491 Research

Credits 0 to 3. 0 to 3 Other Hours. Research conducted under the direction of a faculty member in Anthropology. May be taken two times for credit. **Prerequisites:** Junior or senior classification and approval of instructor.

ARAB - Arabic (ARAB)

ARAB 101 Beginning Arabic I

Credits 4. 4 Lecture Hours. (ARAB 1411) Beginning Arabic I. Introduction to Modern Standard Arabic in its written and spoken forms; emphasis on conversation, rudimentary vocabulary, simple grammar, and reading.

ARAB 102 Beginning Arabic II

Credits 4. 4 Lecture Hours. (ARAB 1412) Beginning Arabic II. Introduction of more complex grammatical constructions; vocabulary building; emphasis on putting acquired vocabulary and grammar to conversational use. **Prerequisite:** ARAB 101 or equivalent.

ARAB 104 Intensive Beginning Arabic

Credits 8. 8 Lecture Hours. Accelerated elementary language study, with oral, listening, reading and writing practice. Equivalent to ARAB 101 and ARAB 102.

ARAB 201 Intermediate Arabic I

Credits 3. 3 Lecture Hours. (ARAB 2311) Intermediate Arabic I. Practice of listening, speaking and writing skills; vocabulary building; discussion of topics related to daily life and general aspects of Arab culture.

Prerequisite: ARAB 102 or ARAB 104, or equivalent.

ARAB 202 Intermediate Arabic II

Credits 3. 3 Lecture Hours. (ARAB 2312) Intermediate Arabic II. Emphasis on comprehending printed material, perfecting pronunciation, and attending to more complex grammar; discussion of topics holding general and professional interest; knowledge of Arab culture and history.

Prerequisite: ARAB 201 or equivalent.

ARAB 204 Intensive Intermediate Arabic

Credits 6. 6 Lecture Hours. Accelerated intermediate language study, with oral, listening, reading and writing practice. Equivalent to ARAB 201 and ARAB 202. **Prerequisite:** ARAB 102 or ARAB 104.

ARAB 215 Introduction to Modern Arab Culture

Credits 3. 3 Lecture Hours. Exploration of cultural, linguistic, religious, and ethnic diversity in the Arab world; investigation of the impact of tradition and modernity on modern Arab culture; relating diverse cultural practices and products to diverse perspectives in the Arab world; taught in English.

ARAB 221 Introduction to Arabic Language and Society

Credits 3. 3 Lecture Hours. Examination of critical linguistic issues in the Arab world from a sociolinguistic perspective, including language and religion; language and power; language and nationalism; and language and education. **Prerequisite:** Approval of instructor.

ARAB 222 Field Studies I: Language, Culture, and Society

Credits 3. 3 Lecture Hours. Arabic language and culture taught in an Arabic-speaking country; living with a host family; supervised travel of cultural interest; participation in activities of host institution. **Prerequisite:** ARAB 102 or ARAB 104, or equivalent.

ARAB 258 Global Middle Eastern Cultures

Credits 3. 3 Lecture Hours. Exploration of the contemporary and historical cultures of the Middle East region; investigation of intercultural connections between the Middle East and the rest of the globe; emphasis on cultural traditions, religious communities, societal change, social movements, migration, and diaspora.

ARAB 285 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Individual supervision of readings or assigned projects in an Asian Language, selected for each student individually; written or oral reports. **Prerequisite:** Approval of Arabic and Asian Language Office Director.

ARAB 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of Arabic studies. May be repeated for credit.

Prerequisite: Approval of instructor.

ARAB 301 Reading and Composition

Credits 3. 3 Lecture Hours. Advanced Arabic grammar and readings of average difficulty and of different genres, including literary and journalistic texts and other culturally-enriched materials in order to develop awareness of cultural products, perspectives, and practices found in the Arab world. **Prerequisites:** ARAB 202 or ARAB 204, or equivalent; junior or senior classification or approval of instructor.

ARAB 302 Reading and Composition II

Credits 3. 3 Lecture Hours. Readings of average difficulty and of different genres, including literary and journalistic texts and other culturally-enriched materials; development of writing skills with emphasis on grammatical constructions; expansion of vocabulary and oral expression. **Prerequisites:** ARAB 301; junior or senior classification or approval of instructor.

ARAB 321 Business Arabic

Credits 3. 3 Lecture Hours. Business and financial terminologies useful in the Arab World; cultural etiquette for effective communication in Arabic business settings; oral and written business reports from a variety of authentic sources; language skills and communication strategies for traveling, shopping and conducting financial transactions in the Arab World. **Prerequisites:** ARAB 202 or ARAB 204, or equivalent; junior or senior classification or approval of instructor.

ARAB 322 Field Studies II: Language, Culture, and Society

Credits 3. 3 Lecture Hours. Arabic language and culture taught in an Arabic-speaking country; living with a host family; supervised travel of cultural interest; participation in activities of host institution. **Prerequisites:** ARAB 202 or ARAB 204, or equivalent; junior or senior classification or approval of instructor.

ARAB 323 Media Arabic

Credits 3. 3 Lecture Hours. Analysis of current events in the Arab World; use of print and electronic materials in Arabic from variety of media sources; discussion of different points of view in media representation/coverage; issues pertaining to business, politics, culture and entertainment in the Arab World. **Prerequisites:** ARAB 202 or ARAB 204, or equivalent; junior or senior classification or approval of instructor.

ARAB 475 Media and the Middle East

Credits 3. 3 Lecture Hours. Examination of how media (e.g., literature, news, film, television) contribute to our understanding of historical events in the Middle East; analysis of cultural, social, political and historical circumstances of media representation of events; exploration of various media genres' techniques and narrative structure. May be taken two times for credit with a focus on different medium. **Prerequisite:** Junior or senior classification or approval of instructor.

ARAB 485 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Individual supervision of readings or assigned projects selected for each student individually; written or oral reports. **Prerequisite:** Approval of instructor and Director of AALO.

ARAB 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of Arabic studies. May be repeated for credit. **Prerequisite:** Approval of instructor.

ARAB 491 Research

Credits 1 to 4. 1 to 4 Other Hours. Research in Arabic studies conducted under the direction of faculty member approved by the Director of AALO. May be taken 2 times for credit. **Prerequisites:** Junior or senior classification and approval of instructor.

ARCH - Architecture (ARCH)

ARCH 105 Design and Visual Communications Foundations I

Credits 5. 2 Lecture Hours. 10 Lab Hours. Architectural design principles; development of skills in perception, thought and craft as they apply to the formation of two- and three-dimensional relationships; introduction to and practice of tools, methods, techniques available for graphic communication; graphic communication and the design process; observation and other forms of free-hand drawing and drawing systems that develop representational and descriptive capabilities. **Prerequisites:** BS in Architecture major.

ARCH 106 Design and Visual Communication Foundations II

Credits 5. 2 Lecture Hours. 10 Lab Hours. Approaches to problem identification and problem solving emphasizing human, physical and cultural factors influencing architectural design; understanding of space, materiality and tectonics in a human body scale; development of drawing methods with emphasis on analytical drawing; reinforcement of visual and verbal communication as applied to design processes. **Prerequisites:** Grade of C or better in ARCH 105; major in BS in Architecture.

ARCH 115 Visual Communication Foundations I

Credits 3. 3 Lecture Hours. 0 Lab Hours. Introduction to and practice of tools, methods, techniques available for graphic communication; graphic communication and the design process; observation and other forms of free-hand drawing and drawing systems that develop representational and descriptive capabilities.

ARCH 205 Architecture Design I

Credits 5. 2 Lecture Hours. 10 Lab Hours. Issues and methods in designing environments for human habitation and well-being; projects addressing site, functional planning, spatial ordering, form generation through a recognition of the synthesis of space, structure, use and context; reinforcement of appropriate graphic and model building techniques. **Prerequisites:** Grade of C or better in ARCH 105 and ARCH 106.

ARCH 206 Architecture Design II

Credits 5. 2 Lecture Hours. 10 Lab Hours. Fundamental issues of innovative design processes and creation explored through the creative use of past, present and future materials, tools, and technologies; with an emphasis upon the research of materials, methods, scale, craft and technique as instruments of design, fabrication, and production. **Prerequisites:** Grade of C or better in ARCH 205.

ARCH 212 Social and Behavioral Factors in Design

Credits 3. 3 Lecture Hours. Social and behavioral factors in the built and natural environment; environmental perception and spatial cognition; social-environmental processes such as privacy and crowding; setting-oriented discussion on residences, education, and the workplace; the psychology of nature and natural resource management; social design and social science contribution to architectural design.

ARCH 213 Sustainable Architecture

Credits 3. 3 Lecture Hours. A comprehensive introduction to sustainability concepts, techniques and applications at all levels of the built environment, history of contemporary development of sustainable architecture from 1960 to the present; design strategies, environmental technologies and social factors for reducing building energy needs and carbon foot prints; global applications of sustainable approaches.

ARCH 216 Computational Methods in Architecture

Credits 3. 2 Lecture Hours. 2 Lab Hours. Software and processes for computation design in architecture; image editing and creation, vector drawing, 3D modeling, parametric modeling, rendering techniques and simulation.

ARCH 221/MUST 221 Foundations of Museum Studies

Credits 3. 3 Lecture Hours. Introduction to museums, cultural heritage and collections care; best practices for non-profit institutions, public engagement and the collection, preservation and exhibition of material culture; emphasis on archaeological, ethnographic, and historical collections, or other collections of cultural significance. **Cross Listing:** MUST 221/ARCH 221.

ARCH 246 Foundations of Historic Preservation

Credits 3. 3 Lecture Hours. Exploration and evaluation of the cross-disciplinary work of historic preservation; emphasis on the significance of historic places to societal well-being and conservation alternatives for historic and cultural environments; review of preservation projects and treatments; guest presentations and case studies from practicing professionals and researchers in a variety of fields.

ARCH 249 Survey of World Architecture History I

Credits 3. 3 Lecture Hours. (ARCH 1301) Survey of World Architecture History I. A survey of world architecture and the human-designed and built environment from prehistory to the 13th century.

ARCH 250 Survey of World Architecture History II

Credits 3. 3 Lecture Hours. (ARCH 1302) Survey of World Architecture History II. A survey of world architecture and the human-designed and built environment from the 13th to the 19th century.

ARCH 260 Comparative Theory in the Built and Virtual Environments

Credits 3. 3 Lecture Hours. Introduction of cultural theory and the environment; theories, special concepts and ideas relevant to the built and virtual environments with primary focus on the last fifty years; theory, theory building, and application to buildings and urban design; formation of ideas and critical ways of assessing the environment.

ARCH 281 Seminar in Contemporary Architecture

Credit 1. 1 Lecture Hour. Presentations by and discussions with professionals representing specialty areas related to environmental design through the Department of Architecture Lecture Series. May be taken four times for credit. Must be taken on a satisfactory/unsatisfactory basis.

ARCH 289 Special Topics in...

Credits 1 to 5. 0 to 10 Lab Hours. 1 to 5 Other Hours. Selected topics in an identified area of Architecture. May be repeated for credit.

ARCH 291 Research in Architecture Innovation

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in the College of Architecture. May be repeated 2 times for credit. **Prerequisite:** Approval of instructor and department head.

ARCH 305 Architecture Design III

Credits 5. 2 Lecture Hours. 10 Lab Hours. Integration of architectural theories and philosophy with environmental design systems; study of theoretical approaches to graphic and analytical thinking, problem identification and design dissemination through various media, case studies and problem resolution; conditions and forces associated with a variety of building types and the generation design solutions.

Prerequisites: Admission to upper level in BS in Architecture; ARCH 249 and ARCH 250.

ARCH 317 Digital Fabrication for Architecture

Credits 3. 1 Lecture Hour. 4 Lab Hours. Digital fabrication for architecture including software, numerically controlled tools, translation applications and management strategies for digital fabrication workflows; production of building components from three dimensional datasets of virtual architecture proposals. **Prerequisites:** Junior or senior classification or approval of instructor; ARCH 216 or approval of instructor.

ARCH 327 Conceptual Structural Analysis

Credits 3. 1 Lecture Hour. 4 Lab Hours. A non-mathematical investigation of structural systems and components with respect to behavior; selection of the most appropriate structural system for various building typologies. **Prerequisite:** Junior or senior classification or approval of instructor.

ARCH 328 Architectural Envelopes

Credits 3. 3 Lecture Hours. Study of roof, wall, glazing and screen systems of significant works in contemporary architecture and the strategies behind their making; focus on innovative materials, surface effects, and performance aspects. **Prerequisite:** Junior or senior classification in environmental design.

ARCH 330 The Making of Architecture

Credits 3. 3 Lecture Hours. Study of significant works of contemporary architecture and materials and strategies used in their making; focus on innovative materials, systems, and partnerships necessary to realize the design. **Prerequisites:** Junior or senior classification in environmental design or approval of instructor or ARCH classification.

ARCH 331 Architectural Structures

Credits 3. 2 Lecture Hours. 2 Lab Hours. Physical principles that govern statics and strength of materials through the design of architectural structures from a holistic view, in the context of architectural ideas and examples; introduction to construction, behavior of materials, and design considerations for simple and complex structural assemblies; computer applications. **Prerequisites:** Junior or senior classification in environmental design; MATH 142 or equivalent; PHYS 201.

ARCH 335 Architectural Systems

Credits 3. 2 Lecture Hours. 2 Lab Hours. Theory and applications of building energy use, envelope design, shading analysis, heating and cooling systems, lighting design; building water supply, plumbing and drainage systems; electrical, acoustical, fire and lightning protection; life safety; transportation systems and construction materials; calculations, equipment selection, and component sizing as they relate to building design. **Prerequisites:** Junior or senior classification in environmental design; PHYS 201.

ARCH 345 History of Building Technology

Credits 3. 3 Lecture Hours. Chronological development of civilization and building technology from prehistoric cultures to present; classic and modern materials, structural devices past and present, machine-produced products, prefabrication, construction methodology and servicing.

ARCH 346 Architecture, Heritage and Culture

Credits 3. 3 Lecture Hours. Global exploration of how architecture and the built environment express culture and identity; theoretical and practical approaches to cultural heritage and conservation. **Prerequisite:** Junior or senior classification.

ARCH 347 Documentation of Historic Buildings and Sites

Credits 3. 1 Lecture Hour. 4 Lab Hours. Techniques for recording historic buildings and sites; measuring and drawing to Historic American Building Survey Standards; field experience in photography, laser scanning, photogrammetry, hand measuring, field notes and record drawing preparation. **Prerequisites:** Junior or senior classification or approval of instructor.

ARCH 350 History and Theory of Modern and Contemporary Architecture

Credits 3. 3 Lecture Hours. Development of modern and contemporary architecture in the 20th and 21st centuries; materials, structure, social and economic changes as well as architectural theory. **Prerequisites:** Junior or senior classification.

ARCH 353 History of Product Design

Credits 3. 3 Lecture Hours. History of product design in Europe and America including the relationship between designer and object, the relationship of design, industry and media over time and design criticism; focus on material/technical and typological approaches, comparative method and content analysis in context of original environment and social history. **Prerequisite:** Junior or senior classification or approval of instructor.

ARCH 360 Topics in Design Build Community Service

Credits 3. 1 Lecture Hour. 4 Lab Hours. Contemporary topics in architectural design-build practices including high impact interdisciplinary learning experiences developed through a project-based learning model with a focus on the planning, design, pre-construction, construction and project delivery; team-based approach with those outside of the architecture discipline to design, plan and complete project documents, estimates and undertake the construction activities necessary to make a fully functioning community service project.

Prerequisites: Junior or senior classification or approval of instructor.

ARCH 381 Design Seminar

Credit 1. 1 Lecture Hour. Presentations by and discussions with professionals representing specialty areas related to architectural fabrication and product design. May be taken three times for credit.

Prerequisite: Junior or senior classification or approval of instructor.

ARCH 401 Design Creativity

Credits 3. 3 Lecture Hours. Fundamental critical and creative thinking skills needed to participate in and create the future; study of how design can impact the physical environment and society. **Prerequisites:** Junior or senior classification or approval of instructor.

ARCH 405 Architecture Design IV

Credits 6. 2 Lecture Hours. 12 Lab Hours. A comprehensive design studio focused on the integration of design theory with functionally sustainable environmental and structural systems; consideration of a project from site analysis and programming through design detailing. **Prerequisites:** ARCH 305, ARCH 331, ARCH 335; CARC 301 or ARCH 494; concurrent enrollment in ARCH 431 and ARCH 435.

ARCH 406 Architecture Design V

Credits 5. 2 Lecture Hours. 10 Lab Hours. Topical approaches to design, emphasizing theory and practice of architecture or related disciplines, such as urban design, interior design, health care design, etc. **Prerequisites:** Junior or senior classification; admission to upper level in BS in Architecture; grade of C or better in ARCH 305, ARCH 331 and ARCH 335; grade of C or better in CARC 301 or ARCH 494; students may with approval of the department enroll in the course during the summer term prior to taking ARCH 405, ARCH 431 and ARCH 435 if they are within 20 credit hours of graduation prior to the beginning of the following fall semester.

ARCH 413 Elements of Urban Design

Credits 3. 3 Lecture Hours. Investigation of design elements shaping the urban environment; emphasis placed on contemporary precedents in architecture, landscape and urbanism to evaluate design complexity on multiple levels: social, political, environmental, economic, cultural and geographic. **Prerequisite:** Admission to upper level division in BED or BS-URPN.

ARCH 421 Energy and Sustainable Architecture

Credits 3. 3 Lecture Hours. Understanding the various design decisions impacting sustainability and energy efficiency; includes participation in an "academic" LEED-NC rating project; interdisciplinary team approach with a design studio architect to perform the LEED-NC rating on the architect's building; application of reference material, standards, and USGBC material. **Prerequisite:** Junior and senior classification or approval of instructor.

ARCH 430 History of Ancient Architecture in the Near East, Egypt, Greece and Rome

Credits 3. 3 Lecture Hours. Examination of stylistic, structural and theoretical advancements in ancient architecture, with case studies from the Near East, Egypt, Greece and Rome. **Prerequisite:** ARCH 249 or ARTS 149; junior or senior classification or approval of degree coordinator or instructor.

ARCH 431 Integrated Structures

Credits 2. 1 Lecture Hour. 2 Lab Hours. Selection and economics of structural systems in the context of integrating structural systems into a building through good design; analysis and design of wood, steel, concrete, and composite systems and members in relation to building design. **Prerequisites:** Admission to upper level in environmental design; ARCH 305, ARCH 331, ARCH 335; concurrent enrollment in ARCH 405 and ARCH 435.

ARCH 433 Architectural Lighting

Credits 3. 3 Lecture Hours. Theory and practice of lighting design as an art and science; aperture design for sunlight control; selecting and locating luminaries to enhance interior and exterior surfaces and spaces. **Prerequisite:** ARCH 335 or junior or senior classification in EDAS.

ARCH 434 The Role of Sculpture and Painting in Ancient Architecture

Credits 3. 3 Lecture Hours. Interrelationships of architecture, painting and sculpture in the ancient world including Egypt, Mesopotamia, Crete, Greece and Rome. **Prerequisite:** ARCH 249 or ARTS 149; junior or senior classification or approval of degree coordinator or instructor.

ARCH 435 Integrated Systems

Credits 2. 1 Lecture Hour. 2 Lab Hours. Understanding how to integrate sustainable environmental systems into a building through good design; lectures support studio; systems faculty participate in studio critiques throughout the project. **Prerequisites:** Admission to upper level in environmental design; ARCH 305, ARCH 331, ARCH 335; concurrent enrollment in ARCH 405 and ARCH 431.

ARCH 437 The Gothic Cathedral

Credits 3. 3 Lecture Hours. A critical study of monumental church-building in Europe during the later Middle Ages (ca. 1140–1500 C.E.); investigation of works of architecture, sculpture and painting in relation to issues of craft, ritual and power; exploration of the afterlives of the Gothic style in the Americas, Asia and Africa. **Prerequisite:** ARCH 250 or ARTS 150; junior or senior classification or approval of degree coordinator or instructor.

ARCH 438 World Religious Architecture

Credits 3. 3 Lecture Hours. Exploration of the diverse architectural traditions of the world's major religions with an emphasis on issues of place-making, representation, ritual, identity, and culture, past and present. **Prerequisite:** Junior or senior classification.

ARCH 441 Baroque and Rococo Architecture

Credits 3. 3 Lecture Hours. The investigation of the history of architecture, the arts and society, and major creative individuals from the late sixteenth to the early eighteenth centuries. **Prerequisite:** ARCH 250 or ARTS 150; junior or senior classification or approval of degree coordinator or instructor.

ARCH 443 Aegean Art and Architecture

Credits 3. 3 Lecture Hours. Art and architecture of the prehistoric Aegean, ca. 6000-1100-B.C.E.; focus on the built environment, material culture and visual arts of early civilization in the Aegean basin; evidence for regional and vernacular architectural traditions; expressions of power, ideology and social identity through monumental architectural and elite arts of Minoan Crete and Mycenaean Greece. **Prerequisites:** Junior or senior classification; approval of instructor or degree coordinator.

ARCH 444 American Architecture

Credits 3. 3 Lecture Hours. Investigation of indigenous, vernacular and historical American architecture from 1500 to 1920; evolution of construction technologies, changing building forms and finish treatments; identification of historic architectural styles and their influence on 21st century American architecture. **Prerequisites:** ARCH 250 or ARCH 350; junior or senior classification, or approval of instructor.

ARCH 451 Strategies in Architectural Management

Credits 3. 3 Lecture Hours. Emerging strategies in the architecture and construction industry, with an emphasis on understanding the changing structure of the industry and the management of both firms and projects. **Prerequisite:** Senior classification or approval of degree coordinator.

ARCH 452 Careers in Architecture

Credits 3. 3 Lecture Hours. Career opportunities in the profession of architecture; investigations into the composition of architectural practice today and the wide range of specialties represented in architectural firms; interviews with select representative individuals. **Prerequisite:** Admission to upper level in environmental design, construction science or landscape architecture.

ARCH 457 Ethics and Professional Practice

Credits 3. 3 Lecture Hours. Issues and relationships within the business, legal and political environment; introduction to the concepts of architectural specifications and the AIA standard conditions of the construction contract; forms of construction, bidding and contract documents. For undergraduate students pursuing a professional degree and a career in architecture. **Prerequisite:** Senior classification in environmental design.

ARCH 458 Cultural and Ethical Considerations for Global Practice

Credits 3. 3 Lecture Hours. Issues and relationships within the cultural, business, legal and political environments of global practice; differences in the construction contract, bidding and various forms of construction.

Prerequisite: Junior or senior classification.

ARCH 463 Elements of Interior Architecture

Credits 3. 3 Lecture Hours. Analysis and design of architectural interiors; historical and professional perspectives incorporating programming, space planning and organization; specification and selection of furnishings and materials to satisfy user needs in residential, commercial and institutional settings. **Prerequisites:** Admission to upper level in environmental design; concurrent enrollment in ARCH 405, ARCH 431 and ARCH 435 not allowed.

ARCH 468 Preservation Field Studies

Credits 1 to 6. 1 to 6 Other Hours. Fieldwork related to practice of historic preservation and cultural heritage management; methods of documentation, analysis, planning and treatment; emphasis on identification and evaluation of multidisciplinary approaches to historic preservation and heritage conservation in global contexts; topics vary each semester. May be taken for credit up to six hours. **Prerequisites:** ARCH 246, ARCH 346, or ARCH 347; junior or senior classification or approval of instructor.

ARCH 481 Seminar

Credit 1. 1 Lecture Hour. Presentations by and discussions with professionals representing specialty areas related to environmental design; career and academic objectives. May be repeated for up to 4 credit hours. Must be taken on a satisfactory/unsatisfactory basis.

Prerequisite: Junior or senior classification or approval of instructor.

ARCH 484 Summer Internship

Credits 6. 12 Other Hours. Practical experience in an office of design allied professionals; 10- week internship with a minimum of 400 hours continuous employment; departmental pre-approval through the departmental internship coordinator required; post evaluation conducted following the internship. May not be repeated for credit. **Prerequisites:** Junior or senior classification or approval of instructor; approval of the environmental design internship coordinator.

ARCH 485 Directed Studies

Credits 1 to 5. 1 to 5 Other Hours. Special projects in architecture. May be repeated for credit. **Prerequisites:** Admission to upper level in environmental design; approval of instructor and degree coordinator.

ARCH 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Special topics in an identified area of architecture. May be repeated for credit. **Prerequisite:** Junior or senior classification; approval of instructor and degree coordinator.

ARCH 491 Advanced Architecture Innovation Research

Credits 0 to 6. 0 to 6 Other Hours. Research conducted under the direction of faculty member in the College of Architecture. May be repeated 2 times for credit. **Prerequisite:** Admission to upper level in environmental design; approval of instructor and department head.

ARCH 494 Internship

Credits 9. 18 Other Hours. Practical experience in an office of design allied professionals; fifteen week internship with a minimum of 600 hours of continuous employment; departmental pre-approval through the departmental internship coordinator required; post evaluation conducted following the internship. To be taken only as a requirement for the study away semester. May not be repeated for credit. **Prerequisites:** Junior or senior classification; admission to upper level in environmental design; CARC 481; approval of the environmental design internship coordinator.

AREN - Architectural Engr (AREN)

AREN 200 Architectural Engineering Foundations

Credits 2. 2 Lecture Hours. Introduction to the broad field and professional practice of architectural engineering, architectural engineering systems, and the role of the architectural engineer; emphasis on professional engineering design services, design and construction processes and documents, building envelope and materials, structural systems, mechanical systems, lighting systems, building systems integration, building codes and standards, fire safety, professional attributes of architectural engineers, and issues of human performance requirements and sustainability as relates to building system design. **Prerequisite:** Sophomore classification or approval of instructor.

AREN 210 Fundamentals of Building Information Modeling for Architectural Engineering

Credits 3. 2 Lecture Hours. 3 Lab Hours. Application of the fundamentals of engineering design, document production, and interdisciplinary coordination utilizing design and drafting software; application of software to model shapes, structures, and systems in 3D with parametric accuracy, precision, and ease; topics include streamline documentation work, with instant revisions to plans, elevations, schedules, and sections as projects change; and introduction of specialty toolsets; production of structural and mechanical-electrical-plumbing systems in a 3-D model.

AREN 221 Engineering Mechanics - Statics and Dynamics for Architectural Engineers

Credits 4. 4 Lecture Hours. Principles of statics, kinematics, and kinetics, with particular attention to architectural engineering applications; general principles of mechanics; concurrent force systems; statics of particles; equivalent force/moment systems; centroids and center of gravity; equilibrium of rigid bodies; trusses, and frames; internal forces in structural members; friction; second moments of areas; force action related to displacement, velocity, and acceleration of rigid bodies; kinematics of plane motion; kinetics of translation and rotation; mass moment of inertia; vibration; work, energy, and power; impulse and momentum. **Prerequisites:** Grade of C or better in MATH 251 or MATH 253, or equivalent, or concurrent enrollment; grade of C or better in PHYS 206; grade of C or better in ENGR 216/PHYS 216 or PHYS 216/ENGR 216.

AREN 281 Architectural Engineering Seminar

Credit 1. 1 Lecture Hour. Exploration of architectural engineering and its subfields; architectural engineering curriculum resources and opportunities such as internships and research; current professional challenges and ethical implications; presentations from faculty and industry guests. **Prerequisites:** Grade of C or better in ENGR 102; admission to major degree sequence in architectural engineering.

AREN 285 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Directed studies within the field of architectural engineering. **Prerequisites:** Sophomore classification and approval of multidisciplinary engineering director or delegate.

AREN 289 Special Topics in...

Credits 1 to 4. 1 to 4 Other Hours. Selected topics in an identified area of architectural engineering. May be repeated for credit.

AREN 300 Architectural Engineering Systems

Credits 3. 2 Lecture Hours. 3 Lab Hours. Analysis and application of the engineering design process to solve problems associated with the design and operation of building systems, specifically related to HVAC, electrical power and lighting, and structural integrity; communication of solutions to technical problems of building systems, through writing, presentations, and team interactions, typical of architectural engineers in the building industry; emphasis on the engineering design process in architectural engineering, structural systems for buildings, mechanical systems for heating, ventilation, and air-conditioning, electrical lighting for buildings, building fire safety, building acoustics, building codes and standards, interface issues among different building systems, and sustainability aspects of building systems. **Prerequisites:** Grade of C or better in AREN 200 and AREN 221; or approval of instructor.

AREN 310 Thermal-Fluid Sciences for Architectural Engineers

Credits 4. 4 Lecture Hours. Fundamental theory and practical application of thermal-fluid sciences adapted for architectural engineering; conservation laws, energy conversion, thermodynamic properties, open and closed systems analysis, psychrometric analysis, vapor and gas cycles with emphasis on refrigeration cycles; fluid behavior laws; dimensional analysis for external and internal flows. **Prerequisites:** Grade of C or better in AREN 221, MEEN 221, MEEN 225, or CVEN 221; grade of C or better in MATH 251 or MATH 253.

AREN 311 Thermal-Fluid Sciences II for Architectural Engineers

Credits 3. 3 Lecture Hours. Continued theory and application of thermal-fluid sciences adapted for architectural engineering; open channel flow, pumps, conduction, convection, and radiation heat transfer; heat exchangers; introduction to computational fluid dynamics and computational heat transfer for building applications. **Prerequisites:** Grade of C or better in AREN 310 or equivalent.

AREN 320 Lighting Engineering for Buildings

Credits 3. 3 Lecture Hours. Reinforces the fundamentals of illuminating engineering for building interiors; focuses on the design and analysis of electrical lighting systems, including the integration between the lighting design process and the technical foundations of building lighting; emphasis on the fundamentals of lighting engineering and basic engineering methods for building lighting systems, lighting design criteria, lighting calculations, and power budgets. **Prerequisites:** Grade of C or better in AREN 300; or approval of instructor.

AREN 330 Mechanical Systems for Buildings

Credits 3. 3 Lecture Hours. Introduction to qualitative and quantitative engineering concepts of mechanical systems for buildings for architectural engineers, including HVAC systems, control of indoor air pollutants and fire suppression systems; emphasis on thermal behavior of buildings and building envelopes, human comfort requirements and psychometrics, thermal load calculations, HVAC systems/equipment, design of space air-conditioning and its relationship to architectural design, mechanical systems for indoor air quality and for fire suppression. **Prerequisites:** Grade of C or better in AREN 300 and AREN 310; or approval of instructor.

AREN 399 High Impact Experience for Architectural Engineers

Credits 0. 0 Other Hours. Participation in an approved high-impact learning experience; reflection on professional outcomes from the National Society of Professional Engineers' Engineering Body of Knowledge; documentation and self-assessment of learning experience at mid-curriculum point. **Prerequisite:** Junior or senior classification.

AREN 401 Architectural Engineering Design I

Credits 4. 3 Lecture Hours. 3 Lab Hours. Instruction and practice in the design process applied to an architectural engineering design project; application of establishing customer need, determining requirements in terms of function and performance, developing alternative design concepts, performing trade-off studies among performance, cost and schedule, embodiment and detail design and the iteration of the above steps; major architectural engineering design project. **Prerequisites:** Grade of C or better in AREN 330, AREN 311, and CVEN 345.

AREN 402 Architectural Engineering Design II

Credits 3. 2 Lecture Hours. 3 Lab Hours. Application and extension of fundamentals of engineering design, product detail, and design development process, including case studies; emphasis on project management, marketing considerations, manufacturing detailed design specifications, failure modes, applications of codes and standards, selection of design margins, product (component) development guidelines, intellectual property, product liability and ethical responsibility; major architectural engineering design project. **Prerequisite:** Grade of C or better in AREN 401.

AREN 430 Hygrothermal Analysis of Building Envelopes

Credits 3. 3 Lecture Hours. Heat and mass transfer on and through building envelopes; solar loads; internal heat gains; estimation of space cooling and heating loads. **Prerequisites:** Grade of C or better in AREN 310; or approval of instructor.

AREN 440 Architectural Engineering Heating, Ventilating and Air Conditioning Design

Credits 3. 3 Lecture Hours. Project-based design course; select and develop the mechanical system for a building, from the programming phase to the design development and working documents; emphasis on the application HVAC principles in the design and analysis of a mechanical system in a real building, including review of building thermal load calculations & energy analysis, HVAC design goals and schematic design, system selection and system design, HVAC design development, HVAC design documents, and energy, environmental, and human comfort considerations in HVAC design. **Prerequisites:** Grade of C or better in AREN 311 and AREN 330.

AREN 485 Directed Studies

Credits 0 to 6. 0 to 6 Other Hours. Directed individual study within architectural engineering. **Prerequisites:** Junior or senior classification and approval of architectural engineering director or delegate.

AREN 489 Special Topics in...

Credits 1 to 4. 1 to 4 Other Hours. Selected topics in an identified area of architectural engineering. May be repeated for credit. **Prerequisites:** Junior or senior classification.

AREN 491 Research

Credits 1 to 6. 1 to 6 Other Hours. Research conducted under the direction of faculty member in architectural engineering. May be repeated for credit. **Prerequisites:** Junior or senior classification in engineering and approval of the architectural engineering program delegate.

ARSC - Arts & Sciences (ARSC)

ARSC 101 First Year Seminar

Credits 0. 0 Lecture Hours. 0 Lab Hours. 0 Other Hours. Development of self-efficacy, self-awareness, and sense of purpose; actively engage in learning environment inside and outside the classroom; become socially integrated within the university community. **Prerequisite:** First time in college student pursuing a major in the College of Arts & Sciences.

ARSC 104 Contemporary Issues in Science - Cosmos, Earth and Humanity

Credits 3. 3 Lecture Hours. Science for citizens; interdisciplinary survey of contemporary issues in the science of our universe or cosmos, Earth and humanity, including the big bang, evolution, genetics, vaccines and drugs; future outlook on humanity, including artificial intelligence, cryptography and cybersecurity; critically analyze science presented in the news, on television and on social media; ethical implications of research. **Cross Listing:** BIOL 104 and PHYS 104.

ARSC 105/CHEM 105 Contemporary Issues in Science - The Environment

Credits 3. 3 Lecture Hours. Science for citizens; interdisciplinary survey of contemporary issues in and future outlook on the science of our environment, including climate change, energy, plastics, agriculture, and food and water safety; future outlook on the health of our environment; critically analyze science presented in the news, on television and on social media. **Cross Listing:** CHEM 105/ARSC 105.

ARSC 201 Self-Directed Experiences with Adolescents

Credit 1. 1 Lecture Hour. 1 Lab Hour. Study of adolescents in diverse school and community settings; overview of issues in physical, mental, social and emotional development; exploration of issues related to racism, sexism, and cultural diversity; serves as the screening instrument deemed necessary by TAC Rule §227.10.8 for admission to an Educator Preparation Program such as aggieTEACH Arts & Sciences; determination of knowledge, experience, skills, and aptitude for secondary certification. **Prerequisites:** Enrollment in the College of Arts and Sciences or the College of Agriculture and Life Sciences; seeking secondary teacher certification.

ARSC 202 The Human Experience

Credits 3. 3 Lecture Hours. Introduction to classic transformative texts in the history of the arts, sciences, and humanities; interdisciplinary methods and approaches within the humanities; key ethical and moral debates across the human experience. **Cross Listing:** HIST 202 and PHIL 202.

ARSC 285 Directed Studies

Credits 0 to 9. 0 to 9 Other Hours. Directed study of specific problems in arts and sciences. May be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** Freshman or sophomore classification; approval of instructor.

ARSC 289 Special Topics in...

Credits 0 to 3. 0 to 3 Other Hours. Selected topics in an identified area of arts and sciences. May be repeated for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

ARSC 292 Cooperative Education in Arts and Sciences

Credits 0 to 2. 0 to 2 Other Hours. Educational work assignment by a student in the field of his or her career interest and course of study. Supervision of the student will be by the cooperating employer and the instructor. A technical report, approved by the instructor, on a related subject area will be required. **Prerequisite:** Approval of College's Director of Academic Operations; freshmen and sophomore classification.

ARSC 301 College of Arts and Sciences Study Abroad

Credits 0 to 18. 0 to 18 Other Hours. For student in approved programs abroad. May be repeated for credit. **Prerequisites:** Admission to approved program and approval of Academic Dean.

ARSC 392 Cooperative Education in Arts and Sciences

Credits 2. 2 Other Hours. Educational work assignment by a student in the field of his or her career interest and course of study. Supervision of the student will be by the cooperating employer and the instructor. A technical report, approved by the instructor, on a related subject area will be required. **Prerequisite:** Approval of College's Director of Academic Operations; junior classification.

ARSC 485 Directed Studies

Credits 0 to 9. 0 to 9 Other Hours. Directed study of specific problems in arts and sciences. May be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** Junior or senior classification; approval of instructor.

ARSC 489 Special Topics in...

Credits 1 to 4. 1 to 4 Other Hours. Selected topics in an identified area of arts and sciences. May be repeated for credit. **Prerequisites:** Junior or senior classification and approval of instructor.

ARSC 492 Cooperative Education in Arts and Sciences

Credits 0 to 2. 0 to 2 Other Hours. Educational work assignment by a student in the field of his or her career interest and course of study. Supervision of the student will be by the cooperating employer and the instructor. A technical report, approved by the instructor, on a related subject area will be required. **Prerequisite:** Approval of College's Director of Academic Operations; senior classification.

ARTS - Art (ARTS)

ARTS 101 Lumiere - Paris The City of Lights

Credit 1. 1 Lecture Hour. Overview of French art, culture and society in nineteenth-century Paris; focus on the movements of Academicism, Realism and Impressionism; the artists and artworks of the time; exploration of issues in early Modern society; and connections between art and society through the use of the strategy game ARTé: Lumière.

ARTS 102 Mecenat - The World of the Medici

Credit 1. 1 Lecture Hour. Survey of architecture, painting, sculpture and the minor arts from the Italian Renaissance of the 15th and 16th centuries surrounding the Medici family; the intersection with art patronage, economics and politics through the strategy game Arté Mecenat.

ARTS 103 Design I

Credits 3. 2 Lecture Hours. 4 Lab Hours. (ARTS 1311) Design I. Two-dimensional design; fundamentals of line, color, form, texture, shape, space and composition. **Prerequisites:** Graphic Design or Studio Art minor.

ARTS 104 Introduction to Graphic Design

Credit 1. 2 Lab Hours. Exploration of the concepts and techniques utilized in graphic design; layout, typography, use of color, design principles; integration of type and images. **Prerequisites:** Graphic Design or Studio Art minor.

ARTS 111 Drawing I

Credits 3. 2 Lecture Hours. 4 Lab Hours. (ARTS 1316) Drawing I. Principles of composition and form, media, techniques, and subjects; exploration of perceptual and descriptive drawing; mark making as a developmental process in art and design practice. **Prerequisites:** Graphic Design or Studio Art minor.

ARTS 115 Drawing for Visualization

Credits 3. 2 Lecture Hours. 4 Lab Hours. Investigation of and practice with media, methods and techniques in communication of design; observational drawing; proportion, form, line and value. **Prerequisite:** Lower division in Visualization.

ARTS 116 Drawing II

Credits 3. 2 Lecture Hours. 4 Lab Hours. Development and reinforcement of skills established in ARTS 111; measuring methods, composition, proportion, form, line, and value. **Prerequisites:** Grade C or better in ARTS 111 or ARTS 115.

ARTS 149 Art History Survey I

Credits 3. 3 Lecture Hours. (ARTS 1303) Art History Survey I. Survey of architecture, painting, sculpture and the minor arts from prehistoric times to 14th century.

ARTS 150 Art History Survey II

Credits 3. 3 Lecture Hours. (ARTS 1304) Art History Survey II. Survey of architecture, painting, sculpture and the minor arts from the 14th century to the end of the 20th century; also taught at Galveston campus.

ARTS 210 Introduction to Digital Photography

Credits 3. 2 Lecture Hours. 3 Lab Hours. (ARTS 2356) Introduction to Digital Photography. Introduction to photography; digital camera controls; creation, manipulation and critique of the digital image; composition and aesthetics; exposure control; digital work-flow. **Prerequisite:** Non-visualization majors only.

ARTS 212 Life Drawing

Credits 3. 1 Lecture Hour. 6 Lab Hours. (ARTS 2323) Life Drawing. Study of the form, volume, structure and movement of the human figure; emphasis on proportion and anatomy. **Prerequisite:** Grade of C or better in ARTS 111 or ARTS 115.

ARTS 231 Digital Form and Fabrication

Credits 3. 2 Lecture Hours. 4 Lab Hours. Introduction to and development of three-dimensional modeling and prototyping skills for sculptural form. **Prerequisites:** Grade of C or better in VIST 106 or equivalent.

ARTS 234 Body Art of Tattoos

Credits 3. 3 Lecture Hours. History of body art from the Stone Age to present day; aesthetics, sign, symbol, social and cultural significance.

ARTS 255 Typography

Credits 3. 2 Lecture Hours. 4 Lab Hours. Introduction to the art and history of typography; basic understanding of typography; exploration of typography through reading, research, exercises, and design production; the history of typographic forms, principles of typographic composition, and the expressive potential of type. **Prerequisites:** Grade of C or better in VIST 105 or ARTS 104.

ARTS 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of art history or visualization. May be repeated for credit.

ARTS 301 Artificial Intelligence in Visual Arts

Credits 3. 2 Lecture Hours. 4 Lab Hours. Examination of the role of AI in the visual arts; exploration of AI technologies including diffusion models, generative algorithms, machine learning; analyzes the impact of AI on creativity, workflow, authorship, and artistic expression.

Prerequisites: PVFA 201; PVFA 301 or concurrent enrollment; junior or senior classification or approval of instructor.

ARTS 303 Graphic Design I

Credits 3. 2 Lecture Hours. 4 Lab Hours. Principles and elements of graphic design; composition problem solving, conceptual thinking and application to visual communication. **Prerequisites:** Grade of C or better in ARTS 104 or VIST 105.

ARTS 304 Graphic Design II

Credits 3. 2 Lecture Hours. 4 Lab Hours. Continuation of ARTS 303; concepts in advanced graphics as a tool for design solutions for publication and promotion; emphasis on creative thinking over technology. **Prerequisites:** ARTS 303; junior or senior classification.

ARTS 305 Painting I

Credits 3. 2 Lecture Hours. 4 Lab Hours. Traditional and contemporary painting approaches and media; emphasis on form, composition, observational representation. **Prerequisite:** Grade of C or better in ARTS 111 or ARTS 115.

ARTS 308 Sculpture

Credits 3. 1 Lecture Hour. 5 Lab Hours. Principles and processes of form making; space and materials; context and content of three-dimensional form. **Prerequisite:** Grade of C or better in ARTS 111 or ARTS 115.

ARTS 311 Traditional Photography

Credits 3. 2 Lecture Hours. 4 Lab Hours. Photographic image as a medium of visual expression; basic theory and practice of still photography; historic development and aesthetic concern for photographic imagery. **Prerequisites:** Grade of C or better in ARTS 103 or VIST 205.

ARTS 312 Advanced Photography

Credits 3. 2 Lecture Hours. 3 Lab Hours. Advanced photographic image-making; development, control and presentation of the expressive photographic image; traditional and/or new media. **Prerequisite:** Grade of C or better in ARTS 210, VIST 310, or ARTS 311.

ARTS 315 Figure Drawing For Narrative and Concept Development

Credits 3. 2 Lecture Hours. 4 Lab Hours. Exploration of contemporary drawing practices and theory; investigation into the relationship with digital media including animation, photography and other digital technologies; development of personal approaches to media, techniques and thematic content; creation of a creative workflow and visual vocabulary. **Prerequisite:** Grade of C or better in ARTS 212.

ARTS 325 Digital Painting

Credits 3. 2 Lecture Hours. 4 Lab Hours. Theory and practice of digital painting media; exploration of traditional and new forms of art making and creativity; emphasis on color theory; field trip required. **Prerequisites:** Grade of C or better in ARTS 111 or ARTS 115.

ARTS 328 Advanced Painting

Credits 3. 1 Lecture Hour. 5 Lab Hours. Experiments in spatial design; intermediate aspects of creative process; issues in contemporary art; modeling and construction techniques as they may facilitate the generation of new forms and compositions; formal visual analysis and critique. May be taken two times for credit. **Prerequisites:** ARTS 305; junior or senior classification; PVFA major or approval of instructor.

ARTS 329 Texas Art History

Credits 3. 3 Lecture Hours. The development of visual arts in Texas; an examination of art movements, artists and major works exhibiting a broad range of artistic techniques. **Prerequisite:** Grade of C or better in ARTS 149, ARTS 150, ARTS 349, ARCH 249, ARCH 250, or ARCH 350.

ARTS 330 The Arts of America

Credits 3. 3 Lecture Hours. Survey of painting, sculpture, crafts and architecture of prehistoric America to the present; emphasis on art as a record of cultural, economic and social evolution. **Prerequisite:** Grade of C or better in ARTS 149, ARTS 150, ARTS 349, ARCH 249, ARCH 250, or ARCH 350.

ARTS 335 The Art and Architecture of Rome

Credits 3. 3 Lecture Hours. Rome as a microcosm of western civilization; a survey of western architectural and art history from antiquity through the Baroque; a focus on the Eternal City's buildings, paintings, mosaics and sculptures exploring criteria, methods, goals and results of major architectural and artistic movements and the people involved. **Prerequisite:** Grade of C or better in ARTS 149, ARTS 150, ARTS 349, ARCH 249, ARCH 250, or ARCH 350.

ARTS 339 Themes in Contemporary Art

Credits 3. 3 Lecture Hours. Thematic survey of art since 1960; exploration of changing roles in art production, performance, presentation and criticism; art and artist in the global context; contemporary theory and criticism. **Prerequisite:** Admission to upper division.

ARTS 340 History of the Photographic Image

Credits 3. 3 Lecture Hours. History of photography; social, cultural, political, scientific and artistic contexts; important photographic themes and photographers. **Prerequisite:** ARTS 149, ARTS 150, ARTS 349, ARCH 249, ARCH 250, or ARCH 350.

ARTS 341 History of Animation

Credits 3. 3 Lecture Hours. History of the animated image in the nineteenth-century through the twenty-first century; developments, theories and ideologies in computer animation. **Prerequisites:** Grade C or better in ARTS 149, ARTS 150, ARTS 349, ARCH 249, ARCH 250, ARCH 350, or FILM 299.

ARTS 342 History of Graphic Design

Credits 3. 3 Lecture Hours. History of graphic design; understanding visual language, semiotic theory, technological developments associated with graphic design production, social, cultural, political and artistic influence on visual communication. **Prerequisite:** ARTS 149, ARTS 150, ARTS 349, ARCH 249, ARCH 250, or ARCH 350.

ARTS 343 History of Illustration

Credits 3. 3 Lecture Hours. History of illustration; early scrolls, codexes and manuscript illumination; print culture; commercial processes of the 19th and 20th centuries. **Prerequisite:** ARTS 149, ARTS 150, ARTS 349, ARCH 249, ARCH 250, or ARCH 350.

ARTS 345 History of Gaming

Credits 3. 3 Lecture Hours. Modern game creation and play; theory, history, and development. **Prerequisites:** ARTS 149, ARTS 150, ARTS 349, ARCH 249, ARCH 250, or ARCH 350.

ARTS 349 The History of Modern Art

Credits 3. 3 Lecture Hours. Chronological development of late 19th through 20th century art; emphasis on key artists, paintings, sculpture, photography and architecture. **Prerequisite:** Junior or senior classification or approval of instructor and undergraduate program coordinator.

ARTS 350 The Arts and Civilization

Credits 3. 3 Lecture Hours. Investigation of the image of work of selected periods in terms of criticism, aesthetic rationale, specific masters and social significance by going beyond historical chronology. **Prerequisites:** Grade of C or better in ARTS 149, ARTS 150, ARTS 349, ARCH 249, ARCH 250, or ARCH 350.

ARTS 353 Color Theory

Credits 3. 2 Lecture Hours. 4 Lab Hours. Examination of color and color theory including optical phenomena, color theory and perception; application and principles with respect to art and design; two-dimensional and three-dimensional projects examining color theories. **Prerequisites:** Junior classification in Visualization major; Graphic Design or Studio Art minor.

ARTS 356 Motion Graphics

Credits 3. 2 Lecture Hours. 4 Lab Hours. Investigation of visual communication and commercial art as time-based media; including skill development in the use of software to develop storyboards and animation including creating, importing, and sequencing media elements; focus on the effective use of graphic design elements in motion including type, logos, infographics, and color. **Prerequisites:** Grade of C or better in ARTS 104 or VIST 105; grade of C or better in ARTS 303.

ARTS 403 Graphic Design III

Credits 3. 2 Lecture Hours. 4 Lab Hours. Advanced graphic design concepts and practices; development of unified graphic campaigns to promote a product, an organization, a publication, a service, or business; advanced problem-solving techniques based on the design process through research, analysis, and presentation; systematic approach to visual development. **Prerequisites:** ARTS 303 and ARTS 304; junior or senior classification or approval of instructor and undergraduate program coordinator; knowledge of industry-standard software (Adobe Photoshop, InDesign and Illustrator) is expected.

ARTS 435 Digital Sculpture

Credits 3. 2 Lecture Hours. 4 Lab Hours. Instruction in advanced digital workflows and aesthetic techniques for the creation of narrative and non-objective sculpture. **Prerequisites:** Junior or senior classification; grade of C or better in ARTS 231 and VIST 106.

ARTS 445 Byzantine Art and Architecture

Credits 3. 3 Lecture Hours. A critical and historical investigation of Mediterranean art and architecture from the third century to the middle of the fifteenth century; emphasis on the artistic achievements from the late antique Mediterranean and the Byzantine Empire; investigation of architectural decoration, public monuments, cultural diversity and controversies over images. **Prerequisite:** Grade of C or better in ARTS 149, ARTS 150, ARTS 349, ARCH 249, ARCH 250, or ARCH 350.

ARTS 455 Experimental Typography

Credits 3. 1 Lecture Hour. 5 Lab Hours. Investigation of typography in three-dimensional space; exploration of typography in its traditional and experimental forms; exploration of how typography lives in public spaces and how typography can be an interactive and hands-on experience. May be taken for credit up to 6 hours. **Prerequisites:** Grade C or better in ARTS 255, ARTS 303 and ARTS 304.

ARTS 485 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Special problems in the fine and applied visual and plastic arts. May be repeated for up to 12 credit hours. **Prerequisite:** Approval of instructor and undergraduate program coordinator.

ARTS 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified field of the fine or applied visual and plastic arts. May be repeated for up to 9 credit hours. **Prerequisite:** Approval of instructor and undergraduate program coordinator.

ASCC - Academic Success Center (ASCC)

ASCC 001 Basic Math Skills

Credits 0. 3 Other Hours. Developmental instruction in mathematics; includes the integers and rational numbers and applications, exponents, polynomials, solution of equations, graphing, elementary geometry and reasoning skills; also taught at Galveston and Qatar campuses. May not be used for credit toward a degree.

ASCC 002 Corequisite Math Support

Credits 0. 3 Other Hours. Support course for TSI-liable students enrolled in entry-level for-credit MATH course as part of the Texas Success Initiative mandate; designed to follow the stated syllabus of the given MATH course; fundamental support for at-risk math students to enhance the likelihood of success. May not be used for credit toward a degree. **Prerequisite:** Concurrent enrollment in entry-level for-credit MATH course; also taught at Galveston and Qatar campuses.

ASCC 003 Corequisite Integrated Reading Writing Support

Credits 0. 3 Other Hours. Support course for TSI-liable students enrolled in an entry level for-credit ENGL, HIST, POLS, or PBSI course as part of the Texas Success Initiative mandate; designed to follow the stated syllabus of the given ENGL, HIST, POLS, or PBSI course; fundamental support for at-risk reading and writing students to enhance the likelihood of success. May not be used for credit toward a degree. **Prerequisite:** Concurrent enrollment in entry-level ENGL, HIST, POLS, or PBSI course; also taught at Galveston and Qatar campuses.

ASCC 004 Reading/Writing Connection

Credits 0. 3 Other Hours. Individualized instruction designed to refine and practice the basic reading and writing skills by integrating the related concepts of the two areas; also taught at Galveston and Qatar campuses. May not be used for credit toward a degree.

ASCC 005 Fundamental Academic Skills

Credits 0. 0 Lecture Hours. Designed to address the fundamental math, reading, and writing skills for students needing instruction at the adult basic education (ABE) level; also taught at Galveston and Qatar campuses. May not be used for credit towards a degree.

ASCC 101 Application of Learning Theories to College Studies

Credits 0 to 3. 0 to 3 Lecture Hours. The study of critical theories of learning with application to academic performance; designated as the university's learning framework course, this course is designed to help students understand learning theory and develop strategies for successful completion of college level studies; also taught at Qatar campus.

ASCC 102 Career Awareness

Credits 0 to 3. 0 to 3 Lecture Hours. Encourages planning career and life goals early in academic career for timely decision-making related to academics, acquiring marketable skills, pursuing relevant experiential education, and participating in student/professional organizations; acquaints students with realities of early career, emphasizes utilization of resources on a timely basis for competitiveness in job market; also taught at Qatar campus.

ASCC 289 Special Topics in...

Credits 0 to 3. 0 to 3 Lecture Hours. Selected topics in academic development and improvement. **Prerequisite:** Approval of coordinator; also taught at Qatar campus.

ASIA - Asian Studies (ASIA)

ASIA 229/ENGL 229 Asian American Literature and Culture

Credits 3. 3 Lecture Hours. Introduction to the historical scope of Asian American literature and culture. **Cross Listing:** ENGL 229/ASIA 229.

ASIA 285 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Selected fields of Asian Studies not covered in depth by other courses. Reports and extensive reading required. May be repeated for credit. **Prerequisite:** Approval of director of Asian Studies.

ASIA 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in Asian studies. May be repeated for credit.

ASIA 349/HIST 349 The Vietnam War/The American War

Credits 3. 3 Lecture Hours. Vietnam's relations with the West; French colonialism; origins and development of Vietnamese nationalism; Cold War and American involvement; wartime societies in North and South Vietnam; expansion of the war to Cambodia and Laos; anti-war movements in the United States; reasons for the American defeat; consequences and lessons of the war. **Prerequisites:** Junior or senior classification. **Cross Listing:** HIST 349/ASIA 349.

ASIA 350/HIST 350 World War II in Asia and the Pacific

Credits 3. 3 Lecture Hours. Origins and development of Japanese imperialism; Japan's expansion into East and Southeast Asia and the Pacific; wartime societies; collaboration and resistance; effects of the war in the United States on Japanese-Americans; outcomes of the war; remembrance of the war. **Prerequisite:** Junior or senior classification. **Cross Listing:** HIST 350/ASIA 350.

ASIA 352/HIST 352 Modern East Asia

Credits 3. 3 Lecture Hours. Impact of the West on traditional China and Japan; the response through modernization; rise of nationalism and formation of modern nation states. **Prerequisite:** Junior or senior classification. **Cross Listing:** HIST 352/ASIA 352.

ASIA 354/HIST 354 Imperial China

Credits 3. 3 Lecture Hours. History of imperial China from the earliest dynasties through the mid-19th century, including major political events, the structure of Chinese government, economic development, philosophies and religion, wars and military and culture and daily life. **Prerequisite:** Junior or senior classification. **Cross Listing:** HIST 354/ASIA 354.

ASIA 355/HIST 355 Modern China

Credits 3. 3 Lecture Hours. History of China from the coming of the West to the present; social, economic and political changes which have taken place during that period. **Prerequisite:** Junior or senior classification. **Cross Listing:** HIST 355/ASIA 355.

ASIA 356/HIST 356 Twentieth Century Japan

Credits 3. 3 Lecture Hours. Industrialization and modernization of Japan; its rise from an isolated nation to a major world power and economic giant. **Prerequisite:** Junior or senior classification. **Cross Listing:** HIST 356/ASIA 356.

ASIA 358/HIST 358 Chinese Cultural History

Credits 3. 3 Lecture Hours. Examination of Chinese culture and its evolution over the last 4,000 years; customs, art, literature, festivals, folklore, religion, architecture, medicine, and everyday life. **Prerequisite:** Junior or senior classification. **Cross Listing:** HIST 358/ASIA 358.

ASIA 401 Slavery in World History

Credits 3. 3 Lecture Hours. Comparative history of human slavery; slavery in the Ancient World, Asia, Africa; varieties of modern slavery in the New World since 1500; abolition of slavery and continuing forms of human bondage in the contemporary world. **Prerequisite:** Junior or senior classification. **Cross Listing:** AFST 401 and HIST 401.

ASIA 463 Gender in Asia

Credits 3. 3 Lecture Hours. Gender dynamics in Asia; changes in gender roles; women's movements; women and the economy; women and politics; men's and women's private lives. **Prerequisite:** Junior or senior classification. **Cross Listing:** SOCI 463 and WGST 463.

ASIA 485 Directed Studies

Credits 1 to 3. 1 to 3 Other Hours. Selected fields of Asian Studies not covered in depth by other courses. Reports and extensive reading required. May be repeated for credit. **Prerequisite:** Approval of director of Asian Studies.

ASIA 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in Asian Studies. May be repeated for credit.

ASIA 491 Research

Credits 1 to 3. 1 to 3 Other Hours. Research conducted under the direction of a faculty member in Asian Studies. May be repeated 3 times for credit. **Prerequisites:** 6 credits of ASIA; junior or senior classification; approval of instructor.

ASTR - Astronomy (ASTR)

ASTR 101 Basic Astronomy

Credits 3. 3 Lecture Hours. (ASTR 1303 or PHYS 1303) Basic Astronomy. A qualitative approach to basic stellar astronomy; earth-moon-sun relationships then studies of distances to stars, stellar temperatures, and other physical properties; birth, life on the main sequence of the H-R diagram, and ultimate fates of stars; not open to students who have taken ASTR 111 or ASTR 314.

ASTR 102 Observational Astronomy

Credit 1. 3 Lab Hours. (ASTR 1103 or PHYS 1103) Observational Astronomy. Observational and laboratory course; use of techniques and instruments of classical and modern astronomy.

ASTR 103 Introduction to Stars and Exoplanets

Credits 3. 3 Lecture Hours. A qualitative study of stellar birth, stellar structure and evolution, stellar nucleosynthesis, the Hertzsprung-Russell Diagram, white dwarfs, neutron stars, supernovae, black holes, proto-planetary systems, origin of the solar system and the search for exoplanets; utilizes active learning methods that incorporate observations from the current generation of ground and space-based telescopes. Open to all majors.

ASTR 104 Introduction to Galaxies and Cosmology

Credits 3. 3 Lecture Hours. A qualitative study of properties of galaxies, galaxy evolution through cosmic time, galactic archaeology, active galactic nuclei, super-massive black holes, large-scale structure, the expansion history of the universe, cosmological parameters and Big Bang nucleosynthesis; utilizes active learning methods that incorporate observations from the current generation of ground and space-based telescopes. Open to all majors.

ASTR 109/PHYS 109 Big Bang and Black Holes

Credits 3. 3 Lecture Hours. Designed to give an intuitive understanding of the Big Bang and Black Holes, without mathematics, and de-mystify them for the non-scientist. **Cross Listing:** PHYS 109/ASTR 109.

ASTR 111 Overview of Modern Astronomy

Credits 4. 3 Lecture Hours. 2 Lab Hours. (ASTR 1303 and ASTR 1103, ASTR 1403, PHYS 1303 and PHYS 1103, PHYS 1403) Overview of Modern Astronomy. Roots of modern astronomy; the scientific method; fundamental physical laws; the formation of planets, stars, and galaxies; introduction to cosmology; includes an integrated laboratory that reinforces the lecture topics, including hands-on experience with telescopes and imaging of celestial objects; not open to students who have taken ASTR 101 or ASTR 314.

ASTR 119/PHYS 119 Big Bang and Black Holes: Laboratory Methods

Credit 1. 2 Lab Hours. Hands-on understanding of the concepts surrounding the Big Bang and Black Holes; emphasis on the evidence-based decision making process, methods and presentation; for non-scientists. Companion course for ASTR 109/PHYS 109/PHYS 109/ASTR 109. **Prerequisite:** ASTR/PHYS 109/ASTR 109 or registration therein. **Cross Listing:** PHYS 119/ASTR 119.

ASTR 285 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Special work in laboratory or theory to meet individual requirements in cases not covered by regular curriculum; intended for use as lower-level credit. **Prerequisite:** Approval of department head.

ASTR 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of astronomy. May be repeated for credit. **Prerequisite:** Approval of instructor.

ASTR 291 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in astronomy. May be repeated 2 times for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

ASTR 314 Survey of Astronomy

Credits 3. 3 Lecture Hours. Primarily for majors in science and engineering. Kepler's laws, law of gravitation, solar system, stars, stellar evolution, nucleosynthesis, cosmology, clusters, nebulae, pulsars, quasars, black holes. **Prerequisite:** PHYS 207 or PHYS 208.

ASTR 320 Astrophysical Research Methods

Credits 3. 3 Lecture Hours. Background and tools used in modern astrophysical research, including reduction of photometric and spectroscopic data, signal-to-noise and error calculations and order-of-magnitude estimates. **Prerequisite:** Grade of C or better in ASTR 314 or approval of instructor.

ASTR 401 Stars and Extrasolar Planets

Credits 3. 3 Lecture Hours. How stars are born, how internal structure changes, nuclear fuel burned and ultimate fate; extrasolar planet detection, formation, properties and habitability. **Prerequisite:** ASTR 314.

ASTR 403 Extragalactic Astronomy and Cosmology

Credits 3. 3 Lecture Hours. Physical makeup of individual galaxies and large scale structure in the universe; origin and eventual fate of the universe; interpretation of observational data as it relates to baryonic matter, Dark Matter and cosmological models with Dark Energy. **Prerequisite:** ASTR 314.

ASTR 420 Advanced Astrophysical Research Methods

Credits 3. 3 Lecture Hours. Advanced research techniques used by modern-day astronomers to obtain, process and analyze data from grounds and space-based telescopes. **Prerequisites:** Grade of C or better in ASTR 320 or approval of instructor.

ASTR 485 Directed Studies

Credits 1 to 12. 1 to 12 Other Hours. Special work in laboratory or theory to meet individual requirements in cases not covered by regular curriculum. **Prerequisite:** Approval of department head.

ASTR 489 Special Topics in...

Credits 1 to 4. 0 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified topic of astronomy. May be repeated for credit. **Prerequisite:** Approval of instructor.

ASTR 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in astronomy. May be repeated for credit. Registration in multiple sections of this course is possible within a given semester provided that the per semester credit hour limit is not exceeded. **Prerequisites:** Junior or senior classification and approval of instructor.

ATMO - Atmospheric Sciences (ATMO)

ATMO 110/GEOL 110 Disasters and Society

Credits 3. 3 Lecture Hours. Exploration of the science behind disasters; how they occur, the choices society makes that create or affect disasters, how certain populations are privileged during disasters by the decisions society has made and how science informs preparation for and response to future disasters. **Cross Listing:** GEOL 110/ATMO 110.

ATMO 201 Weather and Climate

Credits 3. 3 Lecture Hours. Structure, energy, and motions of the atmosphere; climate; fronts and cyclones; atmospheric stability; clouds and precipitation; severe storms.

ATMO 202 Weather and Climate Laboratory

Credit 1. 2 Lab Hours. Practical laboratory experiments and exercises, conducted in the meteorology and computer laboratories, concerning the fundamental physical processes underlying atmospheric phenomena, and the collection, display and interpretation of meteorological information. For non-majors only.

ATMO 203 Weather Forecasting Laboratory

Credit 1. 2 Lab Hours. Short-range weather forecasting practice; numerical guidance; weather map analysis and discussions. **Prerequisite:** ATMO 201 or concurrent enrollment.

ATMO 210 Climate Change

Credits 3. 3 Lecture Hours. Examination of the science of climate change; past and present causes of global-scale climate change; basis for projections of future climate change and its potential impacts; existing and proposed policy responses; critical evaluation of scientific information.

ATMO 215 Climate Risk in the 21st Century

Credits 3. 3 Lecture Hours. Exploration of the fundamental risk of climate change, including both physical and economic risks, and the complex challenges of energy transition; the political and social dynamics that shape climate policy and the debate over climate change; comprehensive understanding through analysis of historical and contemporary issues of the risks and opportunities of our rapidly changing climate and climate policy.

ATMO 251 Weather Observation and Analysis

Credits 3. 2 Lecture Hours. 2 Lab Hours. Standard and experimental weather observing techniques; subjective and objective analysis; application of conceptual models; simple kinematic and dynamic constraints. **Prerequisite:** ATMO 203 or concurrent enrollment; MATH 172 or MATH 152, or concurrent enrollment.

ATMO 285 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Offered to enable majors in meteorology to undertake and complete with credit in their particular fields of specialization limited investigations not covered by any other courses in established curriculum. **Prerequisite:** Freshman or sophomore classification.

ATMO 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of meteorology. May be repeated for credit. **Prerequisite:** Approval of instructor.

ATMO 291 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in atmospheric sciences. May be repeated 2 times for credit. Registration in multiple sections of this course is possible within a given semester provided that the per semester credit hour limit is not exceeded. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

ATMO 321 Computer Applications in the Atmospheric Sciences

Credits 3. 2 Lecture Hours. 2 Lab Hours. Introduction to technical computing methods in the atmospheric sciences; use of specialized software and data analysis systems for meteorological applications.

ATMO 324 Physical and Regional Climatology

Credits 3. 2 Lecture Hours. 2 Lab Hours. Climate causes; global and surface energy balance; hydrologic cycle; general circulation; climate change; climate data analysis. **Prerequisites:** ATMO 201; MATH 251 or concurrent enrollment; ATMO 321 or equivalent, or concurrent enrollment; junior or senior classification.

ATMO 326 Environmental Atmospheric Science

Credits 3. 2 Lecture Hours. 2 Lab Hours. Basic concepts of meteorology as needed in environmental sciences; patterns of meteorological and climatic elements and their relevance in terrestrial ecology and urban sciences; solar and wind energy physics; practical experience in use of instruments to measure micro-climates as they relate to meteorological conditions and analysis of data. **Prerequisites:** ATMO 201 or GEOG 203, or approval of instructor.

ATMO 335 Atmospheric Thermodynamics

Credits 3. 3 Lecture Hours. Application of thermodynamics to Earth's atmosphere; phase changes of water; stability concepts; introduction to physical chemistry. **Prerequisites:** CHEM 120; MATH 251; PHYS 206.

ATMO 336 Atmospheric Dynamics

Credits 4. 3 Lecture Hours. 2 Lab Hours. Kinematic concepts and relationships; equations of motion; geostrophic and accelerated motions; the vorticity equation and Rossby waves. **Prerequisites:** ATMO 321, ATMO 335, and MATH 308, or concurrent enrollment; junior or senior classification.

ATMO 352 Severe Weather and Mesoscale Forecasting

Credits 3. 2 Lecture Hours. 2 Lab Hours. Parcel theory for dry and moist convection; sounding diagrams and their application to atmospheric convection; organization of midlatitude convection and severe weather; thunderstorm forecasting. **Prerequisite:** ATMO 251, and MATH 152 or MATH 172.

ATMO 363 Introduction to Atmospheric Chemistry and Air Pollution

Credits 3. 3 Lecture Hours. Descriptive introduction of the composition and chemistry of natural and pollutant compounds in the atmosphere; transport, cycling and reactivity of atmospheric material; atmospheric measurements, data processing, air quality and human health issues; air pollution trends and climate change. **Prerequisites:** CHEM 119 and CHEM 120 or approval of instructor.

ATMO 370 Student High Impact Experiences in Meteorology

Credits 1 to 4. 1 to 4 Other Hours. Observation, study and analysis of meteorological phenomena and processes in the regional settings in which they occur; domestic and study-abroad high impact learning experiences. **Prerequisite:** ATMO 201 or concurrent enrollment.

ATMO 435 Synoptic-Dynamic Meteorology

Credits 3. 3 Lecture Hours. Dynamics and diagnosis of synoptic-scale systems; perturbation theory and baroclinic instability; wave energetics, frontogeneses. **Prerequisites:** ATMO 336 or equivalent; MATH 308.

ATMO 441 Satellite Meteorology and Remote Sensing

Credits 3. 2 Lecture Hours. 2 Lab Hours. Introduction to satellite orbit dynamics, atmospheric radiative transfer, atmospheric remote sensing methods, and analysis and application of remotely sensed meteorological data. **Prerequisites:** ATMO 324 and MATH 308; ATMO 446 or concurrent enrollment.

ATMO 443 Radar Meteorology

Credits 3. 2 Lecture Hours. 2 Lab Hours. Principles of radar theory, hardware, operations and analysis using real-time radar and computer-based case studies; conventional, Doppler and polarimetric weather radar; precipitation estimation, hydrometeor identification and air motion analysis; observations and analyses of thunderstorms, mesocyclones, tornadoes and gust fronts. **Prerequisites:** ATMO 352; PHYS 207 or PHYS 219.

ATMO 444 The Science and Politics of Global Climate Change

Credits 3. 3 Lecture Hours. Examination of the policy and scientific debate over climate change; how scientific debates produce "knowledge"; how political debates produce policies; how policy debates use science; scientific evidence for climate change; impacts of climate change; possible responses to climate change; the political debate over climate change. **Prerequisite:** ATMO 210; junior or senior classification or approval of instructor.

ATMO 446 Physical Meteorology

Credits 3. 3 Lecture Hours. Physics and meteorology of clouds and precipitation; atmospheric electricity; radiative transfer. **Prerequisite:** ATMO 335.

ATMO 455 Numerical and Machine Learning-Based Weather Prediction

Credits 3. 2 Lecture Hours. 2 Lab Hours. Basic principles of computer models for weather prediction, critical evaluation of models and model outputs; data assimilation; atmospheric predictability; ensemble forecasting. **Prerequisites:** Junior or senior classification, approval of instructor.

ATMO 456 Practical Weather Forecasting

Credits 3. 1 Lecture Hour. 4 Lab Hours. Advanced weather forecasting techniques with application to a variety of forecasting problems, both public and private sector. **Prerequisites:** ATMO 435 or registration therein; junior or senior classification.

ATMO 459 Tropical Meteorology

Credits 3. 3 Lecture Hours. Tropical climatology; structure, evolution, and motion of tropical cyclones; tropical cyclone hazards; large-scale tropical phenomena. **Prerequisites:** ATMO 336; ATMO 352 or concurrent enrollment.

ATMO 461 Broadcast Meteorology

Credit 1. 2 Lab Hours. Instruction in the practice of broadcast meteorology; practice in and preparation of weather forecast products and demonstration videotapes. May be taken two times for credit with faculty advisor approval. **Prerequisites:** ATMO 335 or registration therein; MATH 308 or registration therein; junior or senior classification.

ATMO 463 Air Quality

Credits 3. 3 Lecture Hours. Atmospheric pollution sources, transport, sinks, and effects; monitoring of air pollutant emissions and of ambient concentrations; use of models to simulate air pollution; regulation of emissions and ambient concentrations; greenhouse gas emissions regulations. **Prerequisite:** CHEM 119 or CHEM 107 or approval of instructor; junior or senior classification.

ATMO 464 Laboratory Methods in Atmospheric Sciences

Credits 3. 2 Lecture Hours. 4 Lab Hours. Instruction in chemical techniques used to monitor the atmosphere and other earth systems; sampling strategies; survey of current literature focusing on development of new techniques. **Prerequisites:** CHEM 119 and one semester of calculus (MATH 171 or equivalent).

ATMO 484 Internship

Credits 0 to 3. 0 to 3 Other Hours. Supervised internship at National Weather Service or in broadcast meteorology or elsewhere with faculty advisor approval; must complete a report and have a letter from supervisor for credit. May be taken three times for credit. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** ATMO 251; approval of faculty advisor.

ATMO 485 Directed Studies

Credits 1 to 23. 1 to 23 Other Hours. Offered to enable majors in meteorology to undertake and complete with credit in their particular fields of specialization limited investigations not covered by any other courses in established curriculum. **Prerequisite:** Junior or senior classification.

ATMO 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of meteorology. May be repeated for credit.

ATMO 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in atmospheric sciences. May be repeated 2 times for credit. Registration in multiple sections of this course is possible within a given semester provided that the per semester credit hour limit is not exceeded. **Prerequisites:** Junior or senior classification and approval of instructor.

ATTR - Athletic Training (ATTR)

ATTR 201 Field Experience in Athletic Training I

Credit 1. 4 Lab Hours. Field based experience in athletic training to provide on-the-job training designed to enhance and clarify career objectives; knowledge and skill development in professional behaviors, injury prevention and risk management. **Prerequisite:** Kinesiology majors.

ATTR 202 Field Experience in Athletic Training II

Credit 1. 4 Lab Hours. Field based experience in athletic training to provide on-the-job training designed to enhance and clarify career objectives; knowledge and skill development in recognition and evaluation of common injuries and illnesses and their management. **Prerequisite:** Grade of B or better in ATTR 201.

ATTR 301 Field Experience in Athletic Training I

Credit 1. 4 Lab Hours. Field based experience in athletic training to provide on-the-job training designed to enhance and clarify career objectives; knowledge and skill development in the treatment and rehabilitation of athletic injuries. **Prerequisite:** Grade of B or better in ATTR 202.

ATTR 302 Field Experience in Athletic Training II

Credit 1. 4 Lab Hours. Field based experience in athletic training to provide on-the-job training designed to enhance and clarify career objectives; knowledge and skill development in athletic training administration; exploration of policy and position statements; professional development. **Prerequisite:** Grade of B or better in ATTR 301.

BAEN - Biological & Ag Engr (BAEN)

BAEN 201 Analysis of Biological and Agricultural Engineering Problems

Credits 3. 1 Lecture Hour. 4 Lab Hours. Overview of Biological and Agricultural Engineering discipline through case studies and engineering design problems; introduction to engineering design utilizing computer programming, 3-D computer-aided modeling and 2-D engineering drawings; introduction to manufacturing processes. **Prerequisites:** Grade of C or better in ENGR 102; grade of C or better in MATH 151; grade of C or better in CHEM 107 and CHEM 117, or CHEM 102 and CHEM 112, or CHEM 120.

BAEN 281 Professional Development Seminar

Credits 1. 1 Lecture Hour. Familiarization with engineering design process used in professional environments where BAEN and AGSM graduates are employed; discussion of professional development topics; improvement of technical communication skills. May be taken 4 times for credit.

BAEN 284 Internship

Credits 0. 0 Lecture Hours. 0 Lab Hours. 0 Other Hours. No Credit. Practical experience working in a professional biological and agricultural engineering setting. May be taken three times. **Prerequisite:** Freshman or sophomore classification; approval of the instructor.

BAEN 285 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Selected problems in any phase of agricultural engineering; credit and specific content dependent upon background, interest, ability and needs of student enrolled; individual consultations and reports required. **Prerequisites:** Freshman or sophomore classification; approval of department head.

BAEN 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of agricultural engineering. May be repeated for credit. **Prerequisite:** Approval of instructor.

BAEN 291 Research

Credits 0 to 3. 0 to 3 Other Hours. Research conducted under the direction of faculty member in biological and agricultural engineering. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

BAEN 301 Biological and Agricultural Engineering Fundamentals I

Credits 3. 2 Lecture Hours. 3 Lab Hours. Fundamental engineering concepts related to agricultural systems including the environment (soil, water, and air), plant and animal production systems and processing, and associated machines and facilities; application of techniques for data collection and analysis to problems in biological and agricultural engineering; design of experiments and communication of experimental results. **Prerequisite:** Grade of C or better in MEEN 221 or concurrent enrollment.

BAEN 302 Biological and Agricultural Engineering Fundamentals II

Credits 3. 2 Lecture Hours. 3 Lab Hours. Fundamentals of microbiology and biochemistry as they apply to biological and agricultural engineering systems to produce useful products and/or benign wastes; topics include microbiology, chemistry of biomolecules, microbial metabolism, bioenergetics, kinetics, mass transfer, bioreactor design, bioprocesses, and downstream processing. **Prerequisites:** Grade of C or better in BIOL 113 or BIOL 111; Grade of C or better in CHEM 222 or CHEM 227 or concurrent enrollment.

BAEN 320 Engineering Thermodynamics

Credits 3. 2 Lecture Hours. 2 Lab Hours. First and second laws of thermodynamics; properties of pure substances; analysis of closed and open systems; applications to steady-flow and non-flow processes; power and refrigeration cycles; psychrometrics. **Prerequisites:** Grade of C or better in MEEN 221 or CVEN 221; grade of C or better in MATH 251 or MATH 253 or concurrent enrollment.

BAEN 340 Fluid Mechanics

Credits 3. 3 Lecture Hours. Fundamentals of fluid properties; basic conservation principles of momentum, energy and continuity; flow through closed conduits; open channel flow; principles of turbomachines and compressible flow. **Prerequisites:** Grade of C or better in MEEN 221; grade of C or better in BAEN 320 or concurrent enrollment.

BAEN 354 Engineering Properties of Biological Materials

Credits 3. 2 Lecture Hours. 3 Lab Hours. Relationships between composition, structure and properties of biological materials; definition and measurement of mechanical, physical, thermal and other material properties; variability of properties; application of properties to engineering analysis and design of biological and agricultural processes and systems. **Prerequisite:** Grade of C or better in MEEN 222/MSEN 222 or MSEN 222/MEEN 222.

BAEN 365 Unit Operations for Biological and Agricultural Engineering

Credits 3. 2 Lecture Hours. 3 Lab Hours. Theoretical and practical understanding of basic unit operations required to design processes and equipment in the agricultural, biological, environmental, and food industries, with unique constraints presented by biological and agricultural systems considered in design of all units. **Prerequisites:** Grade of C or better in BAEN 340; junior or senior classification.

BAEN 366 Transport Processes in Biological Systems

Credits 3. 3 Lecture Hours. Basic principles governing transport of energy and mass; application of these principles to analysis and design of processes involving biological, environmental and agricultural systems. **Prerequisites:** Grade of C or better in BAEN 320, BAEN 340, and BAEN 365 or concurrent enrollment; grade of C or better in MATH 308; junior or senior classification.

BAEN 370 Measurement and Control of Biological Systems and Agricultural Processes

Credits 3. 2 Lecture Hours. 2 Lab Hours. Theory and application of sensors and techniques in the design of systems for automatic control in biological systems and agricultural production and processing; sensor operation; signal processing; control techniques; automation and robotics. **Prerequisite:** Grade of C or better in ECEN 215.

BAEN 375 Design Fundamentals for Agricultural Machines and Structures

Credits 3. 3 Lecture Hours. Applications of stress/strain relationships and failure theory to the design of agricultural machines and structures; structural properties of engineering materials; finite element analysis and computer aided engineering design. **Prerequisite:** Grade of C or better in CVEN 305.

BAEN 399 Professional Development

Credits 0. 0 Other Hours. Participation in an approved high-impact learning practice; reflection on professional outcomes from the National Society of Professional Engineers' Engineering Body of Knowledge; documentation and self-assessment of learning experience. **Prerequisites:** Junior or senior classification; or approval of instructor.

BAEN 401 Bioprocess Systems Design

Credits 3. 2 Lecture Hours. 2 Lab Hours. Application of engineering and biological principles in bioprocess systems design; design and scale up of upstream and downstream unit operations including bioreactors, sedimentation, centrifugation, membraned filtration, adsorption and produce formulation; bioprocess integration, scale up and sustainability assessment. **Prerequisites:** Grade of C or better in BAEN 302 and BAEN 365; grade of C or better in BAEN 320 or concurrent enrollment.

BAEN 412 Hydraulic Power

Credits 3. 2 Lecture Hours. 2 Lab Hours. Hydraulic power systems; energy and power relationships; hydraulic fluid properties; frictional losses in pipelines; hydraulic pumps, cylinders, valves and motors; servo and proportional valves; circuit design and analysis; conductors, fittings and ancillary devices; maintenance of hydraulic systems; pneumatic components and circuits; electrical controls and fluid logic; electro-hydraulic systems. **Prerequisites:** Grade of C or better in BAEN 340 or equivalent, or approval of instructor.

BAEN 414 Renewable Energy Conversions

Credits 3. 2 Lecture Hours. 2 Lab Hours. Energy/power systems through engineering and technical aspects of quantifying and designing the suitability of several types of renewable energy resources; new insights of vast resources that future engineers can harness to augment diminishing supplies of nonrenewable energy. **Prerequisite:** Grade of C or better in BAEN 320 or equivalent, or approval of instructor.

BAEN 417 Fundamentals of Nanoscale Biological Engineering

Credits 3. 3 Lecture Hours. Nanostructures, nanofabrication methods, instrumentation and applications pertinent to Biological, Food and Bioenergy systems; identification and utilization of key tools available for fabricating, manipulating and analysis of nanostructures used in biological engineering applications. **Prerequisite:** Senior classification in engineering or approval of instructor.

BAEN 420 Food Rheology

Credits 3. 3 Lecture Hours. Theoretical and applied learning of rheology of food materials necessary for processing and preservation; topics include viscous liquids, structured materials, and hard solids; fundamental relationships between materials structure and measured properties to observed physical and performance behavior with regard to processing and mouthfeel. **Prerequisites:** Junior or senior classification or approval from instructor.

BAEN 422/CHEN 422 Unit Operations in Food Processing

Credits 3. 2 Lecture Hours. 2 Lab Hours. Design of food process engineering systems; basic concepts of rheology and physical properties of foods; fundamentals of heat and mass transfer and process control. **Prerequisites:** Grade of C or better in CHEN 205 and CHEN 304, or MEEN 221. **Cross Listing:** CHEN 422/BAEN 422.

BAEN 427 Engineering Aspects of Packaging

Credits 3. 3 Lecture Hours. Introduction to properties and engineering aspects of materials for use as components of a package and/or packaging system; principles of design and development of packages; evaluation of product-package-environment interaction mechanisms; testing methods; environmental concerns; regulations; food packaging issues. **Prerequisite:** Junior or senior classification or approval of instructor.

BAEN 431 Fundamentals in Bioseparations

Credits 3. 2 Lecture Hours. 2 Lab Hours. Design principles and application of chemical engineering unit operations to the production of therapeutic and bioactive molecules. **Prerequisite:** Grade of C or better in BAEN 302, BMEN 282, CHEN 282, or CHEN 482.

BAEN 432 Bioaerosols and Modeling

Credits 3. 2 Lecture Hours. 2 Lab Hours. Overview of physical, mechanical, fluid dynamical, electrical, optical, and molecular aspects of bioaerosols; bioaerosol generation, sampling and deposition measurements including size distribution, morphology, chemical composition, bioaerosol samplers, sample analysis, dry and wet deposition, and biofilm resuspension; health effects of bioaerosols, antibiotic resistance, ambient sampling in industrial and agricultural fields. **Prerequisites:** Senior classification or approval of instructor.

BAEN 460 Principles of Environmental Hydrology

Credits 3. 3 Lecture Hours. Hydrologic cycle; precipitation, evaporation, evapotranspiration, infiltration, percolation, runoff, streamflow; groundwater and surface water flow; transport of contaminants in surface water; measurement and analysis of hydrologic data for engineering design. **Prerequisites:** Grade of C or better in BAEN 340.

BAEN 464 Irrigation and Drainage Engineering

Credits 3. 2 Lecture Hours. 2 Lab Hours. Engineering principles and design of both surface and pressurized irrigation systems; introduction to the design of surface and subsurface drainage systems including crop water requirements, soil moisture, irrigation scheduling, surface irrigation, sprinkler irrigation, trickle irrigation, pumps, pipelines, irrigation canals, irrigation wells, and surface and subsurface drainage. **Prerequisite:** Grade of C or better in BAEN 340, EVEN 311/CVEN 311, or CVEN 311/EVEN 311.

BAEN 465 Design of Biological Waste Treatment Systems

Credits 3. 3 Lecture Hours. Management and treatment of high organic content wastes, with emphasis on agricultural and food processing wastes; engineering design of biological waste treatment processes; regulatory aspects affecting management of agricultural wastes. **Prerequisite:** Grade of C or better in BIOL 111 and CHEM 222 or CHEM 227, or BAEN 302, or EVEN 320; or approval of instructor.

BAEN 468 Soil and Water Conservation Engineering

Credits 3. 2 Lecture Hours. 2 Lab Hours. Engineering principles of soil and water conservation; open channel flow principles, hydraulic grade stabilization, erosion control, storm water management, design of structures for floodwater routing, culvert design, design of waterways and agricultural reservoirs, stream bank protection, water quality assessment, groundwater flow, surface water modeling. **Prerequisites:** Grade of C or better in BAEN 340, EVEN 311/CVEN 311, or CVEN 311/EVEN 311.

BAEN 469 Water Quality Engineering

Credits 3. 3 Lecture Hours. Nonpoint source pollution processes including transport mechanisms and contaminant fate; design of best management practices for abating nonpoint source pollution. **Prerequisite:** Grade of C or better in BAEN 340, CVEN 311/EVEN 311, or EVEN 311/CVEN 311.

BAEN 471/CHEN 471 Bioreactor Engineering

Credits 3. 3 Lecture Hours. Fundamentals of microbial and enzyme kinetics; basic biochemical reaction theory and reactor systems; heterogeneous reactions and transport considerations in enzyme and cell reactors, and immobilized systems; bioreactor design considerations in bioprocessing. **Prerequisite:** Grade of C or better in CHEN 282, CHEN 482, or BAEN 302; junior or senior classification or approval of instructor. **Cross Listing:** CHEN 471/BAEN 471.

BAEN 477/MEEN 477 Air Pollution Engineering

Credits 3. 3 Lecture Hours. Design of air pollution abatement equipment and systems to include cyclones, bag filters and scrubbers; air pollution regulations; permitting; dispersion modeling; National Ambient Air Quality Standards. **Prerequisite:** Grade of C or better in BAEN 340, CVEN 311/EVEN 311, EVEN 311/CVEN 311, or MEEN 344. **Cross Listing:** MEEN 477/BAEN 477.

BAEN 479 Biological and Agricultural Engineering Design I

Credits 3. 3 Lecture Hours. Capstone design project selection from problems posed by biological and agricultural engineers in industrial practice; completion of project feasibility study and outline; design philosophy, teamwork and communication; economics; product liability and reliability; use of standards and codes; goal setting, professional development, and time management; project to be completed in BAEN 480. **Prerequisites:** Grade of C or better in BAEN 340 and BAEN 365; grade of C or better in BAEN 366 or BAEN 370; grade of C or better in BAEN 354 or concurrent enrollment.

BAEN 480 Biological and Agricultural Engineering Design II

Credits 3. 6 Lab Hours. Continuation of engineering design experience through team solution of design problem developed in BAEN 479; preparation of design solution under supervision of biological and agricultural engineering staff and clients; critical evaluation of results by students; staff and industrial consultants. **Prerequisites:** Grade of C or better in BAEN 479.

BAEN 481 Seminar

Credit 1. 1 Other Hour. Review of current literature dealing with agricultural engineering problems presented by staff members and students. **Prerequisite:** Senior classification.

BAEN 484 Internship

Credits 0. 0 Lecture Hours. 0 Lab Hours. 0 Other Hours. No Credit. Practical experience working in a professional biological and agricultural engineering setting. May be taken three times. **Prerequisite:** Junior or senior classification; approval of the instructor.

BAEN 485 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Selected problems in any phase of agricultural engineering. Credit and specific content dependent upon background, interest, ability and needs of student enrolled. Individual consultations and reports required. **Prerequisites:** Junior or senior classification and approval of department head.

BAEN 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Special topics in an identified area of agricultural engineering. May be repeated for credit. **Prerequisite:** Approval of department head.

BAEN 491 Research

Credits 0 to 3. 0 to 3 Other Hours. Research conducted under the direction of faculty member in biological and agricultural engineering. May be repeated 2 times for credit. Registration in multiple sections of this course are possible within a given semester provided that the per semester credit hour limit is not exceeded. **Prerequisites:** Junior or senior classification and approval of instructor.

BEFB - Bilingual Ed Field Based (BEFB)

BEFB 425 Student Teaching in Hispanic Bilingual Education

Credits 3. 3 Lecture Hours. Observation and participation in Hispanic bilingual education classroom activity; supervised student teaching in accredited school. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** 2.5 GPA in teaching fields and professional development; approval of department head; senior classification. Must be taken concurrently with BEFB 426.

BEFB 426 Effective Instruction of Hispanic Students of Diverse Abilities

Credits 3. 3 Lecture Hours. Field-based application of effective instructional strategies for teaching Hispanic bilingual students of diverse abilities. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** 2.5 GPA in teaching fields and professional development; approval of department head. Must be taken concurrently with BEFB 425.

BEFB 470 Bilingual Assessment and Monitoring

Credits 3. 3 Lecture Hours. Assessment of language ability for second language learners; assessment instruments in bilingual/ESL programs; scoring and evaluation of second language assessment instruments. **Prerequisites:** Junior or senior classification; BEFB 472 and BEFB 474. Must be taken concurrently with BEFB 476.

BEFB 472 Bilingual and Dual Language Methodologies

Credits 3. 3 Lecture Hours. Use of theory and effective teaching practice in promoting student's development of strong social and academic skills; relationship of culture to language. **Prerequisite:** Junior or senior classification. Must be taken concurrently with BEFB 474.

BEFB 474 Biliteracy for Bilingual and Dual Language Classrooms

Credits 3. 3 Lecture Hours. Social and linguistic characteristics of second language learners influencing literacy skills; reading and literature instruction for second language learners; reading and writing process across the curriculum for second language learners. **Prerequisite:** Junior or senior classification. Must be taken concurrently with BEFB 472.

BEFB 476 Content Area Instruction for Bilingual Programs

Credits 3. 3 Lecture Hours. Use of theory and various approaches for integrating English as a second language; learning strategies relating to how plans, procedures and units engage language teachers, students and learning environments. **Prerequisite:** Junior or senior classification. Must be taken concurrently with BEFB 470.

BEFB 482 Seminar in Teachers as Effective Communicators

Credit 1. 1 Lecture Hour. Effective communication techniques for working with learners, colleagues, administrators and stakeholders; professional and social linguistic protocols for bilingual education teachers. **Prerequisites:** Junior or senior classification; concurrent enrollment in BEFB 472 and BEFB 474.

BESC - Bioenvironmental Sci (BESC)

BESC 201 Introduction to Bioenvironmental Sciences

Credits 3. 3 Lecture Hours. A broad survey of environmental science with an emphasis on scientific literacy, current events, global and international issues and historic context.

BESC 203 Microbiomes and Their Environment

Credits 3. 3 Lecture Hours. Fundamentals of microbiomes; emphasis of interactions between microbiomes and their environments; assessment of impacts of microbiome functions on human, animals, plants and environmental processes; consideration of social and legal implications of microbiome engineering.

BESC 204 Molds and Mushrooms: The Impact of Fungi on Society and the Environment

Credits 3. 3 Lecture Hours. Introduction to the fungi and the impact these organisms have on society and the environment; includes life cycles of fungi; classification schemes, pathogens of plants, animals and humans, fungi in food production; toxic fungi and the law, and others.

BESC 285 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Individually supervised research or advanced studies for lower-division undergraduate students to independently investigate special problems not available in existing courses. **Prerequisite:** Approval of instructor in consultation with departmental advisor.

BESC 291 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of faculty member in bioenvironmental sciences. May be repeated 3 times for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

BESC 311 International Perspectives on Environmental Issues

Credits 3. 3 Lecture Hours. Role of the United Nations and other institutions that promote international cooperation toward sustainable development goals; influence of cultural views on critical thinking about environmental issues, including population, water and agriculture, biodiversity and energy. **Prerequisite:** Junior classification or approval of instructor; must attend two mandatory pre-departure meetings.

BESC 314 Pathogens, the Environment and Society

Credits 3. 3 Lecture Hours. The impact of microorganisms (bacteria, fungi and viruses) on the development of modern culture and society; the role pathogens played in the history of mankind and the influence of the changing environment on emerging diseases. **Prerequisite:** Junior or senior classification.

BESC 320 Water and the Bioenvironmental Sciences

Credits 3. 3 Lecture Hours. Critical understanding of salient issues relating to fresh water as a limited and important bioenvironmental resource. **Prerequisite:** Junior or senior classification.

BESC 357 Biotechnology for Biofuels and Bioproducts

Credits 3. 3 Lecture Hours. Biotechnology issues in developing bioenergy as a renewable energy source; emphasis on the three generations of bioenergy and enabling technologies; special topics include recent advances in bioenergy research, government policy, and industrial development. **Prerequisite:** BESC 201 and junior or senior classification.

BESC 367 U.S. Environmental Regulations

Credits 3. 3 Lecture Hours. Investigation of the legal infrastructure of the U.S. associated with regulating environmental impacts; examination of major U.S. environmental statutes associated with air and water quality, toxic substances, waste and hazardous substance release, energy and natural resources; review the relationship between U.S. policy and international environmental regulations. **Prerequisites:** BESC 201, ENSS 105 or RWFM 308.

BESC 401 Bioenvironmental Microbiology

Credits 3. 3 Lecture Hours. The interactions of microorganism in diverse environments; applied aspects of microbial interactions in the environment, their effects on the environment, and potential use to solve environmental problems. **Prerequisites:** CHEM 222 or CHEM 227; or approval of instructor.

BESC 402 Microbial Processes in Bioremediation

Credits 3. 3 Lecture Hours. Metabolic pathways of microbes involved in the biodegradation of hazardous materials; ecological requirements for biotreatability of contaminated sites; emphasis on factors affecting microbial growth; strategies for in situ bioaugmentation. **Prerequisite:** CHEM 222 or CHEM 227.

BESC 403 Sampling and Environmental Monitoring

Credits 3. 2 Lecture Hours. 3 Lab Hours. Introduction to environmental sampling and methodology; strategies and analyses of sampling data; overview of current applications of sampling and monitoring in the environmental sciences; emphasis on practical aspects of sampling from air, soil and water; detection and quantification of microbial and chemical unknowns in environmental media. **Prerequisite:** Junior or senior classification or approval of instructor.

BESC 411 Environmental Health and Safety Compliance

Credits 3. 3 Lecture Hours. 1 Lab Hour. Investigation of various Environmental Health and Safety (EHS) practices necessary for compliance with state and federal regulations; reinforcement of real-world understanding; tour several regulated facilities on campus and learn about the particular TAMU-EHS compliance management strategies for each (utilities, underground storage tanks, wastewater treatment and hazardous waste facility). **Prerequisite:** BESC 367 or similar regulation intensive course and approval of instructor.

BESC 421 Bioenvironmental Project Planning and Management

Credits 3. 3 Lecture Hours. Management processes for managing projects in academic, government or industry settings; exploration of projects that are hypothesis driven, exploratory and product-driven; critical communication planning, meeting stakeholders and sponsors expectations and ensuring regulatory compliance; emphasis on project management life cycle, managing change, communication planning and the work environment. **Prerequisite:** BESC 201; junior or senior classification or approval of instructor.

BESC 431 Bioenvironmental Data Analysis

Credits 3. 3 Lecture Hours. Data management, analysis and interpretation specifically for bioenvironmental research purposes; development of skills required to draw conclusions from data, specifically the types of data relevant to studying the interface of biological and environmental processes; exploration of the challenges of bioenvironmental data analysis; exposure to and development of skills in presentations that highlight the challenges of successfully communicating results and conclusions that necessarily rest on interpretation and assumptions. **Prerequisite:** BESC 201; STAT 201, STAT 302 or STAT 303.

BESC 481 Seminar

Credit 1. 1 Lecture Hour. Capstone course for topics in bioenvironmental sciences; critical analysis of environmental issues through written themes and presentations. May be taken three times for credit. **Prerequisites:** BESC 201 and senior classification in BESC major.

BESC 484 Field Experience

Credits 1 to 4. 1 to 4 Other Hours. An on-the-job supervised experience program conducted in the area of the student's specialization.

Prerequisite: Junior or senior classification or approval of department head.

BESC 485 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Special problems for advanced undergraduates to permit study of subject matter not available in existing courses. **Prerequisite:** BESC 201 or approval of instructor.

BESC 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 1 to 4 Lab Hours. Selected topics in an identified area of bioenvironmental sciences. May be repeated for credit. **Prerequisite:** BESC 201 or approval of instructor.

BESC 491 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of faculty member in bioenvironmental sciences. May be repeated 3 times for credit. Registration in multiple sections of this course are possible within a given semester provided that the per semester credit hour limit is not exceeded. **Prerequisites:** Junior or senior classification and approval of instructor.

BICH - Biochemistry (BICH)

BICH 101/GENE 101 Introduction to Biochemical and Genetics Research Methods

Credit 1. 1 Lecture Hour. Foundational concepts for biochemistry and genetics research methods; topics include principles of the scientific method, experimental design, analytical tools, and logical thinking, with a special focus on the use of emerging technologies such as artificial intelligence (AI) in biochemical and genetics research. **Prerequisites:** Freshman classification in biochemistry or genetics. **Cross Listing:** GENE 101/BICH 101.

BICH 102/GENE 102 Introduction to Biochemical and Genetic Techniques

Credit 1. 2 Lab Hours. Introduction to biochemistry and genetics essential techniques; concepts learned from BICH/GENE 101/BICH 101 utilized in practical laboratory situations to understand the relevance and use of these techniques in real-world research settings. **Prerequisites:** Grade of C or better in BICH 101/GENE 101 or GENE 101/BICH 101; freshman classification in biochemistry or genetics. **Cross Listing:** GENE 102/BICH 102.

BICH 201/GENE 201 Introduction to Information Literacy and Artificial Intelligence Tools for Biochemistry and Genetics

Credit 1. 1 Lecture Hour. Introduction to essential skills and knowledge for effective learning, information retrieval, evaluation, and utilization of AI tools in the fields of biochemistry and genetics; developing critical thinking abilities, learning to navigate scientific literature, evaluating the credibility of information sources, and leveraging AI tools to enhance their research and problem-solving capabilities. **Prerequisites:** Grade of C or better in BICH 102/GENE 102 or GENE 102/BICH 102; sophomore classification in biochemistry or genetics. **Cross Listing:** GENE 201/BICH 201.

BICH 202/GENE 202 Biochemical and Genetic Concepts in Medicine - Case Studies

Credit 1. 1 Lecture Hour. Exploration of the link between fundamental genetic and biochemical processes and disease states, using case studies of several human diseases; deeper comprehension and critical thinking about molecular causes of diseases and treatment strategies. **Prerequisites:** Grade of C or better in BICH 201/GENE 201 or GENE 201/BICH 201; sophomore classification in biochemistry or genetics. **Cross Listing:** GENE 202/BICH 202.

BICH 285 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Introduction to laboratory research. **Prerequisite:** Freshman or sophomore classification in biochemistry or approval of instructor.

BICH 303 Elements of Biological Chemistry

Credits 3. 3 Lecture Hours. Survey of the biochemical sciences designed for the non-biochemistry major; overview of the chemistry and metabolism of biologically important molecules, the biochemical basis of life processes, cellular metabolism and regulation. Students requiring biochemistry in greater depth should register for BICH 410 and BICH 411. **Prerequisites:** CHEM 222, CHEM 227 or CHEM 257; not open to biochemistry majors.

BICH 403 Cellular Biophysics

Credits 3. 3 Lecture Hours. Current topics in cellular biophysics and systems biology; quantitative and predictive perspectives of cellular life; basic tools of biophysics such as fluorescence imaging and data analysis. **Prerequisites:** BIOL 112 and MATH 152; BICH 440 or concurrent enrollment.

BICH 404 Biochemical Calculations

Credits 2. 2 Lecture Hours. Quantitative and computational approaches to biochemical problems. **Prerequisites:** Grade of C or better in BICH 440 or concurrent enrollment; junior or senior classification.

BICH 406 Molecular Mechanisms of Cell Interactions

Credits 3. 3 Lecture Hours. Current topics in biomolecules, natural product antibiotics and application in infectious diseases, modern and historical approaches to antibiotic discovery, biomedical glycobiology, glycosylation in diseases and pathobiology. **Prerequisites:** BICH 441.

BICH 409 Principles of Biochemistry

Credits 3. 3 Lecture Hours. A rigorous, survey of topics in biochemistry; topics include structure and function of molecules within living cells, major metabolic pathways and their regulation and role in disease; provides preparation for advanced study in the health sciences. **Prerequisites:** CHEM 228 or CHEM 258.

BICH 410 Comprehensive Biochemistry I

Credits 3. 3 Lecture Hours. 1 Lab Hour. Structure, function and chemistry of proteins and carbohydrates; kinetics, mechanisms and regulation of enzymes; metabolism of carbohydrates. Not open to biochemistry or genetics majors. **Prerequisites:** CHEM 228 or CHEM 258; junior or senior classification.

BICH 411 Comprehensive Biochemistry II

Credits 3. 3 Lecture Hours. 1 Lab Hour. A continuation of BICH 410; structure, function, chemistry and metabolism of lipids and nucleic acids; cellular metabolism viewed from the standpoint of energetics and control mechanisms; interrelationships of metabolic pathways. **Prerequisite:** BICH 410; not open to biochemistry or genetics majors.

BICH 412 Biochemistry Laboratory I

Credit 1. 3 Lab Hours. Selected methods used to identify, isolate, purify and characterize biomolecules. Not open to biochemistry or genetics majors. **Prerequisite:** BICH 410 or registration therein.

BICH 414 Biochemical Techniques I

Credits 2. 6 Lab Hours. Analysis of the effects of charge on protein function and stability; techniques include site-directed mutagenesis, protein purification, affinity chromatography, SDS-PAGE, enzyme kinetics, MALDI-TOF, molecular modeling, and protein folding. **Prerequisites:** BICH 440, BICH 409, or BICH 410; major in biochemistry, genetics, microbiology, and molecular and cell biology.

BICH 416/GENE 416 Mechanisms of Cell Division

Credit 1. 1 Lecture Hour. Mitotic cell cycle; progression of biochemical and morphological phases and events; duplication of cellular constituents and segregation into daughter cells. **Prerequisites:** BICH 409, BICH 410, or BICH 440; junior or senior classification in biochemistry or genetics. **Cross Listing:** GENE 416/BICH 416.

BICH 419/GENE 419 Computational Techniques for Evolutionary Analysis

Credits 3. 3 Lecture Hours. Computational techniques for studying evolution; algorithms for construction and analysis of evolutionary relationships. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** GENE 419/BICH 419.

BICH 420/GENE 420 Bioethics

Credits 3. 3 Lecture Hours. The application of ethical theory to the use of modern genetics and biochemistry stressing the social implications of genetic engineering, agricultural manipulation and biotechnology. **Prerequisites:** GENE 302 or GENE 303; BICH 409, BICH 410, or BICH 440. **Cross Listing:** GENE 420/BICH 420.

BICH 431/GENE 431 Molecular Genetics

Credits 3. 3 Lecture Hours. Molecular basis for inheritance; gene structure and function, chromosomal organization, replication and repair of DNA, transcription and translation, the genetic code, regulation of gene expression, genetic differentiation and genetic manipulations.

Prerequisite: BICH 409, BICH 410, or BICH 440; GENE 301, GENE 302, GENE 303, GENE 320/BIMS 320 or BIMS 320/GENE 320. **Cross Listing:** GENE 431/BICH 431.

BICH 432/GENE 432 Laboratory in Molecular Genetics

Credits 2. 6 Lab Hours. Laboratory for molecular genetics providing technical experience with tools of molecular biology. **Prerequisite:** GENE 301, GENE 302, GENE 303, BIMS 320/GENE 320 or GENE 320/BIMS 320; BICH 431/GENE 431 or GENE 431/BICH 431. **Cross Listing:** GENE 432/BICH 432.

BICH 440 Biochemistry I

Credits 3. 3 Lecture Hours. Rigorous treatment of the structure, function and chemistry of proteins and carbohydrates; kinetics, mechanisms and regulation of enzymes; metabolism of carbohydrates; designed for biochemistry and genetics majors. **Prerequisites:** Grade of C or better in CHEM 228 or CHEM 258; grade of C or better in BICH 404 or concurrent enrollment.

BICH 441 Biochemistry II

Credits 3. 3 Lecture Hours. Continuation of BICH 440; structure, function, chemistry and metabolism of lipids and nucleic acids, cellular metabolism viewed from the standpoint of energetics and control mechanisms; interrelationships of metabolic pathways. Course designed for biochemistry and genetics majors and honors students only. **Prerequisite:** Grade of C or better in BICH 440.

BICH 450/BIOL 450 Genomics

Credits 4. 3 Lecture Hours. 3 Lab Hours. The study of genomic data includes consideration of the logic behind the most important genomic approaches, as well as their capabilities and limitations in investigating biological processes; the science of accessing and manipulating genomic data; and practical applications, including development of an hypotheses-driven datamining experiment. **Prerequisites:** BIOL 213, GENE 301 or GENE 302, BICH 431/GENE 431 or GENE 431/BICH 431, or BIOL 351; junior or senior classification or approval of instructor. **Cross Listing:** BIOL 450/BICH 450.

BICH 456 Ribonucleic Acid World

Credits 3. 3 Lecture Hours. Emphasis on novel roles and mechanisms of newly discovered Ribonucleic Acid (RNA) species including non-coding RNA's; RNA silencing, circular RNA's, RNA guided epigenetic regulation, clustered regulary interspaced short palindromic repeats (CRISPR)-Cas immunity, genome editing, telomerase biogenesis, riboswitches, exosome, editosome and RNA remodeling. **Prerequisites:** GENE 301, GENE 302, or GENE 303; BICH 410, BICH 440, BIOL 351, or BIOL 413.

BICH 460 Genome Annotation with Ontologies

Credit 1. 2 Lab Hours. Use of ontologies as structured controlled vocabularies for the organization of biological data; annotation based on critical reading of the scientific literature. May be taken two times for credit. **Prerequisite:** Junior or senior classification or approval of instructor.

BICH 464/GENE 464 Bacteriophage Genomics

Credits 3. 1 Lecture Hour. 4 Lab Hours. Examination of the latest technologies in genomic analysis by sequencing and annotating the genomes of novel bacterial viruses (phage); generates real data which will be submitted to the NIH/NCBI public database; includes phage biology and potential uses. **Prerequisites:** GENE 302 or GENE 303; BIOL 351 or concurrent enrollment. **Cross Listing:** GENE 464/BICH 464.

BICH 485 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Directed study in biochemistry not included in established courses. **Prerequisites:** Junior or senior classification; approval of instructor and department head.

BICH 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of biochemistry, biophysics or nutrition. May be repeated for credit. **Prerequisite:** Junior or senior classification in life or physical sciences.

BICH 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Laboratory research supervised by faculty in biochemistry or biophysics. **Prerequisite:** Biochemistry major.

BIMS - Biomedical Science (BIMS)

BIMS 101 Introduction to Biomedical Sciences

Credit 1. 1 Lecture Hour. Integration into the BIMS program through content and assignments; understanding of problem solving, personal, and social responsibility; development of self-efficacy, self-awareness, and sense of purpose; becoming actively engaged inside and outside the classroom; becoming socially integrated within the university community. **Prerequisites:** BIMS major.

BIMS 110 One Health in Action

Credit 1. 1 Lecture Hour. Exploration of the concept of One Health; the interconnected and interdependent health of humans, animals and ecosystems; the conceptual framework that encompasses human and veterinary medical sciences, agricultural sciences, food safety, public health, epidemiology, environmental health, toxicology, wildlife ecology and conservation and many related fields of study or research. **Prerequisite:** Freshman or sophomore classification or approval of instructor.

BIMS 120 Learners in Transition

Credits 0. 0 Lecture Hours. 0 Lab Hours. 0 Other Hours. High-impact, one-semester course; acclimation to the university, the College of Veterinary Medicine & Biomedical Sciences faculty, the BIMS program staff and peer mentors; exploration of campus resources, discourse from faculty and students, meetings with advisors, determination of strengths and exploration of personal and financial wellness, diversity and inclusion. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisite:** BIMS and NRSC-TPC majors; freshman classification.

BIMS 125 Animals in Society

Credit 1. 2 Lab Hours. Introduction to integration of humans and animals in society, focusing on animal, human and environmental health of common species as well as special roles of animals. **Prerequisite:** Freshman classification.

BIMS 201 Introduction to Phenotypic Expression in the Context of Human Medicine

Credits 2. 2 Lecture Hours. Study of human genetics with respect to gene expression as it pertains to the cell cycle, development, cancer, aging and epigenetics; discussions and debates surrounding medical examples and case studies. **Prerequisite:** BIOL 112, CHEM 227; or approval of instructor.

BIMS 250 Professionalism, Skill Development, Career Exploration, and Ethical Conduct in BIMS

Credit 1. 1 Lecture Hour. Skills and ethical procedures to assist in professional practice of Biomedical Sciences; exploration of business and professional concepts; topics include development of the individual, ethical integrity, interpersonal dynamics, effective communication skills. **Prerequisites:** Sophomore classification in Biomedical Sciences.

BIMS 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of biomedical science. May be repeated for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

BIMS 291 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in biomedical sciences. May be repeated for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

BIMS 301 Biomedical Sciences Study Abroad

Credits 2 to 12. 2 to 12 Lecture Hours. For students in approved programs abroad. May be repeated for credit. Maximum 3 hours free elective credit in the BIMS degree plan. Must be taken on a satisfactory/unsatisfactory basis.

BIMS 303 Research Methodologies and Experimental Design in Biomedical Sciences

Credits 3. 3 Lecture Hours. Exploration of various research methodologies and experimental designs; includes lab-based, field based, quantitative, qualitative and mixed methods approach; emphasis on best practices in research; analysis and interpretation of data to draw conclusions; development of critical thinking skills; focus on appropriate methodologies for various experimental designs. **Prerequisites:** Grade of C or better in CHEM 257; junior classification.

BIMS 320/GENE 320 Biomedical Genetics

Credits 3. 3 Lecture Hours. Fundamental genetic principles as applied to biomedical science; Mendelian inheritance, linkage and genetic mapping, mutagenesis and pedigree analysis; molecular basis of gene function and inherited disease; gene therapy and genetic counseling. Only one of the following will satisfy the requirements for a degree: GENE 301, GENE 302, GENE 315, GENE 320/BIMS 320, or BIMS 320/GENE 320. **Prerequisites:** Grade of C or better in CHEM 228 or CHEM 258; PHYS 207 or grade of C or better in PHYS 202; junior or senior classification. **Cross Listing:** GENE 320/BIMS 320.

BIMS 380 Equine-Assisted Activities and Therapies - Best Practices

Credits 3. 2 Lecture Hours. 2 Lab Hours. Exploration of concepts behind Equine-Assisted Activities and Therapies (EAAT); principles of EAAT, horse welfare, safety factors, effective techniques to promote healing of participants and career options.

BIMS 402/VIBS 402 Anatomy

Credits 4. 2 Lecture Hours. 6 Lab Hours. Clinical and functional anatomy focused on pre-professional training; includes anatomy of all major body systems. **Prerequisites:** Grade of C or better in BIOL 112 and CHEM 258; junior or senior classification; minimum GPA 2.75; or approval on instructor. **Cross Listing:** VIBS 402/BIMS 402.

BIMS 405/GENE 405 Mammalian Genetics

Credits 3. 3 Lecture Hours. Comparative mammalian genetic systems with emphasis on laboratory animals; organization and expression of mammalian genes; development and use of genetically defined animals in biomedical and genetic research. **Prerequisites:** GENE 301, BIMS 320/GENE 320 or GENE 320/BIMS 320; junior or senior classification. **Cross Listing:** GENE 405/BIMS 405.

BIMS 421/GENE 421 Advanced Human Genetics

Credits 3. 3 Lecture Hours. A rigorous, analytical approach to genetic analysis of humans including diagnosis and management of genetic disease in humans; transmission of genes in human populations; human cytogenetics; the structure of human genes; human gene mapping; molecular analysis of genetic disease; genetics screening and counseling. **Prerequisites:** GENE 302; BICH 410 or BICH 440. **Cross Listing:** GENE 421/BIMS 421.

BIMS 481 Seminar

Credit 1. 1 Other Hour. Exploration of published scientific research via guided discussions; familiarization with the necessary skills to conduct an appropriate literature search of the scientific record; extensive practice in effectively communicating biomedical science through oral presentation. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** Junior or senior classification; BIMS major; BIOL 401, BIOL 402, BIOL 403, VIBS 310, or VIBS 311.

BIMS 484 Internship

Credits 0 to 3. 0 to 3 Other Hours. Supervised internship in the biomedical sciences workforce for practical application of biomedical sciences knowledge. May be taken for credit up to six hours. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** Approval of instructor.

BIMS 485 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Directed individual study of problems in the biomedical sciences with emphasis in the allied health professions, hospital administration, and the health-related industry approved by the instructor. **Prerequisites:** Junior or senior classification; approval of instructor; BIMS major with a minimum overall 2.5 TAMU GPA.

BIMS 489 Special Topics in...

Credits 1 to 4. 1 to 4 Other Hours. Selected topics in an identified area of biomedical science. May be repeated for credit. **Prerequisite:** Junior or senior classification; BIMS major with a minimum overall 2.5 TAMU GPA.

BIMS 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in biomedical sciences. May be repeated for credit. **Prerequisites:** Grade of C or better in CHEM 228 or CHEM 258; grade of C or better in PHYS 202; junior or senior classification; approval of instructor.

BIMS 499 Biomedical Sciences Capstone Experience

Credit 1. 1 Other Hour. Integration of foundational biomedical science knowledge, competencies, and coursework through an individual capstone project based on research and presentation of an approved topic; formal presentation of both translational and integrative application of information as well as the expected impacts of the selected topic. **Prerequisites:** Senior classification and approval of instructor, or concurrent participation in the Biomedical Research Certificate.

BIOL - Biology (BIOL)

BIOL 100 Horizons in Biology

Credits 0-1. 0-1 Lecture Hours. Introduction to the study of biology at Texas A&M University; gain knowledge of departmental and campus resources to assist and enhance the pursuit of a degree in biology, microbiology, molecular and cellular biology or zoology. **Prerequisites:** First-year and first-time-in-college freshman majoring in BIOL, MBIO, BMBB and ZOOL.

BIOL 101 Botany

Credits 4. 3 Lecture Hours. 3 Lab Hours. Structure, physiology and development of plants with an emphasis on seed plants. (Not open to students who have taken BIOL 111 and BIOL 112 or BIOL 113.); includes laboratory that reinforces and provides supplemental information related to the lecture topics.

BIOL 104 Contemporary Issues in Science - Cosmos, Earth and Humanity

Credits 3. 3 Lecture Hours. Science for citizens; interdisciplinary survey of contemporary issues in the science of our universe or cosmos, Earth and humanity, including the big bang, evolution, genetics, vaccines and drugs; future outlook on humanity, including artificial intelligence, cryptography and cybersecurity; critically analyze science presented in the news, on television and on social media; ethical implications of research. **Cross Listing:** ARSC 104 and PHYS 104.

BIOL 107 Zoology

Credits 4. 3 Lecture Hours. 3 Lab Hours. (BIOL 1313 and 1113, 1413) Zoology. Survey of animal life with respect to cell organization, genetics, evolution, diversity of invertebrates/vertebrates, anatomy/physiology, and interaction of animals with their environment; includes laboratory that reinforces and provides supplemental information related to lecture topics. (Not open to students who have taken BIOL 111 and BIOL 112 or BIOL 113).

BIOL 111 Introductory Biology I

Credits 4. 3 Lecture Hours. 3 Lab Hours. (BIOL 1306 and 1106, 1406) Introductory Biology I. First half of an introductory two-semester survey of contemporary biology that covers the chemical basis of life, structure and biology of the cell, molecular biology and genetics; includes laboratory that reinforces and provides supplemental information related to the lecture topics; also taught at Galveston campus.

BIOL 112 Introductory Biology II

Credits 4. 3 Lecture Hours. 3 Lab Hours. (BIOL 1307 and 1107, 1407) Introductory Biology II. The second half of an introductory two-semester survey of contemporary biology that covers evolution, history of life, diversity and form and function of organisms; includes laboratory that reinforces and provides supplemental information related to the lecture topics. **Prerequisite:** BIOL 111; also taught at Galveston campus.

BIOL 113 Essentials in Biology

Credits 3. 3 Lecture Hours. (BIOL 1308, BIOL 1408) Essentials in Biology. One-semester biology for non-majors; overview of essential biological concepts and their application to real world and contemporary issues; topics include evolution, biodiversity, cellular, molecular and forensic biology, genetics and heredity to scientific literacy, human impact on the environment, genetically modified organisms and emerging diseases.

BIOL 206 Introductory Microbiology

Credits 4. 3 Lecture Hours. 4 Lab Hours. (BIOL 2320 and 2120, BIOL 2321 and 2121, BIOL 2420, BIOL 2421) Introductory Microbiology. Basic microbiology of prokaryotes and eukaryotes; main topics include morphology, physiology, genetics, taxonomy, ecology, medically important species and immunology; mandatory laboratory designed to give hands-on experience and to reinforce basic principles. **Prerequisites:** BIOL 101, BIOL 107, BIOL 111, or BIOL 113; CHEM 119. May not be used for credit by biology, molecular and cell biology, microbiology, zoology, pre dentistry or premedicine majors.

BIOL 213 Molecular Cell Biology

Credits 3. 3 Lecture Hours. Exploration of the molecular basis of cell structure, function and evolution; gene regulation, cell division cycle, cancer, immunity, differentiation, multicellularity and photosynthesis. **Prerequisite:** BIOL 112 and CHEM 120.

BIOL 214 Genes, Ecology and Evolution

Credits 3. 3 Lecture Hours. A genetically-based introduction to the study of ecology and evolution; emphasis on the interactions of organisms with each other and with their environment. **Prerequisite:** BIOL 112.

BIOL 285 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Problems in various phases of plant, animal and microbial science. **Prerequisites:** Freshman or sophomore classification; approval of ranking professor in field chosen and Undergraduate Advising Office.

BIOL 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of biology. May be repeated for credit. **Prerequisite:** Approval of instructor.

BIOL 291 Research

Credits 0 to 4. 0 to 4 Other Hours. Active research of basic nature under the supervision of a Department of Biology faculty member. May be repeated for credit. **Prerequisites:** Freshman or sophomore classification and approval of faculty member.

BIOL 302 Careers in Biology

Credit 1. 1 Lecture Hour. Development of job search skills; utilization of career resources; self-assessment of career interests and career objectives; strategies for professional correspondence and networking; business etiquette and interviewing techniques; insight into life science career opportunities. **Prerequisites:** Junior or senior classification; department of biology majors only; or approval of instructor.

BIOL 318 Chordate Anatomy

Credits 4. 3 Lecture Hours. 3 Lab Hours. Classification, phylogeny, comparative anatomy, and biology of chordates; diversity, protochordates, vertebrate skeletons, shark and cat anatomy studied in laboratory. **Prerequisite:** BIOL 214 or approval of instructor.

BIOL 319 Integrated Human Anatomy and Physiology I

Credits 4. 3 Lecture Hours. 3 Lab Hours. Integrated approach to cellular, neural, skeletal, muscular anatomy and physiology; includes some histology, histopathology, radiology and clinical correlations. **Prerequisite:** BIOL 111 and BIOL 112, or BIOL 107.

BIOL 320 Integrated Human Anatomy and Physiology II

Credits 4. 3 Lecture Hours. 3 Lab Hours. Continuation of BIOL 319. Integrated approach to endocrine, cardiovascular, respiratory, digestive, urinary, reproductive and developmental anatomy and physiology; includes some histology, histopathology, radiology and clinical correlations. **Prerequisite:** BIOL 319 or approval of instructor.

BIOL 335 Invertebrate Zoology

Credits 4. 3 Lecture Hours. 3 Lab Hours. Morphology, taxonomy, natural history and phylogeny of invertebrate animals, with emphasis on biodiversity; class includes both lecture and lab. Labs include study of preserved material and demonstration of living animals in aquaria and terraria. **Prerequisite:** BIOL 214 or approval of instructor.

BIOL 349 Bioinformatics

Credits 3. 3 Lecture Hours. Comprehensive analysis of bioinformatics tools applicable to eukaryotic organisms; theoretical background of computational algorithms, with an emphasis on application of computational tools related to modern molecular biological research. **Prerequisites:** BIOL 213; GENE 301, GENE 302, GENE 303, BIMS 320/GENE 320, or GENE 320/BIMS 320 recommended; or approval of instructor.

BIOL 350 Computational Genomics

Credits 3. 2 Lecture Hours. 2 Lab Hours. Hands-on approach to obtaining, organizing and analyzing genome-related data; emphasis on asking and answering biologically relevant questions by designing and performing experiments using computers; understanding biology from a computational perspective. **Prerequisite:** Junior or senior classification in life sciences, engineering, mathematics, chemistry.

BIOL 351 Fundamentals of Microbiology

Credits 4. 3 Lecture Hours. 4 Lab Hours. Introduction to modern microbiology with emphasis on prokaryotes; includes microbial cell structure, function, and physiology; genetics, evolution, and taxonomy; bacteriophage and viruses; pathogenesis and immunity; and ecology and biotechnology; includes laboratory experience with microbial growth and identification. **Prerequisites:** BIOL 112; CHEM 257, or CHEM 227 and CHEM 237, or CHEM 231; or approval of instructor; also taught at Galveston campus.

BIOL 352 Diagnostic Bacteriology

Credits 4. 2 Lecture Hours. 6 Lab Hours. Practical experience in handling, isolation and identification of pathogenic microorganisms using biochemical tests and rapid identification techniques. **Prerequisite:** BIOL 351 or approval of instructor.

BIOL 357 Ecology

Credits 3. 3 Lecture Hours. Analysis of ecosystems at organismal, population, interspecific and community levels. **Prerequisite:** BIOL 214 or approval of instructor.

BIOL 388 Principles of Animal Physiology

Credits 4. 3 Lecture Hours. 3 Lab Hours. Introduction to how animals function, including basics of neurophysiology, endocrinology, muscular, cardiovascular, respiratory, osmoregulatory, and metabolic physiology; broadly comparative in scope and encompassing adaptation of physiological systems to diverse environments; the laboratory stresses techniques used for monitoring and investigating physiological mechanisms and responses to environmental changes. **Prerequisites:** BIOL 214, CHEM 228, or CHEM 258, or approval of instructor.

BIOL 400 Tropical Ecology of Costa Rica

Credits 6. 2 Lecture Hours. 12 Lab Hours. Advanced field-intensive course conducted at multiple biological field stations located throughout Costa Rica; exposure to a wide variety of tropical ecological principles using largely observational and some sampling techniques; experience with amazing diversity of wildlife and habitats from hot, humid low land rainforests to the high elevations of the Talamanca páramo; development of a variety of natural history skills needed to understand the complex interactions of plants and animals in tropical environments; requires detailed journal of ecological principles observed while in Costa Rica to be used as basis for final written report; opportunities to experience the unique and friendly culture of one of Central America's most successful countries and discover how anthropogenic activities affect biodiversity. **Prerequisites:** Junior or senior classification; approval of instructor; BIOL 357 preferred.

BIOL 401 Critical Writing in Biology

Credit 1. 1 Lecture Hour. Reading scientific papers and writing short synopses of papers with a focus on learning how to think and write like a scientist; fills the current Writing Intensive "W" course requirement for biology. **Prerequisite:** BIOL 213 or CHEM 228; junior or senior classification.

BIOL 402 Communicating Biological Research to the Public

Credit 1. 1 Lecture Hour. Interpretation of scientific papers; analysis of how research findings are communicated to lay audiences; creation of synopses of research findings for the general public. **Prerequisite:** BIOL 213 or CHEM 228; junior or senior classification.

BIOL 403 Medical Narratives

Credit 1. 1 Lecture Hour. Focus on reading and analyzing brief nonfiction stories about medicine; exploration of different perspectives and experiences with illness and medicine. **Prerequisites:** BIOL 213 or CHEM 228; junior or senior classification or approval of instructor.

BIOL 405 Comparative Endocrinology

Credits 3. 3 Lecture Hours. Basic principles of endocrinology including structure and functions of hormones in vertebrates; hormonal control of growth, metabolism, osmoregulation, and reproduction; endocrine techniques and mechanism of hormone action. **Prerequisites:** BIOL 214; CHEM 227 or CHEM 257.

BIOL 406/GENE 406 Bacterial Genetics

Credits 3. 3 Lecture Hours. A problem oriented course surveying the manipulation and mechanisms of genetic systems in bacteria; recombination, structure and regulation of bacterial genes, plasmids and phages. **Prerequisites:** BIOL 351; GENE 302. **Cross Listing:** GENE 406/BIOL 406.

BIOL 407 Biological Clocks

Credits 3. 3 Lecture Hours. Examination of the basic mechanisms of biological timing; in depth study of clocks in model organisms and the relationship between clocks and human health and disease. **Prerequisites:** BICH 431/GENE 431, BIOL 213 or GENE 431/BICH 431.

BIOL 411 Synthetic Biology of Microbes

Credits 3. 3 Lecture Hours. Underlying technical basis for synthetic biology; tools used to generate recombinant molecules; genetic circuitry and modules applied to bacteria; design and fabrication of genes, biological components and entire organisms; survey actual and theoretical applications. **Prerequisites:** BIOL 351 or BICH 431/GENE 431.

BIOL 413 Cell Biology

Credits 3. 3 Lecture Hours. Structure, function, and biogenesis of cells and their components; interpretation of dynamic processes of cells, including protein trafficking, motility, signaling and proliferation. **Prerequisites:** BIOL 213, GENE 302, or GENE 303; BICH 410 or BICH 440.

BIOL 414 Developmental Biology

Credits 3. 3 Lecture Hours. Concepts of development in systems ranging from bacteriophage to the mammalian embryo; use of recombinant DNA technology and embryo engineering to unravel the relationships between growth and differentiation, morphogenesis and commitment, aging and cancer. **Prerequisite:** BIOL 213 or GENE 302; BICH 410 or BICH 440.

BIOL 423 Cell Biology Laboratory

Credits 2. 1 Lecture Hour. 3 Lab Hours. Modern methods of study of cell structure and cell function. **Prerequisites:** BICH 410 and BIOL 413, or concurrent enrollment or approval of instructor.

BIOL 428 Cellular Neuroscience

Credits 3. 3 Lecture Hours. Cell biology, molecular biology and biophysics of neurons as it pertains to their fundamental role in the physiological basis of behavior; study of how neurons create, maintain and exploit electrical signals for information coding and transmission; principles of electrical and chemical signaling between neurons, and the role of intracellular signaling for signal modulation and synaptic plasticity; exploration of a broad range of state-of-the-art molecular tools currently used to study the nervous system, and the cellular basis for many of the most common neurological disorders affecting humans as well as the strategies and therapies for their treatment. **Prerequisites:** BIOL 213 and PSYC 235, or approval of instructor. **Cross Listing:** NRSC 428/BIOL 428.

BIOL 430 Biological Imaging

Credits 4. 3 Lecture Hours. 3 Lab Hours. Still and video photography and photomicrography, computerbased digital image analysis and processing of biological images; theory and principles of light and electron microscopy including transmission and scanning electron microscopy; optical contrast methods for light microscopy including phase contrast, DIC, polarizing light and confocal laser scanning microscopy. **Prerequisite:** Junior classification or approval of instructor.

BIOL 434/NRSC 434 Regulatory and Behavioral Neuroscience

Credits 3. 3 Lecture Hours. Cell biology and biophysics of neurons; functional organization of the vertebrate nervous system; physiological basis of behavior. **Prerequisites:** BIOL 213; BIOL 319, BIOL 320, BIOL 388, BIOL 413, or PBSI 235, or approval of instructor. **Cross Listing:** NRSC 434/BIOL 434.

BIOL 435 Laboratory for Regulatory and Behavioral Neuroscience

Credit 1. 3 Lab Hours. Study of modern methods and tools used to investigate nervous system structure and function. **Prerequisite:** BIOL 213; BIOL 319, BIOL 320, BIOL 388, BIOL 413, BIOL 428, BIOL 434/ NRSC 434, NRSC 235, NRSC 335, NRSC 428/BIOL 428, NRSC 434/BIOL 434, or PBSI 235, or approval of instructor.

BIOL 438 Bacterial Physiology

Credits 3. 3 Lecture Hours. Structure and function of prokaryotic cells, with emphasis on evolutionary adaptations to different environmental, developmental, and pathogenic selection pressures; formation of teams and preparation of presentations on specific topics in microbiology. **Prerequisites:** BIOL 351; BIOL 406/GENE 406 or concurrent enrollment; BICH 410, BICH 431/GENE 431 and GENE 302 strongly recommended.

BIOL 440 Marine Biology

Credits 4. 3 Lecture Hours. 3 Lab Hours. Introduction to biology of common organisms inhabiting bays, beaches and near-shore oceanic waters with special reference to Gulf of Mexico biota; emphasis on classification, distribution, history, ecology, physiology, mutualism, predation, major community types and economic aspects of marine organisms. **Prerequisite:** BIOL 214 or approval of instructor.

BIOL 443 Early Stages of Animal Evolution

Credits 3. 2 Lecture Hours. 2 Lab Hours. Analysis of the earliest stages of animal evolution by integrating various scientific fields such as genomics, paleontology, metabolism, morphology, environment, development and behavior; includes hands-on exploration of fossils and modern animals to understand how evolution shaped our world. **Prerequisites:** BIOL 214; junior or senior classification.

BIOL 444/NRSC 444 Neural Development

Credits 3. 3 Lecture Hours. Cellular and molecular mechanisms of nervous system development including neural induction and the basis of complex behaviors; use of a wide range of model organisms with a specific emphasis on vertebrate nervous system development.

Prerequisites: BIOL 213, BIOL 319, BIOL 320, BIOL 413, BIOL 388, or PBSI 235. **Cross Listing:** NRSC 444/BIOL 444.

BIOL 445 Biology of Viruses

Credits 3. 3 Lecture Hours. Structure, composition and life cycles of viruses; methods used to study viruses; their interaction with host cells; mechanisms of pathogenicity and cellular transformation; responses of the host to viral infection, and vaccine applications; in-depth study of the life cycles of the major classes of viruses and discussion of emerging viruses. **Prerequisite:** BIOL 213 or BIOL 351 or approval of instructor.

BIOL 450/BICH 450 Genomics

Credits 4. 3 Lecture Hours. 3 Lab Hours. The study of genomic data includes consideration of the logic behind the most important genomic approaches, as well as their capabilities and limitations in investigating biological processes; the science of accessing and manipulating genomic data; and practical applications, including development of an hypotheses-driven datamining experiment. **Prerequisites:** BIOL 213, GENE 301 or GENE 302, BICH 431/GENE 431 or GENE 431/BICH 431, or BIOL 351; junior or senior classification or approval of instructor. **Cross Listing:** BICH 450/BIOL 450.

BIOL 454 Immunology

Credits 3. 3 Lecture Hours. Introduction to basic immunological concepts and principles of serology. **Prerequisite:** BIOL 351 or equivalent or approval of instructor.

BIOL 455 Laboratory in Immunology

Credits 2. 6 Lab Hours. Practical application of serological principles which include precipitation, agglutination and blood banking principles; techniques in tissue culture and hybridoma technology also included. **Prerequisite:** BIOL 454 or registration therein.

BIOL 456 Medical Microbiology

Credits 3. 3 Lecture Hours. Microbiology, epidemiology and pathology of human pathogens with an emphasis on bacterial agents. **Prerequisite:** BIOL 351 or approval of instructor.

BIOL 461 Antimicrobial Agents

Credit 1. 1 Lecture Hour. Understanding of antimicrobial agents, limitations of use, biosynthesis and regulation, and challenges in development as new therapeutics. **Prerequisites:** BICH 410 or BICH 440 and BIOL 351 or VTPB 405.

BIOL 466 Principles of Evolution

Credits 3. 3 Lecture Hours. Evolutionary patterns, mechanisms and processes at the organismal, chromosomal and molecular levels; modes of adaptation and the behavior of genes in populations. **Prerequisite:** GENE 302 or approval of instructor.

BIOL 467 Integrative Animal Behavior

Credits 3. 3 Lecture Hours. Examines how behavior contributes to survival and reproduction, and how evolutionary history and ecological circumstance interact to shape the expression of behavior; focus on integrative nature of behavior; how the interaction of evolutionary processes, mechanistic constraints, and ecological demands determine behavioral strategies. **Prerequisite:** BIOL 214, BIOL 357, BIOL 388, BIOL 405, BIOL 434/NRSC 434, or BIOL 466, or approval of instructor.

BIOL 480 Departmental Colloquium

Credit 1. 1 Lecture Hour. Attend presentations given by renowned scientists from various fields of biology; learn about new developments in science; stay abreast of current and trending research topics.

Prerequisites: Senior classification; majors in BIOL, MICRO, BMB and ZOOL.

BIOL 481 Seminar in Biology

Credit 1. 1 Lecture Hour. Recent advances. **Prerequisite:** Senior undergraduate majors in biology, microbiology, botany or zoology.

BIOL 484 Internship

Credits 0 to 4. 0-1 Other Hours. Directed internship in a private firm or public agency to provide research experience appropriate to the student's degree program and career objectives. May be taken two times.

Prerequisite: Approval of internship agency and advising office.

BIOL 485 Directed Studies

Credits 1 to 12. 1 to 12 Other Hours. Problems in various phases of plant, animal and bacteriological science. **Prerequisites:** Junior classification; approval of ranking professor in field chosen and Undergraduate Advising Office.

BIOL 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 10 Lab Hours. Selected topics in an identified area of biology. May be repeated once for credit.

BIOL 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Active research of basic nature under the supervision of a Department of Biology faculty member. May be taken two times. Registration in multiple sections of this course is possible within a given semester provided that the per semester credit hour limit is not exceeded. **Prerequisite:** Approval of departmental faculty member.

BIOL 492 Biomedical Therapeutics Development

Credit 1. 1 Lecture Hour. Basic aspects of the biotechnology business; includes key aspects of biotechnology patents, the main steps in preclinical drug development and company structure and funding. **Prerequisites:** BIOL 213 or equivalent; CHEM 227 and CHEM 228.

BIOL 495 Biology Capstone: Research Communication in the Life Sciences

Credits 2. 2 Lecture Hours. Culmination of capstone research experience; formalization of research results in written and oral forms; introduction to primary genres or scientific writing; apply principles of rhetoric and composition to diverse methods of professional communication. **Prerequisite:** BIOL 452, BICH 464/GENE 464, BIOL 400, BIOL 493 or BIOL 491 or approval of instructor.

BIOL 496 Ethics in Biological Research

Credit 1. 1 Lecture Hour. Fraud in science, how to recognize it, and how to avoid committing fraud; includes the basis of ethics and plagiarism, negotiation techniques and conflict management, the regulations and ethics covering animal and human experiments, record-keeping, data management and peer review. **Prerequisite:** BIOL 491, NRSC 491, BICH 491, GENE 491, BIMS 491, CHEM 491, BIOL 351, or BICH 410, or approval of instructor.

BMEN - Biomedical Engineering (BMEN)

BMEN 153 Pathways in Biomedical Engineering

Credit 1. 1 Lecture Hour. Overview of biomedical engineering and the biomedical engineering industry, including specialties, degree requirements and scholastic programs in the Department of Biomedical Engineering. **Prerequisite:** Biomedical Engineering major.

BMEN 201 Professional Development Essentials

Credits 3. 3 Lecture Hours. Examination of professional development essentials required to be a professional biomedical engineer; topics include academic, engineering, and medical ethics; critical thinking and problem-solving skills; and written, verbal, and mathematical communication skills. **Prerequisites:** Grade of C or better in MATH 152; Biomedical Engineering major.

BMEN 207 Computing for Biomedical Engineering

Credits 3. 2 Lecture Hours. 3 Lab Hours. Introduction to the principles of computer programming for biomedical applications including program design and development, programming techniques and documentation; introduction to and programming in the Python and LabVIEW environments, and computer-aided design application in SolidWorks environments. **Prerequisite:** Grade of C or better in MATH 152 and ENGR 102; Biomedical Engineering major.

BMEN 211 Biomedical Applications of Signals and Systems

Credits 3. 3 Lecture Hours. Quantitative analysis of biomedical and physiological signals; Fourier and Laplace transforms; filtering of biomedical signals; electrical circuits and analog representations of physiological systems as model systems; A/D conversion and sampling. **Prerequisites:** Admitted to major degree sequence; PHYS 207 or PHYS 208; MATH 308 or concurrent enrollment.

BMEN 250 Biostatistics and Data Visualization

Credits 3. 3 Lecture Hours. Introduction to statistical thinking for biomedical engineering problem-solving and decision-making applied to the benchtop, laboratory, and clinical testing and to the quality engineering procedures of verification and validation; topics include descriptive statistics, estimation, hypothesis testing, regression and correlation, experimental design, data visualization, and ethics of statistical practice. **Prerequisites:** Grade of C or better in MATH 152 and ENGR 102; Biomedical Engineering major.

BMEN 253 Discovering Biomedical Engineering Design Thinking

Credit 1. 1 Lecture Hour. Identification and exploration of what constitutes a medical device and the unique aspects of medical device design that are imposed by medical device regulation. **Prerequisite:** Biomedical Engineering major.

BMEN 254 Biomedical Engineering Design I

Credit 1. 1 Lecture Hour. Introduction into biomedical engineering design and relevant biomedical topics. **Prerequisites:** Grade of C or better in BMEN 253; Biomedical Engineering major.

BMEN 285 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Allows students to undertake special projects in biomedical engineering at an earlier point in their studies than required for BMEN 485. **Prerequisite:** Approval of Director of Undergraduate Programs.

BMEN 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of biomedical engineering. May be repeated for credit. **Prerequisite:** Approval of instructor.

BMEN 291 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in biomedical engineering. May be repeated 2 times for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

BMEN 305 Bioinstrumentation

Credit 1. 3 Lab Hours. Introduction to biomedical instrumentation design; hands on acquisition of biomedical signals; design, building and testing of bioinstrumentation circuits including analog signal amplifiers and analog filter circuits. **Prerequisite:** Grade of C or better in BMEN 211; grade of C or better in BMEN 321 or concurrent enrollment.

BMEN 311 Imaging Living Systems

Credits 3. 3 Lecture Hours. Examination of microscopy and clinical imaging modalities in biomedical applications across intracellular to whole body length scales; microscopy topics include optical, electron, scanning probe, infrared, intravital, and other techniques; clinical imaging techniques to be covered include x-ray, ultrasound, magnetic resonance imaging, computed and positron emission tomography, and other specialized clinical imaging. **Prerequisites:** Grade of C or better in BMEN 207 or approval of instructor; Biomedical Engineering major.

BMEN 321 Circuits, Signals, and Systems

Credits 3. 2 Lecture Hours. 3 Lab Hours. Examination of circuits and linear and nonlinear systems concepts required for quantitative analysis of biomedical and physiological signals and design of biomedical systems; topics include electrical circuit fundamentals, operational amplifiers, frequency response, electrical transients, impulse response, transfer functions, convolution, Fourier and Laplace transforms, filtering of biomedical signals, electrical circuits and analog representations of physiological systems as model systems, and A/D conversion and sampling; theoretical investigations and hands-on acquisition of biomedical signals and designing, building, and testing bioinstrumentation circuits. **Prerequisites:** Grade of C or better in BMEN 207, BMEN 250 or STAT 312, MATH 308, and PHYS 207; Biomedical Engineering major.

BMEN 322 Biosignal Analysis

Credits 3. 3 Lecture Hours. Design and application of analog and digital signal analysis in biomedical engineering; characteristics of biomedical signals; design considerations for analog-to-digital and digital-to-analog circuitry; biosignal transformation methods; analog and digital filter design for biomedical signals. **Prerequisite:** BMEN 321.

BMEN 341 Biotransport

Credits 3. 3 Lecture Hours. Fundamentals of momentum, mass, and energy transport related to living or biomedical systems; examination of the basic principles and constitutive equations of a variety of biological transport phenomena, with length scales ranging from intracellular to organ level; topics include fluid mechanics; transport by diffusion, along with effects of convection, electrochemical potential, and chemical reactions; and energy-tissue interactions; emphases are given to fundamental principles, quantitative approaches, and biomedical applications of these principles and techniques. **Prerequisites:** Grade of C or better in BMEN 207 or concurrent enrollment, MATH 308, and PHYS 207 or PHYS 208; Biomedical Engineering major.

BMEN 343 Biomedical Engineering Materials

Credits 3. 2 Lecture Hours. 3 Lab Hours. Properties, preparation, and characterization of natural and man-made materials encountered in biomedical applications; topics include the chemical structure of metals, ceramics, and polymers; physical, mechanical, bulk, and surface properties of biomaterials; biomaterial degradation; and biomaterial processing; theoretical investigations and hands-on acquisition and interpretation of biomaterial preparation and characterization data. **Prerequisites:** Grade of C or better in MATH 308 and BMEN 361; Biomedical Engineering major.

BMEN 344 Biological Interactions and Testing

Credits 3. 2 Lecture Hours. 3 Lab Hours. Application of quantitative engineering principles and bioimaging, bioassay, and biomolecule activity testing to elucidate the interactions between materials and biological systems; topics include protein and cell interactions with biomaterials; biomaterial implantation; acute inflammation, wound healing and the presence of biomaterials immune responses to biomaterials; thrombosis; infection; tumorigenesis; and calcification of biomaterials; examination of theoretical investigations, hands-on acquisition, and interpretation of biological interaction data. **Prerequisite:** Grade of C or better in MATH 308 and VTPP 435; Biomedical Engineering major.

BMEN 345 Biomaterials Lab

Credit 1. 3 Lab Hours. Experimental methods used to prepare and characterize polymeric biomaterials used in biomedical engineering; related fundamental aspects of forming a hypothesis, experimental design, empirical observation, data collection, interpretation and presentation of data. **Prerequisite:** Grade of C or better in BMEN 343; grade of C or better and concurrent enrollment in BMEN 250.

BMEN 351 Biomedical and Health Data Science

Credits 3. 3 Lecture Hours. Exploration of applications of data analytics, machine learning, and deep learning in health sciences and biomedical data; topics include theoretical foundations, algorithms and methods of deriving valuable insights from data, predictive health analysis, electronic health records, medical image analysis, computational drug discovery, and genome structure prediction using predictive modeling. **Prerequisites:** Grade of C or better in BMEN 207 and BMEN 250 or STAT 312; Biomedical Engineering major.

BMEN 353 Biomedical Engineering Device Design II

Credit 1. 1 Lecture Hour. Identification of needs, concept ideation and selection, and creating an initial prototype for user testing within the biomedical engineering process. **Prerequisites:** Grade of C or better in BMEN 254; Biomedical Engineering major.

BMEN 354 Biomedical Engineering Design III

Credits 2. 2 Lecture Hours. Analysis of validation and verification testing for biomedical engineering design, along with manufacturing readiness, market-entry readiness, and post-market engineering activities. **Prerequisites:** Grade of C or better in BMEN 353; Biomedical Engineering major.

BMEN 361 Biomedical Engineering Mechanics

Credits 3. 2 Lecture Hours. 3 Lab Hours. Examination of biomedical engineering mechanics with a focus on biomedical devices, biomaterials, and hard and soft biological tissues; topics include fundamentals of static mechanics, motion biomechanics, and mechanics of materials supplemented with experimental design, simulation, and mechanical testing; exploration of theoretical investigations and hands-on acquisition; interpretation and application of biomechanical data. **Prerequisites:** Grade of C or better in BMEN 207 and BMEN 250 or STAT 312; Biomedical Engineering major.

BMEN 399 Engineering Professional Development

Credits 0. 0 Other Hours. Participation in an approved high-impact learning practice; reflection on professional outcomes from engineering body of knowledge; documentation and self-assessment of learning experience at mid-curriculum point. **Prerequisites:** Admission to biomedical engineering; junior or senior classification or approval of instructor.

BMEN 400/VTPP 401 History of Human and Veterinary Medicine in Europe

Credits 4. 4 Lecture Hours. Addresses the major developments in human and veterinary medicine in Europe from the Middle Ages to the present; explores key events and figures in medical history and analyzes issues of current biomedical concern in a historical context; for example, animal rights, ethics of humane experimentation, euthanasia. **Prerequisites:** Admitted to major degree sequence in biomedical engineering; VTPP 434. **Cross Listing:** VTPP 401/BMEN 400.

BMEN 401 Principles and Analysis of Biological Control Systems

Credits 3. 3 Lecture Hours. Techniques for generating quantitative mathematical models of physiological control systems and devices; the behavior of physiological control systems using both time and frequency domain methods. **Prerequisite:** BMEN 321.

BMEN 402 Biomedical Optics Laboratory

Credits 3. 2 Lecture Hours. 3 Lab Hours. Biomedical optics technology; basic engineering principles used in developing therapeutic and diagnostic devices; hands-on labs including optical monitoring, diagnostic and therapeutic experiments. **Prerequisite:** PHYS 207 or PHYS 208 or approval of instructor; Biomedical Engineering major or minor.

BMEN 404 FDA Good Laboratory and Clinical Practices

Credits 3. 3 Lecture Hours. Implementation of Good Laboratory Practices (GLP) for the submission of preclinical studies and use of Good Clinical Practices (GCP) in clinical trials in accordance with Food and Drug Administration (FDA) regulations; includes similarities and differences in GLP and GCP critical for the introduction of new drugs and medical devices. **Prerequisites:** BMEN 253; junior or senior classification.

BMEN 406 Medical Device Path to Market

Credits 3. 3 Lecture Hours. Path to market for a medical device with specific attention to the regulatory affairs to enable the development of an appropriate regulatory strategy due to the highly regulated global environment. **Prerequisites:** BMEN 253; junior or senior classification, or approval of instructor.

BMEN 420 Medical Imaging

Credits 3. 3 Lecture Hours. Principles of major imaging modalities including x-ray radiography, x-ray computed tomography (CT), ultrasonography and magnetic resonance imaging; including a brief discussion on other emerging imaging technologies such as nuclear imaging (PET and SPECT). **Prerequisites:** Grade of C or better in BMEN 321; junior or senior classification.

BMEN 422 Bioelectromagnetism

Credits 3. 3 Lecture Hours. Electric, magnetic and electromagnetic phenomena associated with biological tissues; source modeling based on physiological current including line and volume conductor models as well as electromagnetic-based stimulation, sensing and imaging. **Prerequisites:** Admission into the degree sequence of the major and BMEN 321 or approval of instructor.

BMEN 425 Biophotonics

Credits 3. 3 Lecture Hours. Theory and application of optical instrumentation, including light sources, lasers, detectors, and optical fibers; instrumentation and engineering in biomedical applications of optics in therapeutics, diagnostics, and biosensing. **Prerequisites:** Grade of C or better in BMEN 311; Biomedical Engineering majors; junior or senior classification.

BMEN 427 Magnetic Resonance Engineering

Credits 3. 2 Lecture Hours. 3 Lab Hours. Design, construction and application of instrumentation for MR imaging; fundamentals of the architecture of an MR spectrometer and the gradient subsystem used for image localization; emphasis on the radiofrequency sensors and systems used for signal generation and reception. **Prerequisites:** Grade of C or better in ECEN 322 or BMEN 420; junior or senior classification.

BMEN 428/CSCE 461 Embedded Systems for Medical Applications

Credits 3. 2 Lecture Hours. 3 Lab Hours. Principles of embedded system architecture and programming; fundamentals and theoretical foundations of wireless communication systems; hands-on experiences of how an embedded system could be used to solve problems in biomedical engineering; projects on wireless sensors and imaging for medical devices. **Prerequisite:** Grade of C or better in BMEN 321, CSCE 350/ECEN 350, or CSCE 315, or approval of instructor. **Cross Listing:** CSCE 461/BMEN 428.

BMEN 431 Biomolecular Engineering

Credits 3. 3 Lecture Hours. Foundations for understanding and experimental approaches for measuring and manipulating biomolecules; proteins, nucleic acids and carbohydrates; thermodynamics and kinetics of biomolecular reactions. **Prerequisites:** Grade of C or better in BMEN 344 or concurrent enrollment; junior or senior classification; Biomedical Engineering majors; or approval of instructor.

BMEN 432 Molecular and Cellular Biomechanics

Credits 3. 3 Lecture Hours. Introduces biomolecules and their assemblies that play structural and dynamical roles in subcellular to cellular level mechanics; emphasis on quantitative/theoretical descriptions; discussions of the relevant experiment approaches to probe these nano to micro-scale phenomena; includes topics in self-assembly of cytoskeleton and biomembranes, molecular motors, cell motility, and mechanotransduction. **Prerequisite:** BMEN 361.

BMEN 433 Biomolecular and Cellular Engineering Laboratory

Credits 3. 2 Lecture Hours. 3 Lab Hours. Laboratory biosafety and biohazard awareness; cell culture protocols and standards for biocompatibility testing; setting protocols for cellular and biomolecular projects; bioimaging, bioassays and biomolecule activity testing. **Prerequisites:** VTPP 435; BMEN 431 or concurrent enrollment; majors in biomedical engineering; junior or senior classification; or approval of instructor.

BMEN 448 Healthcare Technology in the Developing World

Credits 3. 1 Lecture Hour. 6 Lab Hours. Principles of operation for major types of medical equipment; physiology underlying the measurement; major functional (system) pieces for each instrument; typical problems/applications of each instrument. **Prerequisite:** Grade of C or better in MATH 152 and PHYS 207; approval of instructor.

BMEN 450 Case Studies

Credit 1. 1 Lecture Hour. Examination of the process through which clinically defined problems are addressed from the perspective of biomedical engineering through the use of case studies; issues of technology transfer and clinical evaluation. **Prerequisite:** Admitted to major degree sequence; junior or senior classification.

BMEN 452 Mass and Energy Transfer in Biosystems

Credits 3. 3 Lecture Hours. Transport phenomena associated with physiological systems and their interaction with medical devices; exchange processes in artificial life support systems and diagnostic equipment. **Prerequisite:** Grade of C or better in BMEN 341; Biomedical Engineering major or minor.

BMEN 453 Analysis and Design Project I

Credits 3. 2 Lecture Hours. 3 Lab Hours. Team-based biomedical engineering analysis and design project involving needs statement generation, ideation, technical specifications, subsystem analysis, and design of complete biomedical system to fit unique needs. **Prerequisites:** Grade of C or better in BMEN 321, BMEN 344, BMEN 354, and BMEN 361; Biomedical Engineering major.

BMEN 454 Analysis and Design Project II

Credits 3. 9 Lab Hours. Continuation of BMEN 453. **Prerequisite:** Grade of C or better in BMEN 453; Biomedical Engineering major.

BMEN 457 Orthopedic Biomechanics

Credits 3. 3 Lecture Hours. Development of competencies in biomechanical principles using practical examples and clinical case studies; application of biomechanical knowledge to the evaluation of musculoskeletal tissues and structures, and treatment options for musculoskeletal dysfunction. **Prerequisite:** BMEN 361 or equivalent course approved by instructor.

BMEN 458 Motion Biomechanics

Credits 3. 3 Lecture Hours. Skeletal anatomy and mechanics; muscle anatomy and mechanics; theory and application of electromyography; motion and force measuring equipment and techniques; inverse dynamics modeling of the human body; current topics in musculoskeletal biomechanics research. **Prerequisites:** BMEN 207 or approval of instructor; junior or senior classification.

BMEN 461 Cardiac Mechanics

Credits 3. 3 Lecture Hours. Application of continuum mechanics and computational solid mechanics to the study of the mammalian heart; utilization of continuum mechanics and finite element analysis in solving non-linear boundary value problems in biomechanics. **Prerequisites:** BMEN 341 and BMEN 361.

BMEN 463 Soft Tissue Mechanics and Finite Element Methods

Credits 3. 3 Lecture Hours. Application of continuum mechanics and finite element methods to the study of the mechanical behavior of soft tissues and associative applications in biomedicine. **Prerequisites:** BMEN 341 and BMEN 361.

BMEN 464 Cancer Bioengineering

Credits 3. 3 Lecture Hours. Examination of cancer from an engineering perspective focusing on cancer as a complex interaction of tumor cells, support cells, and immune cells; quantifying and engineering tumor microenvironments; engineering advances in cancer discovery and therapeutic interventions; emphasis on systems integration to address cancer challenges. **Prerequisites:** Grade of C or better in BMEN 343 and VTPP 435; grade of C or better in BMEN 480 or concurrent enrollment.

BMEN 465 Biomechanics Experiential Learning Lab

Credit 1. 3 Lab Hours. Applications in biomechanics (solid and fluid); includes experimental methods used to investigate biomechanical factors in the assessment of therapeutic interventions; mechanical testing load frames; motion capture systems, high speed imaging and flow systems; hypothesis forming, experimental design, empirical observation, data collection and interpretation, and presentation of results. **Prerequisite:** Grade of C or better in BMEN 361.

BMEN 469 Entrepreneurial Pathways in Medical Devices

Credits 3. 3 Lecture Hours. Overview of fundamental elements and development steps for an effective strategy pathway including regulatory pathway for commercialization of medical product/medical device innovations; application of the basic regulations and associated requirements and enforcements for product market approval; exploration of product quality test method design requirements; understanding of the applicable regulations and standards pertaining to the design, testing, approval and marketing of medical devices. **Prerequisite:** Admitted to major degree sequence (upper-level) in biomedical engineering.

BMEN 471 Numerical Methods in Biomedical Engineering

Credits 3. 3 Lecture Hours. Application of numerical analysis to analyze molecular, cellular and physiological systems, using general techniques including programming in MATLAB to analyze steady and dynamic systems. **Prerequisites:** BMEN 207 and VTPP 434.

BMEN 472 Computational Fluid Dynamics in Biomedical Engineering

Credits 3. 3 Lecture Hours. Fundamentals of computational fluid dynamics (CFD) for biomedical applications; topics include discretization of fundamental balance relations; modeling physiologic geometries; mesh generation; modeling physics; iterative solution approach; and analysis of simulation results; emphasis on the role of CFD in biomedical device design and patient-tailored medicine. **Prerequisites:** Grade of C or better in BMEN 341; junior or senior classification or approval of instructor.

BMEN 480 Biomedical Engineering of Tissues

Credits 3. 3 Lecture Hours. Introduction to aspects of tissue engineering with and emphasis placed on tissue level topics including tissue organization and biological processes, with insights from recent literature (state-of-the-art). **Prerequisite:** BMEN 343.

BMEN 481 Seminar

Credits 0. 0 Other Hours. Research based seminar focused on the identification and pursuit of research experiences within the local biomedical engineering community. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** BMEN major; junior or senior classification.

BMEN 482 Polymeric Biomaterials

Credits 3. 3 Lecture Hours. Preparation, properties, and biomedical applications of polymers including polymerization; structure-property relationships; molecular weight and measurement; morphology; thermal transitions; network formation; mechanical behavior; polymetric surface modification; polymer biocompatibility and bioadhesion; polymers in medicine, dentistry, and surgery; polymers for drug delivery; polymeric hydrogels; and biodegradable polymers. **Prerequisite:** BMEN 343.

BMEN 483 Polymeric Biomaterial Synthesis

Credits 3. 3 Lecture Hours. Overview of polymer synthetic routes and key structure-property relationships with emphasis on the design of polymeric systems to achieve specific properties; tissue engineering and drug delivery applications will be used as model systems to explore the process of biomaterial design from synthesis to device evaluation.

Prerequisite: BMEN 343 or approval of instructor.

BMEN 484 Internship

Credits 0 to 3. 0 to 3 Other Hours. Industry experience from both an experiential perspective as well as networking; reflect upon the experience gained during an internship with an outside entity; learn what it takes to be successful in industry. **Prerequisites:** Admission to Biomedical Engineering major; BMEN 253.

BMEN 485 Directed Studies

Credits 0 to 6. 0 to 6 Other Hours. Allows students to undertake special projects in biomedical engineering. **Prerequisite:** Approval of instructor or Director of Undergraduate Programs.

BMEN 486 Biomedical Nanotechnology

Credits 3. 3 Lecture Hours. Nanotechnology applications in biomedicine; concepts of scale; unique properties at the nanoscale; biological interaction, transport, and biocompatibility of nanomaterials; current research and development of nanotechnology for medical applications, including sensors, diagnostic tools, drug delivery systems, therapeutic devices, and interactions of cells and biomolecules with nanostructured surfaces. **Prerequisite:** BMEN 343, senior classification or approval of instructor.

BMEN 487 Drug Delivery

Credits 3. 3 Lecture Hours. Mechanisms for controlled release of pharmaceutically active agents and the development of useful drug delivery systems; controlled release mechanisms including diffusive, convective, and erosive driving forces by using case studies related to oral, topical and parenteral release in a frontier interdisciplinary scientific research format. **Prerequisites:** BMEN 343; senior classification in biomedical engineering or approval of instructor.

BMEN 489 Special Topics in...

Credits 1 to 4. 1 to 4 Other Hours. New or unique areas of biomedical engineering which are of interest to biomedical engineering and other undergraduate students.

BMEN 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in biomedical engineering. May be repeated for credit. **Prerequisites:** Junior or senior classification and approval of instructor.

BOTN - Botany (BOTN)

BOTN 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of botany. May be repeated for credit. **Prerequisite:** Approval of instructor.

BOTN 291 Research

Credits 1 to 4. 1 to 4 Other Hours. Active research of basic nature under the supervision of a Department of Biology faculty member.

Prerequisites: Freshman or sophomore classification and approval of instructor.

BOTN 485 Directed Studies

Credits 3. 3 Lecture Hours. Problems in various phases of plant, animal and bacteriological science. **Prerequisites:** Junior classification; approval of ranking professor in field chosen and Undergraduate Advising Office.

BOTN 491 Research

Credits 1 to 4. 1 to 4 Other Hours. Active research of basic nature under the supervision of a Department of Biology faculty member.

Prerequisites: Junior or senior classification and approval of instructor.

BUSH - Geo Bush School of Gov (BUSH)

BUSH 141 Bush Undergraduate Success Hub

Credits 3. 3 Lecture Hours. Guidance for those entering the Bush School of Government and Public Service; creating a mission and purpose for higher education career; fostering an inclusive environment that cultivates a sense of purpose towards public service, engagement in opportunities, and advancement in overall understanding of the world; development of self-efficacy, self-awareness and a sense of purpose; engagement in the learning environment both inside and outside of the classroom; social integration within the Bush School of Government and Public Service community.

BUSH 241 Democracy, Civic Engagement, and Community Leadership

Credits 3. 3 Lecture Hours. An exploration into democracy, civic engagement, and community leadership with an emphasis on engaging in public service as citizens.

BUSH 285 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Directed study of selected problems in government and public service not covered in other courses. May be taken two times for credit. **Prerequisites:** Freshman or sophomore classification admitted to the Bush School and approval of instructor.

BUSH 300 Bush School Study Abroad

Credits 0 to 18. 0 to 18 Other Hours. For students in approved programs abroad. May be repeated for credit. **Prerequisites:** INTA, INTS, or POLS majors; junior or senior classification.

BUSH 485 Directed Studies

Credits 0 to 3. 0 to 3 Other Hours. Research problems and readings for students in the Bush School; directed independent study of a topic related to government and public service that relates to a student's area of interest. **Prerequisites:** Junior or senior classification or approval of instructor.

BUSH 489 Special Topics in...

Credits 1 to 4. 1 to 4 Other Hours. Selected topics in an identified area of government and public service. May be repeated for credit. **Prerequisites:** Junior or senior classification.

BUSN - Mays Business School (BUSN)

BUSN 101 Freshman Business Initiative

Credits 3. 3 Lecture Hours. (BUSI 1301) Freshman Business Initiative. Freshman orientation to business and to Mays Business School; introduction to majors within the business school and associated career opportunities; introduction and development of personal and professional competencies, with emphasis on self-leadership, business communication, ethical decision making, and teamwork. **Prerequisite:** Freshmen admitted to Mays Business School; also taught at Galveston campus.

BUSN 125 Business Learning Community I

Credits 3. 3 Lecture Hours. Focuses on the base competencies that relate to effectively managing people, tasks and organizations, and change and innovation; develops skills in personal and professional competencies, analytical and critical thinking skills, written and oral communication skills, interpersonal skills and problem-solving skills; research emphasis. **Prerequisite:** Selection for Mays Business School Honors Program.

BUSN 203 Statistical Methods for Business

Credits 3. 3 Lecture Hours. (BUSI 2305) Statistical Methods for Business. Collection, tabulation and presentation of numerical data; sampling, estimation of averages and variation, probability and error, hypothesis testing and correlation. Only one of the following will satisfy the requirements for a degree: STAT 201 or BUSN 203; STAT 201 may not be used to satisfy the BUSN 203 requirement in BBA degree programs. **Prerequisites:** MATH 140, MATH 142, or equivalent; Business, Agribusiness, and Maritime Business Administration majors; also taught at Galveston campus.

BUSN 204 Discover Consulting

Credits 3. 3 Lecture Hours. Learning the basic of management consulting; consulting firm distinctions (MBB, Big Four, boutique); value-creation models; consulting offerings; organizational structures and roles; career paths; consulting frameworks, diagnostics, analytics, methodologies; consulting project life cycle; client dynamics and influence; critical thinking; mental math strategies; interviewing skills; resume writing; self-awareness (EQ & CQ); personal presence. **Prerequisites:** Sophomore classification or approval by instructor.

BUSN 206 Emerging Business Technology Environment

Credits 3. 3 Lecture Hours. Analysis, recording, and reviewing of impactful technology businesses; foundational business leadership and personal brand development; analysis of customer lifecycle choices and business opportunity identification. **Prerequisites:** Business of Technology certificate; approval of instructor.

BUSN 207 New Product Development and Go-to-Market Strategies

Credits 3. 3 Lecture Hours. Analysis and review of impactful technology businesses; ideating new products and services; product development process; developing opportunity identification; A/B testing of new product ideas; mapping customer value. **Prerequisites:** Business of Technology certificate; approval of instructor.

BUSN 208 Business Application Development

Credits 3. 3 Lecture Hours. Review and development of code-based business applications; foundations of user experience and user interface designs; analysis of code performance and tracking app experience in the iPhone Operating Systems (IOS) Database market. **Prerequisites:** Business of Technology certificate; approval of instructor; CSCE 110 or CSCE 120.

BUSN 209 Business in Technology Experience

Credits 3. 3 Lecture Hours. Examination of global business and technology environment in the west coast; history, culture, politics, and innovation influencing innovation & infrastructure; combination of classroom work and field trip. **Prerequisites:** Business of Technology certificate; approval of instructor.

BUSN 213 Overview of the Energy Industry

Credit 1. 1 Lecture Hour. Overview of the business model of energy companies; study of how the different functional areas of an energy firm work together to create value **Prerequisite:** Admission to Mays Business school.

BUSN 225 Business Competency

Credits 3. 3 Lecture Hours. Application of core business competencies of leadership, communication, decision making, ethics and teamwork. **Prerequisites:** BUSN 101 or BUSN 125; selection for Mays Business School Honors Program.

BUSN 232 Resource Development

Credits 3. 3 Lecture Hours. Examination of resource development and the fundraising process in nonprofit organizations and social enterprises; introduction to the funding methods and interconnectedness of government, individuals, foundations and corporations as nonprofits seek to address societal challenges; overview of donor motivations, sources of support, staff/board roles in fundraising, earned income strategies and ethical practices. **Prerequisites:** Mays Business School majors only.

BUSN 285 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Directed study of selected problem in business not covered in other courses. May be taken two times for credit. **Prerequisites:** Freshman or sophomore classification admitted to Mays Business School and approval of instructor.

BUSN 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of business and public service. May be repeated for credit. **Prerequisite:** Freshman or sophomore in business.

BUSN 299 Professional and High Impact Experiences

Credits 0. 0 Other Hours. Participation in professional and/or high impact experiences. May be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis.

BUSN 302 Nonprofit Perspectives

Credit 1. 1 Lecture Hour. Examination of the size, scope and distinctiveness of the nonprofit sector; development of a comprehensive view of the nonprofit sector by engaging with a diversity of perspectives from private, government or nonprofit organizations. **Prerequisite:** Mays Business School major; junior or senior classification or approval of instructor.

BUSN 325 Business Honors Seminar I

Credit 1. 1 Other Hour. Development and analysis of professional skills for application in the workplace. **Prerequisite:** Grade of C or better in BUSN 125 and BUSN 225; Business Honors majors.

BUSN 392 Cooperative Education in Business

Credits 2. 40 Other Hours. Educational work assignment in the field in which the student is interested. Supervision will be by employer with technical report required at semester's end. May be taken three times for credit.

BUSN 401 Mays Business Fellows I

Credits 3. 3 Lecture Hours. A seminar for the development of leadership and management skills. **Prerequisite:** Selection for Mays Business Fellows Program.

BUSN 403 Business Writing and Communication

Credits 3. 3 Lecture Hours. Essential written communication skills for business; theory, hands-on practice, real-world scenarios; proficiency in written business communication; written documents, digital presence; effective communication strategies; career readiness, professional relationships; identifying, analyzing stakeholders; achieving communication objectives; self-reflection, peer review; understanding personal communication strengths, biases. **Prerequisite:** Junior or senior classification or approval of instructor.

BUSN 404 Career Design

Credits 3. 3 Lecture Hours. Tools and insights to craft a life and career that aligns with values, aspirations, and educational experiences; emphasis on design thinking principles, guiding through self-discovery, exploration of passions, skills, and potential life trajectories; foundational framework for making intentional, informed decisions about life and careers. **Prerequisites:** Junior or senior classification; approval of instructor.

BUSN 405 Consulting Interview Preparation

Credits 3. 3 Lecture Hours. Case interviews preparation; behavioral fit interview practice; mastery of MECE categorization; managing a client; making data-based recommendations using the Pyramid Principle; developing and communicating stories demonstrating professional drive, and business competence; managing cross-examination and probing questions. **Prerequisites:** Grade of C or better in BUSN 204 or approval of instructor.

BUSN 432 Strategic Philanthropy

Credits 3. 3 Lecture Hours. Examination of historical trends in philanthropy; participation in grant making process through the lens of a private foundation; engagement with local and national philanthropic leaders; development of personal philanthropic ethic through a grant making simulation that includes due diligence, writing grants and reaching collective decisions. **Prerequisites:** Junior or senior classification or approval of instructor.

BUSN 450 Business Transformation with Generative Artificial Intelligence

Credits 3. 3 Lecture Hours. Leverage Generative Artificial Intelligence (AI) and Large Language Models (LLMs) across major business functions, including marketing, management, product development, operations, accounting, and finance; application of a variety of AI/LLM tools to enable business efficiency and effectiveness; focusing on practical business applications and ethical considerations; building custom AI tools for specific business needs. **Prerequisites:** Artificial Intelligence in Business minor only; junior or senior classification.

BUSN 455 Automating Business Story Telling Using Artificial Intelligence

Credits 3. 3 Lecture Hours. Business data visualization principles and evaluation strategies; use of tools such as dashboards, Python, Tableau/PowerBI; effective storytelling using automated visualization enabled by artificial intelligence; connecting data analytics to business outcomes and communicating those outcomes to higher management and consumers. **Prerequisites:** Artificial Intelligence in Business minor only; junior or senior classification; BUSN 450 or concurrent enrollment.

BUSN 460 Machine Learning, Predictive Modeling, and Business Applications

Credits 3. 3 Lecture Hours. Building knowledge needed for acquiring advanced machine learning (ML) skills useful in business; preparation for collaborative work on business applications using ML techniques; ML concepts; overview of ML algorithms/models; management of a ML project from a business perspective; real-world use cases of ML in various business functions and industries, using predictive analytics to transform business processes and functions. **Prerequisites:** Artificial Intelligence in Business minor; junior or senior classification; BUSN 450 or concurrent enrollment.

BUSN 465 Business Applications of Deep Learning - Image Audio and Video Data

Credits 3. 3 Lecture Hours. Advanced skills for analyzing and extracting insights for business from image, unstructured audio and video data using deep learning; applying deep learning techniques to real-world business scenarios, including customer-driven applications; leveraging state-of-the-art AI tools and methodologies to process, analyze, and derive actionable insights from audio and video data; enhancing decision-making and operational efficiency across various business domains; tackling complex challenges in the evolving landscape of business data analysis. **Prerequisites:** Artificial Intelligence in Business minor; junior or senior classification; BUSN 450 or concurrent enrollment.

BUSN 470 Applied Natural Language Processing for Business Decisions

Credits 3. 3 Lecture Hours. Application of natural language processing tools to derive business information from unstructured text; extraction of text and tables from documents and websites; increase effectiveness and efficiency when using business relevant textual data (ex., analyst reports, corporate filings, emails, political/regulatory comments, and business customer/transaction files). **Prerequisites:** Artificial Intelligence in Business minor only; junior or senior classification; BUSN 450 or concurrent enrollment.

BUSN 481 Seminar

Credits 0-1. 0-1 Other Hours. Exploration of current business topics or competencies. May be taken four times for credit. **Prerequisites:** Junior or senior classification or approval of instructor.

BUSN 484 Internship

Credits 0 to 4. 0 to 4 Other Hours. Professional internship or practical experience in a field in which the student is interested, under the direction of the business honors director or a business school faculty member. May be taken two times for credit. **Prerequisite:** Business honors major or approval of instructor.

BUSN 485 Directed Studies

Credits 1 to 6. 1 to 6 Other Hours. Directed study on selected problems in the area of business administration not covered in other courses. May be repeated for credit. **Prerequisites:** Admission to upper division in Mays Business School; approval of instructor.

BUSN 489 Special Topics in...

Credits 1 to 4. 1 to 4 Other Hours. Selected topics in an identified area of business and public service. May be repeated for credit. **Prerequisites:** Junior or senior classification in business.

BUSN 491 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of faculty member in Mays Business School. May be repeated 1 times for credit. **Prerequisites:** Junior or senior classification admitted to Mays Business School and approval of instructor.

CARC - College of Architecture (CARC)

CARC 101 Cultural and Social Issues in the Natural, Built and Virtual Environment

Credits 3. 3 Lecture Hours. Introduction to cultural and social issues in planning, design, construction, creativity and the visual arts; exploration of how individual and collective values and beliefs are expressed in the practice of architecture, landscape architecture, urban planning, construction science and the arts; how these fields internalize and reify these values while creating the natural, built and virtual environments; emphasis on civil discourse to help recognize positionality and work collaboratively in a multicultural society.

CARC 181 First Year Seminar

Credit 1. 1 Lecture Hour. Seminar on various contemporary topics; introduction to high quality college instruction and research; focus on writing, speaking, exploration, discussion and research. May be taken two times for credit. **Prerequisite:** First time in college and College of Architecture undergraduate studies.

CARC 291 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of a faculty member. May be repeated 2 times for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

CARC 300 College of Architecture Study Abroad

Credits 1 to 18. 1 to 18 Other Hours. For students in approved study abroad programs participating in reciprocal educational exchange programs. May be repeated for credit. **Prerequisite:** Junior or senior classification; approval of assistant dean for international programs and initiatives.

CARC 301 Field Studies in Design Innovation

Credits 1 to 18. 1 to 18 Other Hours. Design innovation in international and domestic environments away from the Texas A&M University campus; emphasis on the cultural, social, economic, geographical, climatic and technological factors influencing design solutions for human needs. May be taken up to two times in the same semester. **Prerequisite:** Junior or senior classification; CARC 481; approval of assistant dean for international programs and initiatives.

CARC 311 Field Studies in Design Communication

Credits 3. 2 Lecture Hours. 4 Lab Hours. Design communication in international and domestic environments away from the Texas A&M University campus; emphasis on the tools, methods and techniques for design communication. May be taken up to two times in the same semester. **Prerequisite:** Junior or senior classification; approval of assistant dean for international programs and initiatives.

CARC 321 Field Studies in Design Technology

Credits 3. 3 Other Hours. Design technology in international and domestic environments away from the Texas A&M University campus; emphasis on structural, material and environmental systems and methods of construction utilized to realize design solutions. May be taken up to two times in the same semester. **Prerequisite:** Junior or senior classification; approval of assistant dean for international programs and initiatives.

CARC 331 Field Studies in Design Philosophy

Credits 3. 3 Other Hours. Design philosophy in international and domestic environments away from the Texas A&M University campus; emphasis on the historical, philosophical, cultural, social and economic factors that influence design solutions. May be taken up to two times in the same semester. **Prerequisites:** Junior or senior classification; approval of assistant dean for international programs and initiatives.

CARC 411 Interdisciplinary Methods on Smart and Connected Communities

Credits 3. 3 Lecture Hours. Empirical cases of smart and connected communities; development of critical thinking and teambuilding skills; exposure to interdisciplinary collaboration; exploration of serving vulnerable populations and small communities with emerging technologies; exploration of promises and challenges of disruptive technologies; discussion of community engagement; opportunities and socio-economic disruptions brought by the emerging technologies from a diverse and global perspective; strategies and frameworks to utilize smart-city technologies in a diverse and global society. **Prerequisites:** Junior or senior classification or approval of instructor.

CARC 412 Interdisciplinary Capstone on Smart and Connected Communities

Credits 3. 3 Lecture Hours. Interdisciplinary capstone project; smart and connected communities; scalable interventions to address challenges of small, underserved communities; preparation in critical thinking and creative problem solving; measurable impacts on a real community. Must be taken on a satisfactory/unsatisfactory basis.

CARC 421 Interdisciplinary Project Delivery Through Real-World Projects

Credits 1 to 3. 1 to 3 Lecture Hours. Interaction and observation of interdisciplinary teams of the Built Environment during the planning, designing and/or constructing of real-world project(s). May be taken for credit up to 6 hours. **Prerequisites:** Junior or senior classification; approval of instructor.

CARC 481 Seminar

Credits 0-1. 0-1 Other Hours. Preparatory seminar for select College of Architecture study away and internships; topics include introduction to the language, culture and history of study abroad location. Must be taken prior to the student's study away semester. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** Junior or senior classification; approval of assistant dean for international programs and initiatives.

CARC 484 Internship

Credits 1 to 6. 0 Lecture Hours. 1 to 6 Other Hours. Practical experience in a working situation either during the semester or summer; work experience must have relevance to the degree sought and career objectives. **Prerequisite:** Junior or senior classification required; approval of academic advisor required; USAR majors.

CARC 485 Directed Studies

Credits 1 to 6. 1 to 6 Other Hours. Individual research in architecture, construction science or landscape architecture in an international or domestic environment away from the Texas A&M University campus. May be taken up to two times in the same semester. **Prerequisite:** Junior or senior classification; approval of assistant dean for international programs and initiatives.

CARC 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of architecture. May be repeated for credit.

Prerequisites: Junior or senior classification; approval of assistant dean for international programs and initiatives.

CARC 491 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of a faculty member. May be repeated 2 times for credit.

Prerequisites: Junior or senior classification; approval of assistant dean for international programs and initiatives.

CEHD - Coll of Ed & Human Dev (CEHD)

CEHD 101 Learning Community Foundations of Leadership

Credit 1. 1 Lecture Hour. Exploration of leadership identity, and reflection on lessons learned during the first year of college. Must be taken on a satisfactory/unsatisfactory basis.

CEHD 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of education and human development. May be repeated for credit. **Prerequisite:** Approval of instructor.

CEHD 291 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of faculty member in the College of Education and Human Development. May be repeated 2 times for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

CEHD 300 Education and Human Development Study Abroad

Credits 0 to 18. 0 to 18 Lecture Hours. For students in approved programs to study abroad. May be repeated for credit. **Prerequisites:** Approval of department head; junior or senior classification.

CEHD 491 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of faculty member in the College of Education and Human Development. May be repeated 2 times for credit. **Prerequisites:** Junior or senior classification and approval of instructor.

CHEM - Chemistry (CHEM)

CHEM 100 Horizons in Chemistry

Credit 1. 1 Lecture Hour. An introduction to chemistry and its relationship to and influence on society; emphasis on chemical demonstrations and the practical application of chemical phenomena. For chemistry majors. **Prerequisite:** Major in chemistry or approval of instructor.

CHEM 105/ARSC 105 Contemporary Issues in Science - The Environment

Credits 3. 3 Lecture Hours. Science for citizens; interdisciplinary survey of contemporary issues in and future outlook on the science of our environment, including climate change, energy, plastics, agriculture, and food and water safety; future outlook on the health of our environment; critically analyze science presented in the news, on television and on social media. **Cross Listing:** ARSC 105/CHEM 105.

CHEM 106 Molecular Science for Citizens

Credits 3. 3 Lecture Hours. (CHEM 1305, 1405*) Molecular Science for Citizens. Molecules that control daily life explored via a conceptual approach to molecular science; properties, synthesis, transformations and utility of important molecules and fuels, fibers, metals, pharmaceuticals, foods, biomolecules and structural materials; pollution, consumerism, energy production, disease, biotechnology and risk-benefit analysis considered; also taught at Galveston campus.

CHEM 107 General Chemistry for Engineering Students

Credits 3. 3 Lecture Hours. (CHEM 1309, 1409*) General Chemistry for Engineering Students. Introduction to important concepts and principles of chemistry; emphasis on areas considered most relevant in an engineering context; practical applications of chemical principles in engineering and technology. Students completing CHEM 107 and changing majors to curricula requiring CHEM 101 and CHEM 102 may substitute CHEM 107 for CHEM 101. Only one of the following will satisfy the requirements for a degree: CHEM 107 or CHEM 101. **Prerequisites:** Concurrent enrollment in CHEM 117; grade of C or better in MATH 150, or equivalent, or acceptable score on Texas A&M University math placement exam; also taught at Galveston and Qatar campuses.

CHEM 116 Molecular Science for Citizens Laboratory

Credit 1. 3 Lab Hours. (CHEM 1105, 1405*) Molecular Science for Citizens Laboratory. The importance of molecular science to daily life illustrated by using experiments, demonstration and videos; designed to accompany CHEM 106. **Prerequisite:** CHEM 106 or registration therein; also taught at Galveston campus.

CHEM 117 General Chemistry for Engineering Students Laboratory

Credit 1. 3 Lab Hours. (CHEM 1109, 1409*) General Chemistry for Engineering Students Laboratory. Introduction to important concepts and principles of chemistry in the laboratory; emphasis on areas considered most relevant in an engineering context; practical applications of chemical principles in engineering and technology. Students completing CHEM 117 and changing majors to curricula requiring CHEM 111 and CHEM 112 may substitute CHEM 117 for CHEM 111. Only one of the following will satisfy the requirements for a degree: CHEM 117 or CHEM 111. **Prerequisites:** CHEM 107 or registration therein; also taught at Galveston and Qatar campuses.

CHEM 119 Fundamentals of Chemistry I

Credits 4. 3 Lecture Hours. 3 Lab Hours. (CHEM 1311 and 1111, 1411) Fundamentals of Chemistry I. Introduction to modern theories of atomic structure and chemical bonding; chemical reactions; stoichiometry; states of matter; solutions; equilibrium; acids and bases; coordination chemistry; methods and techniques of chemical experimentation; qualitative and semiquantitative procedures applied to investigative situations; also taught at Galveston campus. **Prerequisites:** Completion of at least 90% of the ALEKS chemistry preparatory module.

CHEM 120 Fundamentals of Chemistry II

Credits 4. 3 Lecture Hours. 3 Lab Hours. (CHEM 1312 and 1112, 1412) Fundamentals of Chemistry II. Theory and applications of oxidation-reductions systems; thermodynamics and kinetics; complex equilibria and solubility product; nuclear chemistry; descriptive inorganic and organic chemistry; introduction to analytical and synthetic methods and to quantitative techniques to both inorganic and organic compounds with emphasis on an investigative approach. **Prerequisites:** CHEM 119, or CHEM 107 and CHEM 117; also taught at Galveston and Qatar campuses.

CHEM 181 Peer-Assisted Learning Pedagogy for Chemistry

Credits 0-1. 0-1 Lecture Hours. Introduction and integration of current learning theory, evidence-based learning, and educational psychology into the daily operations and practice of the Chemistry Learning Laboratory; must be a peer-tutor for the Chemistry Learning Laboratory. **Prerequisites:** Grade of B or better in CHEM 107, or CHEM 119 and CHEM 120; or grade of B or better in CHEM 257 and CHEM 258; approval of instructor.

CHEM 220 Physics and Chemistry of Inorganic Materials

Credits 3. 3 Lecture Hours. Structure, properties and function of materials developed from an atomistic and molecular perspective emphasizing quantum chemical descriptions; elements of solid-state chemistry and physics including bonding, crystal structure and symmetry, origin of electronic band structure, synthesis and characterization tools in materials chemistry and role of finite size effects. **Prerequisite:** CHEM 120; concurrent enrollment in PHYS 207.

CHEM 222 Elements of Organic and Biological Chemistry

Credits 3. 3 Lecture Hours. Organic chemistry and its applications to biological and agricultural chemistry, including chemistry of functional groups, acid-base and redox chemistry, stereochemistry and chemistry of important biological compounds. Not to be used as the basis for further study in organic chemistry or biochemistry. **Prerequisite:** CHEM 101, CHEM 119, or CHEM 107.

CHEM 227 Organic Chemistry I

Credits 3. 3 Lecture Hours. (CHEM 2323, 2423*) Organic Chemistry I. Introduction to chemistry of compounds of carbon; general principles and their application to various industrial and biological processes. **Prerequisite:** CHEM 102 or CHEM 120; concurrent enrollment in CHEM 237 is suggested; also taught at Galveston and Qatar campuses.

CHEM 228 Organic Chemistry II

Credits 3. 3 Lecture Hours. (CHEM 2325, 2425*) Organic Chemistry II. Continuation of CHEM 227. **Prerequisite:** CHEM 227; concurrent registration in CHEM 238 is suggested; also taught at Galveston and Qatar campuses.

CHEM 231 Techniques of Organic Chemistry

Credits 2. 1 Lecture Hour. 3 Lab Hours. Techniques of organic chemistry; preparation, properties of typical organic compounds; separation, purification, analysis, and characterization of organic compounds. **Prerequisites:** CHEM 112 or CHEM 120; concurrent enrollment in CHEM 227.

CHEM 234 Organic Synthesis and Analysis

Credits 3. 1 Lecture Hour. 6 Lab Hours. The synthesis of significant types of organic compounds and study of their properties; laboratory separations of mixtures of organic substances, identification of compounds by functional group tests and preparation of derivatives; instrumental methods of separation, identification and analysis. **Prerequisites:** CHEM 228 or concurrent enrollment; CHEM 231, CHEM 237 or CHEM 257.

CHEM 237 Organic Chemistry Laboratory

Credit 1. 3 Lab Hours. (CHEM 2123, 2423*) Organic Chemistry Laboratory. Operations and techniques of elementary organic chemistry laboratory; preparation, reactions and properties of representative organic compounds. **Prerequisites:** CHEM 102 and CHEM 112, or CHEM 120; CHEM 227 or concurrent enrollment; also taught at Galveston and Qatar campuses.

CHEM 238 Organic Chemistry Laboratory

Credit 1. 3 Lab Hours. (CHEM 2125, 2425*) Organic Chemistry Laboratory. Continuation of CHEM 237. **Prerequisites:** CHEM 228 or concurrent enrollment; CHEM 231, CHEM 237, or CHEM 257; also taught at Galveston and Qatar campuses.

CHEM 242 Elementary Organic Chemistry Laboratory

Credit 1. 3 Lab Hours. Operations and techniques of elementary organic chemistry laboratory with emphasis on experiments for students of agriculture. **Prerequisite:** CHEM 222 or registration therein.

CHEM 257 Organic Chemistry I - Structure and Function

Credits 4. 3 Lecture Hours. 3 Lab Hours. Introduction to the chemistry of carbon-containing compounds, including general principles and application to various academic, industrial, and biological processes; includes elementary operations and techniques of organic chemistry laboratories. **Prerequisites:** CHEM 102 or CHEM 120; also taught at Galveston campus.

CHEM 258 Organic Chemistry II - Reactivity and Applications

Credits 4. 3 Lecture Hours. 3 Lab Hours. Continuation of CHEM 257; introduction to the chemistry of carbon-containing compounds, including general principles and application to various academic, industrial, and biological processes; includes elementary operations and techniques of organic chemistry laboratories. **Prerequisites:** CHEM 257; or CHEM 227 and CHEM 237; also taught at Galveston campus.

CHEM 285 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Introduction to research, library and laboratory work designed for the freshman or sophomore students. **Prerequisite:** Approval of department head.

CHEM 289 Special Topics in...

Credits 0 to 4. 0 to 4 Lecture Hours. Selected topics in an identified area of chemistry. May be repeated for credit. **Prerequisite:** Approval of instructor.

CHEM 291 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in chemistry. May be repeated 2 times for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

CHEM 310 Elements of Physical Chemistry

Credits 3. 3 Lecture Hours. Thermodynamics, Quantum theory, spectroscopy, reaction kinetics, electrochemistry and macromolecules; may not be used by chemistry majors. **Prerequisites:** CHEM 102 or CHEM 120; MATH 151 and MATH 152, MATH 140 and MATH 142, MATH 168 and MATH 142, or MATH 147 and MATH 148, or equivalent; PHYS 201 or PHYS 218, or PHYS 206 and PHYS 226; Galveston campus.

CHEM 311 Physical Chemistry Laboratory

Credit 1. 3 Lab Hours. Quantitative experiments designed to illustrate some principles of thermodynamics, quantum theory, kinetics and spectroscopy; may not be used by chemistry majors. **Prerequisites:** CHEM 310, CHEM 322, or CHEM 327, or concurrent enrollment; Galveston campus.

CHEM 315 Fundamentals of Quantitative Analysis

Credits 3. 3 Lecture Hours. Quantitative and statistical methods of analysis; solution chemistry; chemical equilibrium of analytically useful reactions; advanced analytical methods including electrochemistry, separations and kinetic methods. **Prerequisite:** CHEM 102 or CHEM 120.

CHEM 316 Quantitative Analysis

Credits 2. 2 Lecture Hours. Introductory quantitative chemical analysis; error propagation and statistics; chemical equilibrium for titrations of weak acids, polyprotic acids, and EDTA; basic chemical instrumentation including spectrophotometry, electrochemistry, and chromatography. **Prerequisite:** CHEM 102 or CHEM 120; also taught at Galveston and Qatar campuses.

CHEM 318 Quantitative Analysis Laboratory

Credit 1. 3 Lab Hours. Laboratory work consists of selected experiments in quantitative analysis designed to typify operations of general analytical lab, including chemical analyses by volumetric and gravimetric methods; introduction to chemical measurements by spectroscopic and separations techniques and associated instrumentation. **Prerequisites:** CHEM 112 or CHEM 120; CHEM 315 or CHEM 316, or concurrent enrollment; also taught at Galveston and Qatar campuses.

CHEM 321 Physical Chemistry for Life Sciences

Credits 3. 3 Lecture Hours. Physical chemistry for the description of biological processes and the structure and behavior of biological molecules and macromolecules; theory of thermodynamics, kinetics, quantum and statistical mechanics. **Prerequisites:** CHEM 107 or CHEM 120; PHYS 206 or PHYS 201; MATH 152, MATH 172, or MATH 148, or equivalent.

CHEM 322 Physical Chemistry for Engineers

Credits 3. 3 Lecture Hours. Quantum theory, spectroscopy, statistical mechanics, kinetic theory, reaction kinetics, electrochemistry and macromolecules. **Prerequisites:** CHEM 102 or CHEM 120; CHEN 205 and CHEN 354; MATH 152 or equivalent; also taught at Galveston and Qatar campuses.

CHEM 325 Physical Chemistry Laboratory I

Credit 1. 3 Lab Hours. Quantitative experiments involving physical chemistry principles in areas such as thermodynamics, electrochemistry, molecular structure and equilibria using modern instrumentation. **Prerequisite:** CHEM 321, or CHEM 327 or concurrent enrollment.

CHEM 326 Physical Chemistry Laboratory II

Credit 1. 3 Lab Hours. Quantitative experiments involving physical chemistry principles in such areas as kinetics, properties of gases, phase equilibria and macromolecules using modern instrumentation. **Prerequisite:** CHEM 321, or CHEM 328 or concurrent enrollment.

CHEM 327 Physical Chemistry I

Credits 3. 3 Lecture Hours. Introduction to quantum mechanics, exactly solvable model problems; many electron systems and approximate methods; chemical bonding and the electronic structure of molecules; rotational, vibrational, and electronic spectroscopy; molecular symmetry. **Prerequisite:** MATH 152 or MATH 172; MATH 221, MATH 251 or MATH 253 encouraged; PHYS 207 or equivalent.

CHEM 328 Physical Chemistry II

Credits 3. 3 Lecture Hours. A rigorous treatment of first, second, and third laws of thermodynamics; applications to gases (both ideal and real), liquids, solutions and phase equilibria; statistical thermodynamics; kinetic theory of gases; introduction to chemical kinetics. **Prerequisite:** CHEM 327. Replaces CHEM 323 in previous catalogs.

CHEM 362 Descriptive Inorganic Chemistry

Credits 3. 3 Lecture Hours. Introduction to inorganic chemistry with a focus in descriptive inorganic chemistry, bonding theories in inorganic molecules and in the solid state, redox chemistry, descriptive main group and transition metal chemistry; ligand field theory, molecular magnetism and electronic spectra in transition metal complexes. **Prerequisites:** CHEM 102 or CHEM 120.

CHEM 383 Chemistry of Environmental Pollution

Credits 3. 3 Lecture Hours. Chemical pollutants in the air, in water and on land; their generation, chemical reactivity, action on environment and disappearance through chemical mechanisms; chemistry of existing pollution abatement. **Prerequisites:** CHEM 120; junior or senior classification; also taught at Galveston campus.

CHEM 415 Analytical Chemistry

Credits 3. 3 Lecture Hours. Theory and practical aspects of modern instrumental methods of quantitative analysis; instrumental approaches to selectivity and sensitivity; examples of major, minor and trace component analysis. **Prerequisite:** CHEM 315.

CHEM 433 Advanced Inorganic Chemistry Laboratory

Credits 2. 6 Lab Hours. Preparation, characterization and properties of bioinorganic, organometallic and macromolecular inorganic compounds; special techniques (glove box manipulations and double-manifold Schlenk lines) for handling air-sensitive materials. **Prerequisite:** CHEM 362 or registration therein.

CHEM 434 Analytical Instrumentation Laboratory

Credits 2. 6 Lab Hours. Practical application of modern instrumental methods of quantitative analysis; atomic and molecular techniques to conduct chemical characterizations and analyses. **Prerequisites:** CHEM 318; CHEM 415 or concurrent enrollment.

CHEM 446 Organic Chemistry III

Credits 3. 3 Lecture Hours. Principles and applications of organic chemistry for students majoring in chemistry, chemical engineering, materials science, biological, and physical science: emphasis on chemical reactivity, mechanistic chemistry, and synthesis. **Prerequisites:** CHEM 228 or CHEM 258; or approval of instructor.

CHEM 456 Chemical Biology

Credits 3. 3 Lecture Hours. Application of chemical principles to biological phenomena; capstone course for advanced students, integrating organic or inorganic chemistry with biology. **Prerequisites:** CHEM 228 or CHEM 258 or equivalent; junior or senior classification.

CHEM 458 The Chemistry of Drug Discovery

Credits 3. 3 Lecture Hours. Application of organic chemistry concepts to drug design; emphasis on small molecule interaction with living systems; exploration of importance of molecular interactions in chemical biology of living systems. **Prerequisites:** CHEM 228 or CHEM 258; BICH 411, BICH 441, or BICH 409.

CHEM 462 Inorganic Chemistry

Credits 3. 3 Lecture Hours. Periodic relationship of elements, their compounds, principles of their bonding and applications. **Prerequisites:** CHEM 328 and CHEM 362.

CHEM 464 Nuclear Chemistry

Credits 3. 3 Lecture Hours. Properties of the nucleus; radioactivity; decay kinetics; nuclear masses; theory of radioactive decay; nuclear reactions; radiochemistry; nuclear energy; hands-on demonstrations; applications to non-nuclear problems. **Prerequisites:** CHEM 322 or CHEM 327; CHEM 315 or CHEM 316 recommended; also taught at Galveston campus.

CHEM 466 Polymer Chemistry

Credits 3. 3 Lecture Hours. Mechanisms of polymerization reactions of monomers and molecular weight distributions of products; principles, limitations and advantages of most important methods of molecular weight determination; relationship of physical properties to structure and composition; correlations of applications with chemical constitution. **Prerequisites:** CHEM 228 or CHEM 258; also taught at Galveston and Qatar campuses.

CHEM 468 Materials Chemistry of Inorganic Materials

Credits 3. 3 Lecture Hours. Structure, bonding and reactivity of inorganic solids developed from a perspective emphasizing models of chemical bonding, symmetry and electronic structure; methods for characterizing extended periodic solids; descriptions of band structure and contrasts to molecular orbital theory; synthetic routes, quantum confinement and finite size effects of relevance to nanoscale materials. **Prerequisites:** Grade of C or better in CHEM 102 or CHEM 120; PHYS 207 or equivalent; junior or senior classification.

CHEM 470 Industrial Chemistry

Credits 3. 3 Lecture Hours. Applications of organic and inorganic chemical reactions in the manufacture of commercial products; chemistry of petroleum refining and petrochemical processing; industrial polymerization processes; commodity and fine chemical production; influence of kinetics and thermodynamics on economics of industrial chemical production; pollution abatement technology. **Prerequisites:** CHEM 228 or CHEM 258; junior or senior classification.

CHEM 481 Seminar

Credits 2. 2 Lecture Hours. Preparation of oral and written reports on selected topics from recent technical publications.

CHEM 483 Green Chemistry

Credits 3. 3 Lecture Hours. Environmentally benign chemistry; the design of chemical products and processes that reduce or eliminate the use and generation of hazardous substances; twelve principles of Green Chemistry; atom economy; use of renewable resources; catalysis for Green Chemistry; alternative solvents and reaction media; energy and the environment. **Prerequisites:** CHEM 228 or CHEM 258; junior or senior classification; also taught at Galveston campus.

CHEM 484 Internship

Credits 0 to 3. 0 to 3 Other Hours. Directed internship in a private firm or public agency to provide experience appropriate to the student's degree program and career objectives. May be repeated one time for credit. Must be taken on a satisfactory/unsatisfactory basis. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisite:** Chemistry majors; approval of internship agency and advising office.

CHEM 485 Directed Studies

Credits 1 to 16. 1 to 16 Other Hours. Introduction to research, library and laboratory work. **Prerequisites:** Senior classification and approval of chemistry advisor; also taught at Galveston campus.

CHEM 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of chemistry; also taught at Galveston campus. May be repeated for credit.

CHEM 491 Research

Credits 0 to 10. 0 to 10 Other Hours. Active research of basic nature under the supervision of Department of Chemistry faculty member. Registration in multiple sections of this course is possible within a given semester provided that the per semester credit hour limit is not exceeded. **Prerequisites:** Chemistry major; junior classification or approval of chemistry advisor.

CHEN - Chemical Engineering (CHEN)

CHEN 201 Elementary Chemical Engineering Lab

Credit 1. 3 Lab Hours. Introduction to engineering accounting, basic statistics, dynamic systems, Excel spreadsheets, problem solving, and engineering graphics. **Prerequisites:** Grade of C or better in ENGR 102 and MATH 151 or approval of department.

CHEN 204 Elementary Chemical Engineering

Credits 3. 3 Lecture Hours. Solution of elementary problems by application of mass balances, energy balances and equilibrium relationships. **Prerequisite:** Grade of C or better in CHEM 120, ENGR 102, and MATH 152; grade of C or better in CHEN 201 or concurrent enrollment; grade of C or better in PHYS 206, and PHYS 216/ENGR 216 or ENGR 216/PHYS 216; admission to chemical engineering major or approval of department.

CHEN 205 Chemical Engineering Thermodynamics I

Credits 3. 3 Lecture Hours. First and second laws of thermodynamics; volumetric properties of pure fluids; heat effects; applications to flow processes, power cycles, refrigeration. **Prerequisites:** Grade of C or better in CHEN 201 and CHEN 204.

CHEN 285 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Directed study of special projects or studies in chemical engineering processes or operations, for lower division students. Credit not applicable to degree requirements in chemical engineering. **Prerequisites:** Freshman or sophomore classification; approval of department head.

CHEN 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of chemical engineering for lower division students. May be repeated for credit. Credit not applicable to degree requirements in chemical engineering. **Prerequisite:** Approval of instructor.

CHEN 291 Research

Credits 0 to 3. 0 Lecture Hours. 0 Lab Hours. 0 to 3 Other Hours. Research conducted under the direction of faculty member in chemical engineering. May be repeated two times for credit. **Prerequisites:** Approval of instructor.

CHEN 304 Chemical Engineering Fluid Operations

Credits 3. 3 Lecture Hours. Fundamentals of fluid mechanics with applications to design and analysis of process equipment. **Prerequisites:** CHEN 204 with a grade of C or better; CHEN 205 or concurrent enrollment; MATH 308 with a grade of C or better.

CHEN 320 Numerical Analysis for Chemical Engineers

Credits 3. 3 Lecture Hours. Applications of numerical analysis techniques to mathematical models of processes common to chemical and associated industries; computational methods and software for analysis of chemical engineering processes. **Prerequisites:** CHEN 205 with a grade of C or better; MATH 308 with a grade of C or better; or approval of department.

CHEN 322 Chemical Engineering Materials

Credits 3. 3 Lecture Hours. Overview of materials science with particular emphasis on classes of materials relevant to chemical engineers. **Prerequisite:** Grade of C or better in CHEN 204, MATH 251 or concurrent enrollment, and CHEN 205 or concurrent enrollment; or approval of department.

CHEN 323 Chemical Engineering Heat Transfer Operations

Credits 3. 3 Lecture Hours. Heat transfer operations. **Prerequisite:** Grade of C or better in CHEN 205 and CHEN 304.

CHEN 324 Chemical Engineering Mass Transfer Operations

Credits 3. 3 Lecture Hours. Mass transfer operations with applications to design and analysis of process equipment. **Prerequisites:** Grade of C or better in CHEN 354; grade of C or better in CHEN 323 or concurrent enrollment; or approval of department.

CHEN 354 Chemical Engineering Thermodynamics II

Credits 3. 3 Lecture Hours. Applications of thermodynamics to pure and mixed fluids; phase equilibria and chemical reaction equilibria. **Prerequisites:** CHEN 205 and MATH 308 with a grade of C or better; or approval of department.

CHEN 364 Kinetics and Reactor Design

Credits 3. 3 Lecture Hours. Kinetics of reactions and application of fundamental principles to design and operation of commercial reactors. **Prerequisites:** Grade of C or better in CHEN 320; grade of C or better in CHEN 323 and CHEN 324, or concurrent enrollment, or approval of department.

CHEN 374 Chemical Engineering Process Industries

Credits 2. 2 Lecture Hours. Overview of the major chemical process and related industries including key sectors, history, operating principles, supply chains; focus on technical, market, sustainability, and safety aspects. **Prerequisites:** Grade of C or better in CHEN 304 and CHEN 354.

CHEN 399 Mid-Curriculum Professional Development

Credits 0. 0 Other Hours. Participation in an approved high-impact learning practice; reflection on professional outcomes from engineering body of knowledge; documentation and self-assessment of learning experience at mid-curriculum point. **Prerequisites:** CHEN 204 and ENGL 210; junior or senior classification or approval of instructor.

CHEN 410 Humanitarian Engineering

Credits 3. 3 Lecture Hours. Basic concepts of humanitarian engineering; application of engineering and technology for the benefit of humanity and especially disadvantaged communities; understanding the role of engineers in achieving sustainable development goals; identification, formulation and solution of related engineering and design problems considering historical, cultural, ethical and practical perspectives. **Prerequisite:** Junior or senior classification in the College of Engineering; approval of instructor.

CHEN 422/BAEN 422 Unit Operations in Food Processing

Credits 3. 2 Lecture Hours. 2 Lab Hours. Design of food process engineering systems; basic concepts of rheology and physical properties of foods; fundamentals of heat and mass transfer and process control. **Prerequisites:** Grade of C or better in CHEN 205 and CHEN 304, or MEEN 221. **Cross Listing:** BAEN 422/CHEN 422.

CHEN 425 Process Integration, Simulation and Economics

Credits 3. 2 Lecture Hours. 3 Lab Hours. Integration, simulation, and economic methods involved in the design of chemical processes and equipment. **Prerequisites:** Grade of C or better in CHEN 320, CHEN 323, CHEN 354, and CHEN 324 or concurrent enrollment.

CHEN 426 Chemical Engineering Plant Design

Credits 3. 1 Lecture Hour. 6 Lab Hours. Integration of material from other chemical engineering courses with applications to the design of plants and processes representative of the chemical and related process industries. **Prerequisites:** Grade of C or better in CHEN 322, CHEN 364, CHEN 374 and CHEN 425.

CHEN 430/SENG 430 Risk Engineering

Credits 3. 3 Lecture Hours. Concepts of risk and risk assessment, including use of all available information to provide a foundation for risk-informed and cost-effective engineering practices; examples and exercises from a variety of engineering areas. **Prerequisite:** Junior or senior classification. **Cross Listing:** SENG 430/CHEN 430.

CHEN 432 Chemical Engineering Laboratory I

Credits 2. 1 Lecture Hour. 3 Lab Hours. Laboratory work based on CHEN 304 and CHEN 323. **Prerequisites:** Grade of C or better in CHEN 323 and ENGL 210.

CHEN 433 Chemical Engineering Laboratory II

Credits 2. 1 Lecture Hour. 3 Lab Hours. Laboratory work based on CHEN 324, CHEN 364, CHEN 432, and CHEN 461. **Prerequisites:** Grade of C or better in CHEN 324, CHEN 364, CHEN 432, and CHEN 461.

CHEN 449 Nanomaterials for Energy Conversion

Credits 3. 3 Lecture Hours. Instruction in ultra-small materials useful for fabricating next-generation energy conversion devices (e.g., thermoelectrics, and photovoltaics) synthesized in various forms including nanoparticles and quantum dots, nanowires and nanotubes, and thin films; exploration of the fabrication and assembly of these materials; involves the use of both traditional materials syntheses approaches (e.g., chemical vapor deposition) and newer syntheses approaches (e.g., template-assisted syntheses of nanomaterials); materials syntheses, characterization and assembly of these nanomaterials; exploration of the basics of crystal structures, necessary for understanding structure-property relationships in materials. **Prerequisites:** Junior or senior classification.

CHEN 450 Microfabrication and Microfluidics Technology

Credits 3. 3 Lecture Hours. Micro Electro Mechanical Systems (MEMS) technology; study the fundamentals of fluidics, heat and mass transfer, surface chemistry, and electrochemical interactions. **Prerequisite:** Junior or senior classification.

CHEN 451 Introduction to Polymer Engineering

Credits 3. 3 Lecture Hours. Fundamentals of polymer reaction kinetics, morphology, chemical and rheological properties with applications to polymer synthesis, production and processing operations. **Prerequisite:** Senior classification in chemical engineering or approval of instructor.

CHEN 455/SENG 455 Process Safety Engineering

Credits 3. 3 Lecture Hours. Applications of engineering principles to process safety and hazards analysis, mitigation, and prevention, with special emphasis on the chemical process industries; includes source modeling for leakage rates, dispersion, analysis, relief valve sizing, fire and explosion damage analysis, hazards identification, risk analysis, accident investigations. **Prerequisites:** Grade of C or better in CHEN 322; senior classification; engineering majors. **Cross Listing:** SENG 455/CHEN 455.

CHEN 456 Advanced Chemical Process Optimization I

Credits 3. 3 Lecture Hours. State-of-the-art optimization based techniques for process synthesis, process design and process operability; emphasis on mathematical modeling via mixed integer and continuous optimization formulations and application to heat integration problems; use modeling/optimization software systems. **Prerequisites:** Senior classification or approval of instructor.

CHEN 457 Environmental Engineering

Credits 3. 3 Lecture Hours. Overview of environmental engineering for chemical engineers; analyzing and solving environmental problems associated with engineered systems; emphasis on water/wastewater quality and treatment, air pollution control, and soil and hazardous waste management; includes guest lectures and field trips. **Prerequisites:** CHEN 304 and CHEN 354 or approval of instructor; junior or senior classification; Qatar campus.

CHEN 459 Gas and Petroleum Processing

Credits 3. 3 Lecture Hours. Design and operation of petroleum and gas processing facilities including hydrate suppression, dehydration, sweetening, sulfur recovery, LPG and liquid recovery, refining operations; analysis of the design and operations involving a large degree of process simulation. **Prerequisites:** Grade of C or better in CHEN 323.

CHEN 460/SENG 460 Quantitative Risk Analysis in Safety Engineering

Credits 3. 3 Lecture Hours. Fundamental concepts, techniques, and applications of risk analysis and risk-informed decision making for engineering students; practical uses of probabilistic methods are demonstrated in exercises and case studies from diverse engineering areas. **Prerequisite:** Senior or graduate classification. **Cross Listing:** SENG 460/CHEN 460.

CHEN 461 Process Dynamics and Control

Credits 3. 3 Lecture Hours. Analysis of process dynamics and methods for the design of automatic control systems for chemical process plants. **Prerequisite:** Grade of C or better in CHEN 320 and CHEN 364 or concurrent enrollment.

CHEN 463 Systems Biology

Credits 3. 3 Lecture Hours. Experimental and computational techniques in systems biology; includes high throughput experiments, data analysis, modeling and simulation; discussed in the context to specific applications such as signal transduction. **Prerequisite:** CHEN 482 or approval of instructor.

CHEN 465 Sustainable Design of Chemical Processes

Credits 3. 3 Lecture Hours. Sustainability in chemical engineering; including sustainable approaches to design and development of processes, products, energy usage, renewable energy system and emission reduction; systems thinking, process performance and mathematical tools. **Prerequisites:** Grade of C or better in CHEN 425.

CHEN 468 Zymology

Credits 3. 3 Lecture Hours. Zymology and the application of fundamental principles of chemical engineering in the production of fermented foods, specifically the beer brewing process; exploration of the basics of food fermentation and fermented beverage preparation technology as well as providing fundamental knowledge in beer production methods and processes. **Prerequisites:** Must be 21 years of age; junior or senior classification; chemical engineering major.

CHEN 469 Chemical Engineering Car Design

Credit 1. 1 Lecture Hour. Application of chemical, physical and engineering principles in design process, idea generation and development of design concepts, economic, safety and performance analysis. May be taken four times for credit. **Prerequisites:** CHEN 204, CHEN 205; junior or senior classification or approval of instructor.

CHEN 471/BAEN 471 Bioreactor Engineering

Credits 3. 3 Lecture Hours. Fundamentals of microbial and enzyme kinetics; basic biochemical reaction theory and reactor systems; heterogeneous reactions and transport considerations in enzyme and cell reactors, and immobilized systems; bioreactor design considerations in bioprocessing. **Prerequisite:** Grade of C or better in CHEN 282, CHEN 482, or BAEN 302; junior or senior classification or approval of instructor. **Cross Listing:** BAEN 471/CHEN 471.

CHEN 473 Electrochemical Science and Engineering

Credits 3. 3 Lecture Hours. Examination of basic principles of electrochemistry, electroanalytical characterization, and electrochemical devices; exploration of electrochemical processes in the context of kinetics, thermodynamics, and transport. **Prerequisites:** CHEN 205; junior or senior classification.

CHEN 475 Microelectronics Process Engineering

Credits 3. 3 Lecture Hours. State-of-the-art process engineering principles on microelectronics, especially for the fabrication of very large scale integrated circuits (VLSICs); fundamental unit processes, such as thin film deposition, thermal growth, lithography, etching and doping, material structures and properties, and basic device operation principles. **Prerequisites:** CHEN 354 and CHEN 364 or approval of instructor; CHEM 322.

CHEN 476 Applied Catalysis

Credits 3. 3 Lecture Hours. Principles of catalysis and applications to industrial reactions; catalyst preparation, methods for catalyst characterization, deactivation mechanisms and regeneration techniques, catalyst testing (laboratory and industrial reactors), fundamentals of kinetics of heterogeneous reactions; applications to selected industrial processes. **Prerequisites:** Grade of C or better in CHEN 354; Grade of C or better in CHEN 364 or concurrent enrollment; junior or senior classification; Qatar campus.

CHEN 478 Advanced Process Economics and Finance for Chemical Engineers

Credits 3. 3 Lecture Hours. Application of economic principles and valuation techniques from projects to entire companies; background in debt, equity, cost of capital, and determination of a company-specific discount rate; development of financial models which include risk and uncertainty; foundation for consideration in a career in management with significant financial responsibility. **Prerequisites:** Grade of C or better in CHEN 425 or approval of instructor and Department Head.

CHEN 479 Process Synthesis, Integration and Intensification

Credits 3. 3 Lecture Hours. Systematic methods for the synthesis, integration and intensification of chemical processes; special focus given to systematic process intensification for energy and the environment with applications to carbon capture and storage, energy systems, gas separation, and utility networks. **Prerequisites:** Grade of C or better in CHEN 425 or approval of instructor.

CHEN 481 Seminar

Credit 1. 2 Lab Hours. Preparation of oral and written reports on selected topics from recent technical publications, done in the context of consideration of the ethical ramifications of engineering decisions. **Prerequisites:** Grade of C or better in CHEN 205 and ENGL 210; grade of C or better in CHEN 304 or current enrollment; junior classification in chemical engineering.

CHEN 482 Bioprocess Engineering

Credits 3. 3 Lecture Hours. Application of engineering principles to design of biocatalysts and bioprocesses. **Prerequisite:** Grade of C or better in CHEN 205, CHEN 324, and CHEN 364.

CHEN 484 Internship

Credits 0-1. 0 Lecture Hours. 0-1 Other Hours. Professional internship in a private company, government agency or laboratory, university, or organization to provide work and research experience related to chemical engineering. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisite:** CHEN 204 and ENGL 210; junior or senior classification or approval of instructor.

CHEN 485 Directed Studies

Credits 1 to 5. 1 to 5 Other Hours. Work covers one or more problems in chemical engineering processes or operations. **Prerequisite:** Approval of department head.

CHEN 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of chemical engineering. May be repeated for credit. **Prerequisite:** Senior classification in chemical engineering or approval of instructor.

CHEN 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in chemical engineering. May be repeated 2 times for credit. **Prerequisites:** Junior or Senior classification and approval of instructor.

CHIN - Chinese (CHIN)

CHIN 101 Beginning Chinese I

Credits 4. 3 Lecture Hours. 2 Lab Hours. (CHIN 1411) Beginning Chinese I. Introduction to Chinese language, culture and history; development of communicative skills in daily conversation; ability to read and write some commonly used Chinese characters.

CHIN 102 Beginning Chinese II

Credits 4. 3 Lecture Hours. 2 Lab Hours. (CHIN 1412) Beginning Chinese II. Further development of communicative skills in different aspects of daily Chinese conversation; ability to read and write about 150 commonly used characters. **Prerequisite:** CHIN 101 with a grade of C or better.

CHIN 201 Intermediate Chinese I

Credits 3. 3 Lecture Hours. (CHIN 2311) Intermediate Chinese I. Development of comprehension and production of spoken Chinese, with emphasis on connected discourse; acquisition of advanced language points; ability to read and write 250 or more characters. **Prerequisite:** CHIN 102 with a grade of C or better.

CHIN 202 Intermediate Chinese II

Credits 3. 3 Lecture Hours. (CHIN 2312) Intermediate Chinese II. Continued development of effective communication skills in different daily situations; ability to read and write simple, short paragraphs in Chinese. **Prerequisite:** CHIN 201 with a grade of C or better.

CHIN 250 Popular Culture in Modern China

Credits 3. 3 Lecture Hours. Introduction to and exploration of modern life in China through the lens of popular culture, from food and music to street fashion, media, and social trends; investigation of the diverse and rapidly changing cultural landscape of China through engaging classroom discussions, interactive assignments, and unique hands-on experiences; course taught in English.

CHIN 285 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Individual supervision of readings or assigned projects in Chinese, selected for each student individually; written or oral reports. **Prerequisite:** Approval of instructor and Director of AALO.

CHIN 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of Chinese studies. May be repeated for credit. **Prerequisite:** Approval of instructor.

CHIN 301 Reading and Composition

Credits 3. 3 Lecture Hours. Development of advanced proficiency in reading and writing through contact with various written and spoken styles of modern Chinese as reflected in newspaper reports, radio and TV broadcasts. **Prerequisites:** CHIN 202; junior or senior classification or approval of instructor.

CHIN 302 Reading and Composition II

Credits 3. 3 Lecture Hours. Advanced proficiency in reading comprehension through contact with various written materials; development of cultural proficiency; development of writing skills with emphasis on new characters, new vocabulary and new sentence structures. **Prerequisites:** CHIN 301; junior or senior classification or approval of instructor.

CHIN 316 Business Chinese

Credits 3. 3 Lecture Hours. Development of proficiencies in business communication skills in Chinese for global contexts; exploration of business-related vocabulary, real-world case studies, business document writing, and the cultural nuances of business practices in China and beyond; preparation for effective communication in business settings through an examination of multinational companies' operations in China. **Prerequisite:** CHIN 202 or approval of instructor.

CHIN 405 Modern Chinese Fiction

Credits 3. 3 Lecture Hours. Analysis of major Chinese literary and other prose works of the twentieth and twenty-first centuries; taught in English. May be taken two times for credit. **Prerequisite:** Junior or senior classification or approval of instructor.

CHIN 465/FILM 465 Chinese Film

Credits 3. 3 Lecture Hours. Consideration and analysis of major works and directors of Chinese film; interpretation of culture through film; relationship of film to history, literature and other arts; taught in English. May be taken two times for credit. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** FILM 465/CHIN 465.

CHIN 485 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Individual supervision of readings or assigned projects selected for each student individually; written or oral reports. **Prerequisite:** Approval of instructor and Director of AALO.

CHIN 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of Chinese studies. May be repeated for credit. **Prerequisite:** Approval of instructor.

CHIN 491 Research

Credits 1 to 4. 1 to 4 Other Hours. Research in Chinese studies conducted under the direction of faculty member approved by the Director of AALO. May be taken 2 times for credit. **Prerequisites:** Junior or senior classification and approval of instructor.

CLAS - Classics (CLAS)

CLAS 101 Beginning Classical Greek I

Credits 4. 4 Lecture Hours. Introduction to the language and culture of Greece; basic grammar and vocabulary; readings and slide lectures designed to place language study in its cultural and artistic context.

CLAS 102 Beginning Classical Greek II

Credits 4. 4 Lecture Hours. Continuation of CLAS 101; basic grammar and vocabulary; readings and slide lectures designed to place language study in its cultural and artistic context. **Prerequisite:** CLAS 101.

CLAS 121 Beginning Latin I

Credits 4. 4 Lecture Hours. (LATI 1411) Beginning Latin I. Introduction to grammar and vocabulary with a contrastive approach; reading of graded material.

CLAS 122 Beginning Latin II

Credits 4. 4 Lecture Hours. (LATI 1412) Beginning Latin II. Completion of elementary grammatical structures; introduction to Latin historians.
Prerequisite: CLAS 121.

CLAS 211 Intermediate Greek

Credits 3. 3 Lecture Hours. Completion of study of grammar and syntax; introduction to reading ancient Greek authors in the original language.
Prerequisite: CLAS 102.

CLAS 220 History of Christianity: Origins to the Reformation

Credits 3. 3 Lecture Hours. History of Christian doctrine, ecclesiastical organization, and religious practice, origins through Reformation, with emphasis on religion and society; life and teachings of Jesus; apostolic church; patristic period; Christianization of Roman Empire and northern Europe; monasticism; medieval church; Gregorian reform; heresy; papal monarchy; schism and conciliarism; reformations of the sixteenth century. **Cross Listing:** HIST 220 and RELS 220.

CLAS 221 Intermediate Latin I

Credits 3. 3 Lecture Hours. (LATI 2311) Intermediate Latin I. Practice in reading Latin prose writings, especially historical writings and letters.
Prerequisite: CLAS 122.

CLAS 222 Intermediate Latin II

Credits 3. 3 Lecture Hours. (LATI 2312) Intermediate Latin II. Practice in reading Latin poetry writings, especially Virgil, Horace and Ovid.
Prerequisite: CLAS 221.

CLAS 236/HIST 236 War and Violence in the Ancient World

Credits 3. 3 Lecture Hours. Equipment, organization, tactics and strategy on land and sea in the wars of the Ancient World, including the Near East, Greece and Rome; use of force and violence in the furtherance of political objectives and social control; winners, losers and survivors. **Cross Listing:** HIST 236/CLAS 236.

CLAS 250 Greek and Roman Civilization

Credits 3. 3 Lecture Hours. Introduction to the civilizations of classical antiquity from Bronze Age Greece to the dissolution of the Roman Empire; examination of major social, intellectual, and political developments in ancient Greece and Rome.

CLAS 251/RELS 251 Classical Mythology

Credits 3. 3 Lecture Hours. Introduction to the most important myths of the Greeks and Romans; ancient and modern methods of interpreting myths; the role of myths in ancient literature; readings in English. **Cross Listing:** RELS 251/CLAS 251.

CLAS 261 Great Books of the Classical Tradition

Credits 3. 3 Lecture Hours. Survey of important and enduring works of literature, history and philosophy from Classical Antiquity (8th century BC to 2nd century AD), with emphasis on questions of morality and mentality.

CLAS 262 Great Books of Christian Antiquity and the Latin Middle Ages

Credits 3. 3 Lecture Hours. Survey of important and enduring works of literature, history, and philosophy from Christian Late Antiquity and the Latin Middle Ages (4th to 13th centuries AD) with emphasis on questions of morality, religion, and mentality.

CLAS 285 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Individual supervision of readings or assigned projects in Classical Languages, selected for each student individually. **Prerequisite:** Approval of instructor and department head.

CLAS 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of Classical Languages. May be repeated for credit. **Prerequisite:** Approval of instructor.

CLAS 291 Research

Credits 0 to 3. 0 to 3 Other Hours. Research conducted under the direction of faculty member in classical studies. May be taken three times for credit. **Prerequisites:** Freshman or sophomore classification and approval of department head.

CLAS 311 Advanced Greek: New Testament

Credits 3. 3 Lecture Hours. Readings of the New Testament and works contemporary with it in the original language; introduction to the linguistic, historical, literary and cultural background of the New Testament. May be repeated for credit with different readings.
Prerequisite: CLAS 211.

CLAS 312 Advanced Classical Greek Poetry

Credits 3. 3 Lecture Hours. Readings of selections from ancient Greek authors of poetry (lyric, epic, or drama) in the original language; discussion of the intellectual, historical, and literary background of the works, and of the lives and thought of the writers. May be repeated for credit with different readings. **Prerequisite:** CLAS 211.

CLAS 313 Advanced Classical Greek Prose

Credits 3. 3 Lecture Hours. Readings of selections from ancient Greek authors of prose (history, oratory, letters, philosophy) in the original language; discussion of the intellectual, historical, and literary background of the works, and of the lives and thought of the writers. May be repeated for credit with different readings. **Prerequisite:** CLAS 211.

CLAS 320 Survey of Latin Literature

Credits 3. 3 Lecture Hours. Latin literature from the republican through the imperial period; systematic overview of the development of literary genres and themes, to provide context for the intensive study of individual authors in other courses. **Prerequisite:** CLAS 222 or equivalent.

CLAS 321 Advanced Latin Prose

Credits 3. 3 Lecture Hours. Readings of selections from ancient Roman authors of prose (history, oratory, letters, philosophy) in the original language; discussion of the intellectual, historical and literary background of the works, and of the lives and thought of the writers. May be repeated for credit with different readings. **Prerequisite:** CLAS 222 or equivalent.

CLAS 322 Advanced Latin Poetry

Credits 3. 3 Lecture Hours. Readings of selections from ancient Roman authors of poetry (lyric, satire, epic, or drama) in the original language; discussion of the intellectual, historical, and literary background of the works, and the lives and thought of the writers. May be repeated for credit with different readings. **Prerequisite:** CLAS 222 or equivalent.

CLAS 330 Women in Ancient Greece and Rome

Credits 3. 3 Lecture Hours. Survey of women in classical Greece and Rome; emphases on female occupations and family relationships, legal and political status, traditional values, notorious women, how women were viewed and how they viewed themselves. **Prerequisite:** Junior or senior classification. **Cross Listing:** HIST 330 and WGST 330.

CLAS 352 Greek and Roman Drama

Credits 3. 3 Lecture Hours. Dramatic literature of Ancient Greece and Rome; works of the major classical playwrights; the origins of comedy and tragedy; visual and musical aspects of production; political and intellectual ideas as reflected in the plays; readings in English.

CLAS 353/ANTH 353 Archaeology of Ancient Greece

Credits 3. 3 Lecture Hours. Archaeology of ancient Greece from the Stone Age until the ascent of Rome in the Hellenistic Period; remains of ancient Greek art (sculpture, mosaic, painting), architecture (temples, homes, civic structures), religion (figurines, votive offerings), and social history (coins, inscriptions). **Prerequisite:** Junior or senior classification. **Cross Listing:** ANTH 353/CLAS 353.

CLAS 354/ANTH 354 Archaeology of Ancient Italy

Credits 3. 3 Lecture Hours. Archaeology of ancient Italy from the Stone Age until the collapse of the Roman Empire in the fourth century; remains of ancient Etruscan and Roman art (sculpture, mosaic, painting), architecture (temples, homes, civic structures), religion (figurines, votive offerings), and social history (coins, inscriptions). **Prerequisite:** Junior or senior classification. **Cross Listing:** ANTH 354/CLAS 354.

CLAS 371 In Search of Homer and the Trojan War

Credits 3. 3 Lecture Hours. The nature, background, authorship and historicity of the Iliad and the Odyssey; Aegean culture in the Stone, Bronze and early Iron ages; the value of Greek epics as historical documents; oral poetry; the Trojan War in Greek literature; readings in English; also taught at Galveston campus.

CLAS 372 Greek and Roman Epic

Credits 3. 3 Lecture Hours. Study of the ancient epic in its historical and cultural context; oral poetry; Homer, archaeology, and history; creation of Greek mythology; Alexandrian written epic; early Latin epic; Virgil's Aeneid as national epic; Virgil and the Homeric tradition; Silver Age Latin epics; readings in English. **Prerequisite:** Sophomore classification or approval of instructor.

CLAS 410 Seminar in Classical Studies

Credits 3. 3 Lecture Hours. Exploration of a significant topic, work, or period in Greek or Roman literature, culture, or history; emphasis on development of research skills in Classical Studies. May be taken three times for credit. **Prerequisite:** Junior or senior classification, or approval of instructor.

CLAS 415/FILM 415 The Ancient World in Film

Credits 3. 3 Lecture Hours. Study of modern films as they relate to ancient literary texts that inspired them or with which they share common themes; relationship between Greek epic, tragedy, and comedy and their cinematic adaptations; treatment of Rome as an idea or ideal in the work of both ancient Romans and modern filmmakers. **Prerequisite:** Junior or senior classification, or approval of instructor. **Cross Listing:** FILM 415/CLAS 415.

CLAS 417/ANTH 417 Naval Warfare and Warships in Ancient Greece and Rome

Credits 3. 3 Lecture Hours. Extensive survey of Greek and Roman warships, naval warfare, naval strategy and tactics drawing upon archaeological evidence, literary documentation and iconographic material, from the Bronze Age (Ancient Egypt and the mythical Trojan War) to the Imperial Roman Navy. **Prerequisite:** Junior or senior classification. **Cross Listing:** ANTH 417/CLAS 417.

CLAS 418 Intellectual History from the Ancient Near East to the Early Middle Ages

Credits 3. 3 Lecture Hours. Political, social, cultural and religious histories of significant figures, groups, schools of thought and movements in western Afro-Eurasia from the Assyrian Empire to the later Roman Empire; developments in political theory, literature, sociology, arts, architecture, music, philosophy, law, sciences and education. **Prerequisite:** Junior or senior classification. **Cross Listing:** HIST 418 and RELS 418.

CLAS 426/HIST 426 The Ancient Greeks

Credits 3. 3 Lecture Hours. Greek History and civilization from the Archaic Age to Alexander the Great (8th-late 4th century B.C.). **Prerequisite:** Junior or senior classification, or approval of instructor. **Cross Listing:** HIST 426/CLAS 426.

CLAS 427/HIST 427 The Roman Republic

Credits 3. 3 Lecture Hours. Major events and issues in Roman history from the beginnings of the Republic to its incipient disintegration. **Prerequisite:** Junior or senior classification, or approval of instructor. **Cross Listing:** HIST 427/CLAS 427.

CLAS 428/HIST 428 The Roman Empire: Principate

Credits 3. 3 Lecture Hours. Major events and issues in Roman history from the late Republic to the consolidation of the state of Late Antiquity.

Prerequisite: Junior or senior classification, or approval of instructor.

Cross Listing: HIST 428/CLAS 428.

CLAS 429/HIST 429 The Roman Empire: Transformations

Credits 3. 3 Lecture Hours. Major events and issues in Roman history from the rise of Christianity as an imperial religion to the end of Late Antiquity.

Prerequisite: Junior or senior classification, or approval of instructor.

CLAS 444/ANTH 444 Classical Archaeology

Credits 3. 3 Lecture Hours. History of the discipline through the individuals, organizations, excavations, theoretical models and ethical issues that have shaped it.

Prerequisites: Junior or senior classification.

Cross Listing: ANTH 444/CLAS 444.

CLAS 485 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Individual supervision of readings or assigned projects, selected for each student individually.

Prerequisite: Approval of instructor and department head.

CLAS 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an intensified area of classical languages and culture. May be repeated for credit.

Prerequisite: Approval of instructor.

CLAS 491 Research

Credits 0 to 3. 0 to 3 Other Hours. Research conducted under the direction of faculty member in classical studies. May be taken three times for credit.

Prerequisites: Junior or senior classification and approval of department head.

CLEN - College of Engineering (CLEN)

CLEN 101 Engineering Approaches to Problems

Credits 3. 3 Lecture Hours. Basic characteristics of the engineering profession and the process by which technology is developed for real application; engineering thinking and problem-solving processes; common engineering concepts; engineering disciplines and project types.

CLEN 181 Engineering Learning Community & Student Success Seminar

Credits 0-1. 0-1 Other Hours. Engineering Learning Community & Student Success Seminar. Welcoming seminar to the college of engineering to assist with transition to college; includes introduction to engineering majors, college and university resources; topics evolve as students advance through the engineering curriculum.

Prerequisite: Must be enrolled in the College of Engineering; also taught at Galveston and Qatar campuses.

CLEN 201 Tools for Engineering Analysis

Credits 3. 2 Lecture Hours. 2 Lab Hours. Introduction to prominent categories of engineering quantitative analysis; pattern finding in data; optimization; prediction of future states; modeling of physical systems; laboratory exercises to use computational tools as means of implementing mathematical concepts.

Prerequisites: CLEN 101; MATH 131, MATH 142, MATH 147, MATH 151, or MATH 171.

CLEN 261 The Engineering Profession

Credit 1. 1 Lecture Hour. Introduction to interdisciplinary aspects of engineering careers; work engineers perform in their field; engineering practice within realistic constraints, e.g., economic, environmental, ethical, health and safety, and sustainability; engineering design process; effective communication in engineering settings. Must be taken on a satisfactory/unsatisfactory basis.

Prerequisite: Enrollment in the college of engineering.

CLEN 289 Special Topics In...

Credits 0 to 4. 0 to 4 Other Hours. Selected topics in an identified area of engineering.

CLEN 301 Humanity and Materials

Credits 3. 3 Lecture Hours. Engineering processes for obtaining, shaping, fabricating and manufacturing materials for human use; changes in materials development and application through human history; important materials in contemporary society and their properties; emerging and future materials.

Prerequisite: CLEN 201.

CLEN 302 Survey of Nuclear Technology

Credits 3. 3 Lecture Hours. Overview of important discoveries in atomic and nuclear physics in 20th and 21st Centuries; basics of atomic and nuclear physics; radiation and its impact; nuclear reactors, fuel cycle, waste disposal and associated policy issues; nuclear safety, safeguards and security; applications of nuclear technology.

Prerequisite: CLEN 201.

CLEN 303 Renewable Energy and the Environment

Credits 3. 3 Lecture Hours. Overview of important renewable energy sources for human societies; role of thermodynamic principles in design of systems for capturing, storing, converting, delivering, and conserving energy; solar, wind, bioenergy, water, and geothermal energy sources; environmental effects of various energy sources; basic economics of energy systems.

Prerequisite: CLEN 201.

CLEN 304 Pushing the Limits of Construction - Taller, Stronger, Leaner

Credits 3. 3 Lecture Hours. Case studies in ambitious construction projects in contemporary society; project magnitude, unique challenges, environmental impact and innovations present in each case study; illustration of elementary structural design principles and life cycle cost analysis.

Prerequisite: CLEN 201.

COMM - Communication (COMM)

COMM 101 Introduction to Communication

Credits 3. 3 Lecture Hours. (SPCH 1311) Introduction to Communication. Survey of communication topics, research, and contexts of communicative practice; overview of communication from both humanities and social science perspectives.

COMM 107 Introduction to the Health Humanities

Credits 3. 3 Lecture Hours. Introduction to the methods and approaches of the health humanities; exposure to key scholarship in this field as well as major methods and approaches; application of such skills to the analysis of cultural case studies such as illness narratives or contemporary debates in scientific bioethics. **Cross Listing:** ENGL 107, HHUM 107, and PHIL 107.

COMM 203 Public Speaking

Credits 3. 3 Lecture Hours. (SPCH 1315) Public Speaking. Training in speeches of social and technical interest designed to teach students to develop and illustrate ideas and information and to inform, stimulate, and persuade their audiences; also taught at Galveston campus.

COMM 204 Public Speaking for Digital Platforms

Credits 3. 3 Lecture Hours. . Training for composition, delivery, recording, and editing of speeches specifically designed for sharing and distribution on online platforms and social media.

COMM 205 Communication for Technical Professions

Credits 3. 3 Lecture Hours. Design and presentation of oral reports for technical professions; incorporation of visual and graphic materials into presentation required; written reports required; also taught at Galveston campus.

COMM 210 Group Communication and Discussion

Credits 3. 3 Lecture Hours. (SPCH 2333) Group Communication and Discussion. Definition, structure, and functions of groups; group productivity, codes in verbal and nonverbal communication; problem-solving, role-playing, decision-making; leadership and organization; interview principles and techniques.

COMM 215/JOUR 215 Interviewing: Principles and Practice

Credits 3. 3 Lecture Hours. Theory and practice of methods in selected interview settings; emphasis on communication between two persons, questioning techniques, and the logical and psychological bases of interpersonal persuasion. **Cross Listing:** JOUR 215/COMM 215.

COMM 230/JOUR 230 Communication Technology Skills

Credits 3. 3 Lecture Hours. Introduction to interactive media and media literacy skills in the digital domain; survey of technology histories, standards, and markets for industries such as multichannel TV, digital radio, video games, streaming media, epublishing, teleconferencing, and social networking. **Prerequisite:** Enrollment in communication or telecommunication media studies majors, USLA-BA-JNS concentration, or JOUR minor. **Cross Listing:** JOUR 230/COMM 230.

COMM 240 Rhetorical Criticism

Credits 3. 3 Lecture Hours. Principles and practice of the analysis of speeches and other forms of public discourse; compares systems of rhetorical criticism, such as neo-classical analysis, mythic analysis, rhetorical genres and close textual analysis.

COMM 243 Argumentation and Debate

Credits 3. 3 Lecture Hours. (SPCH 2335) Argumentation and Debate. Principles of argumentation and skills of debate, including reasoning, evidence, refutation, and briefing.

COMM 245 Difficult Dialogues on Power, Privilege, and Difference

Credits 3. 3 Lecture Hours. Introduction to the practice of difficult dialogues; skills development in the use of the dialogical tools of active listening, perspective-taking, deliberation, collaborative decision-making, teamwork and collective problem-solving in the context of bias, prejudice, discrimination, power, equity and privilege.

COMM 248/JOUR 248 Podcasting and Audio Storytelling

Credits 3. 3 Lecture Hours. Basic audio storytelling techniques required for podcast production within the journalism and public media context; principles of podcast development, scripting, audio recording and editing, and promotion. **Cross Listing:** JOUR 248/COMM 248.

COMM 250/JOUR 250 New Media and the Independent Voice

Credits 3. 3 Lecture Hours. Examination of new media as independent voices for cultural and political movements; principles governing the design, presentation, and evaluation of blogs as a persuasive medium in society. **Cross Listing:** JOUR 250/COMM 250.

COMM 255/JOUR 255 Media Literacy in the Digital Age

Credits 3. 3 Lecture Hours. Criticism and analysis of the function, role, and responsibility of the mass media in contemporary society. **Cross Listing:** JOUR 255/COMM 255.

COMM 257/RELS 257 Communication, Religion and the Arts

Credits 3. 3 Lecture Hours. Introduction to artistic, religious communication; survey of communication art and media art practices across religious contexts; consideration of communication aesthetics that mediate religious experience. **Cross Listing:** RELS 257/COMM 257.

COMM 260 Introduction to Communication and Sports

Credits 3. 3 Lecture Hours. Introduction to the process of communicating sports to the public via television, blogging, online sites and print articles; evaluation of sportscasts; writing about sporting events; examination of the types of communication used within sporting teams.

COMM 265 Voices of Democracy - United States

Credits 3. 3 Lecture Hours. Survey of significant and diverse United States-American oratory pertaining to national identity; critical analysis of important speeches in their historical, political, social, and philosophical contexts.

COMM 275/JOUR 275 Introduction to Social Media

Credits 3. 3 Lecture Hours. Theoretical and practical approaches to social media; overview of social media, social media concepts and theories; social media applications and contexts. **Cross Listing:** JOUR 275/COMM 275.

COMM 280 Careers in Communication

Credit 1. 1 Lecture Hour. Introduction to careers in communication; emphasis on strengths and personality in selecting a profession, application letters, information interviews, mock interviews; must be taken on satisfactory/unsatisfactory basis. **Prerequisites:** Sophomore classification or approval of instructor; COMM and TCMS majors.

COMM 285 Directed Studies

Credits 1 to 3. 1 to 3 Other Hours. Individual supervision of readings or assigned projects in communication. May be taken two times for credit. **Prerequisites:** Approval of instructor and department head.

COMM 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of communication. May be repeated for credit. **Prerequisite:** Approval of instructor.

COMM 291 Research

Credits 0 to 3. 0 to 3 Other Hours. Research conducted under the direction of faculty member in the department of communication. May be repeated 3 times for credit. **Prerequisites:** GPA 2.5 or higher; freshman or sophomore classification and approval of instructor and department head.

COMM 301 Rhetoric in Western Thought

Credits 3. 3 Lecture Hours. Historical and critical evaluation of rhetorical theory from the classical era to the contemporary period—from Aristotle to Kenneth Burke; major theories of communication and persuasion developed in Europe and America. **Prerequisite:** Junior or senior classification.

COMM 302 The Mass Media and Politics

Credits 3. 3 Lecture Hours. Examination of mass media impact on politics and political behavior, and governmental impact on the mass media.

Prerequisite: POLS 206 or approval of department head; junior or senior classification. **Cross Listing:** JOUR 302 and POLS 302.

COMM 303/JOUR 305 Communication Data Applications

Credits 3. 3 Lecture Hours. Overview of communication using big data; data management, extraction and visualization; message construction, message critique; uses and applications in the field of communication and media for evidence-based arguments, persuasion, education and digital storytelling. **Prerequisite:** Junior or senior classification. **Cross Listing:** JOUR 305/COMM 303.

COMM 304/JOUR 306 Digital Communication Analytics and Metrics

Credits 3. 3 Lecture Hours. . Digital communication analytics; extraction of information and knowledge from digital communication data; application of data-analytics to social media marketing, demographic analyses of web users, optimization and connection of results across digital tactics; applications of special interest to fields of strategic communication, public relations, advertising, integrated marketing communication, social media strategy and journalism. **Prerequisite:** Grade of B or better in COMM 275/JOUR 275, COMM 323, or JOUR 200; junior or senior classification. **Cross Listing:** JOUR 306/COMM 304.

COMM 305 Theories of Communication

Credits 3. 3 Lecture Hours. Theoretical approaches to human communication, including selected theories of language behavior, interpersonal, small group and organizational interaction, persuasion, technology and mass communication. **Prerequisite:** Junior or senior classification, or approval of instructor.

COMM 307/JOUR 301 Communication Law and Policy

Credits 3. 3 Lecture Hours. Law and policy that create the context and consequences for communication via mass media, social media, organizational, group and interpersonal communication, free speech, free press, libel, privacy, copyright, cybersecurity, constitutional principles, international law and human rights, fairness, equity and diversity in communication. **Prerequisite:** Junior or senior classification, or approval of instructor; COMM-307 also taught at Galveston campus. **Cross Listing:** JOUR 301/COMM 307.

COMM 308 Research Methods in Communication

Credits 3. 3 Lecture Hours. Survey of methods used in communication research including quantitative, interpretive and rhetorical methods; formulating research questions, determining the appropriate method, planning and designing the research, data collection, and data analysis and interpretation. **Prerequisite:** 6 hours of MATH 140, 142, 151, 152, PHIL 240, or STAT 201.

COMM 309 Research Method Projects

Credits 3. 3 Lecture Hours. Research methods in communication including experimental, survey, interpretive and critical methods; emphasis on research design, data collection, analysis, interpretation and presentation; project based. **Prerequisites:** Grade of C or better in COMM 308; STAT 201 or 303; junior or senior classification.

COMM 310 Communication Intervention

Credits 3. 3 Lecture Hours. Communication interventions for personal, organizational, and institutional change; survey of major communication intervention theories in contexts such as voting, purchasing, joining, or adopting; individual-level, interpersonal level, and community-level models of change; application of social science-based models to guide communication intervention strategies effectively. **Prerequisite:** Junior or senior classification.

COMM 315 Interpersonal Communication

Credits 3. 3 Lecture Hours. Speech interaction in person-to-person settings; concepts of perception, attraction, self-disclosure, listening, and conflict management through communication; speech interaction patterns and stages in the development of interpersonal communication. **Prerequisite:** Junior or senior classification.

COMM 316/PSYC 316 Media Psychology

Credits 3. 3 Lecture Hours. Examine the role of media and its impact on human behavior, emotions and thoughts; topics include mass media, social media and how they influence individual and societal functioning across a range of important psychological topics; e.g., self-image, sexual behavior, mental health, violence. **Prerequisites:** PBSI 107. **Cross Listing:** PSYC 316.

COMM 317/JOUR 317 Social Media Law

Credits 3. 3 Lecture Hours. Laws and regulations applied to social media, including communication law applied to enduring issues in the social media context; legal problems unique to social media; free speech, commercial speech and employment law as they affect individual users of social media as well as groups and organizations promoting points of view or products via social media, and employers. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** JOUR 317/ COMM 317.

COMM 320 Organizational Communication

Credits 3. 3 Lecture Hours. Speech communication behavior and networks within organizations; recent research on speech communication systems, communication climate, and communication barriers in organizational settings. **Prerequisite:** Junior or senior classification.

COMM 321 Strategic Communication Case Studies

Credits 3. 3 Lecture Hours. Strategic communication practice; application of skills including communication research, media writing and advanced media writing, visual media and public speaking; service-learning as not-for-fee consultant to a community organization. **Prerequisites:** Grade of C or better in COMM 323 and COMM 322; junior or senior classification or approval of instructor.

COMM 322 Communication Tactics

Credits 3. 3 Lecture Hours. Examination of strategic use of communication tactics; analysis of new and digital media in organizational and public communication; skill development in strategic use of communication tactics including writing for new media, researching, planning, integrating and evaluation effectiveness of traditional and new media tactics in strategic public communication. **Prerequisite:** Grade of C or better in COMM 323, junior or senior classification.

COMM 323 Strategic Communication

Credits 3. 3 Lecture Hours. Application of strategic communication tools to create and influence policy, to improve profit and non-profit strategic communication planning. **Prerequisite:** Junior or senior classification.

COMM 324 Communication Leadership and Conflict Management

Credits 3. 3 Lecture Hours. Communication perspective of leadership, of conflict, of management of conflict in interpersonal, group and societal contexts; models of leadership as communication phenomenon; use of symbols by leaders to foster collaboration, systemic constructionist approach. **Prerequisite:** Junior or senior classification.

COMM 325 Persuasion

Credits 3. 3 Lecture Hours. Theory of effective persuasive communication in interpersonal, small group, and public settings; audience analysis, ethics of persuasion, motivational factors, psychological and rhetorical principles, source credibility, and theories of attitude change. **Prerequisite:** Junior or senior classification.

COMM 326 Event and Communication Planning

Credits 3. 3 Lecture Hours. Role of integrated communication in event planning; approaches for implementation in specific contexts such as conferences, professional meetings, celebratory events and programs for community outreach; professional, interpersonal and organizational coordination of information, people and budget; theory-informed action (praxis) approach. **Prerequisites:** Junior or senior classification, or approval of instructor.

COMM 330 Technology and Human Communication

Credits 3. 3 Lecture Hours. Nontechnical survey of how modern technologies influence human communication including an introduction to communication technologies; the influence of technology on interpersonal communication, group decision-making and public communication; an analysis of argumentation and persuasion in technological issues. **Prerequisite:** Grade of C or better in COMM 230/ JOUR 230.

COMM 335 Intercultural Communication

Credits 3. 3 Lecture Hours. Communication variables in intercultural contexts including culture and meaning, nonverbal styles across cultures, patterns of symbolic transfer, culture shock and communication, values in intercultural dialogue. **Prerequisite:** Junior or senior classification; also taught at Qatar campus.

COMM 338/AFST 338 Critical Race Discourse

Credits 3. 3 Lecture Hours. Critical analysis of communication and dialogue on race; causes and symptoms of structural racism; social/ racial hierarchies as they influence and are influenced by communication and dialogue. **Prerequisites:** Junior or senior classification or approval of instructor. **Cross Listing:** AFST 338/COMM 338.

COMM 340 Communication and Popular Culture

Credits 3. 3 Lecture Hours. Survey of theories and concepts of popular culture; dynamic relationships between pop culture and television, film, sports, politics and leisure. **Prerequisite:** Junior or senior classification or approval of instructor; also taught at Qatar campus.

COMM 342 The Rhetoric of Gender and Health

Credits 3. 3 Lecture Hours. Study of field of rhetoric of health and medicine with specific attention to the study of gender, including issues in reproduction, expertise and illness; range of methods and methodological approaches within the field. **Prerequisite:** Junior or senior classification. **Cross Listing:** ENGL 342 and WGST 342.

COMM 343 Communication in a Diverse World

Credits 3. 3 Lecture Hours. Examination of key concepts and theories relevant to communicating in an increasingly diverse world; consideration of the mutual constitution of culture and communication; investigation of multiple axes of identity; critical and cultural approach; critical investigation of topics concerning communication, diversity, equity and inclusion; public advocacy project. **Prerequisite:** Junior or senior classification or approval of instructor.

COMM 345 Media Industries

Credits 3. 3 Lecture Hours. Survey of the business organization, economic structures and processes, and regulations of the media industry. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** FILM 345 and JOUR 345.

COMM 346/JOUR 346 Media, Culture and Identity

Credits 3. 3 Lecture Hours. Media representations relating to power, privilege and difference; communication theories and concepts centered on how media and technology-use shape, and are shaped by, identity; critical analysis of media as sites for negotiation and construction of identities such as gender, race, ethnicity, sexuality, social class, physical/mental ability, nationality and religion; reflection on and analysis of bias, prejudice, discrimination, power, equity and privilege. **Prerequisites:** Junior or senior classification or approval of instructor. **Cross Listing:** JOUR 346/COMM 346.

COMM 350 Theories of Mediated Communication

Credits 3. 3 Lecture Hours. Survey of different theories of mediated communication processes and effects; functions of theories in social scientific research on media and mediated processes. **Prerequisite:** Junior or senior classification or approval of instructor.

COMM 354 Money, Power and Communication

Credits 3. 3 Lecture Hours. Interrelationships between money and power and communication; the influence of media and communication on power and money; communication law and policy; the political economy of local, national, and global communication networks. **Prerequisite:** Junior or senior classification or approval of instructor.

COMM 360 Cultural History of the Media

Credits 3. 3 Lecture Hours. Origins and development of the mass media; their influence on social, political, and cultural change; history of mass communication from historical, sociological, and cultural perspectives. **Prerequisite:** Junior or senior classification or approval of instructor.

COMM 365/JOUR 365 International Communication

Credits 3. 3 Lecture Hours. Mass media, international, and cross-cultural audiences; theoretical, pragmatic, political and ethical issues; including cultural differences, comparative media systems, development communication, patterns of world news flow, political propaganda, impact of international advertising and other issues. **Prerequisite:** Junior or senior classification; COMM-365 also taught at Qatar campus. **Cross Listing:** JOUR 365/COMM 365.

COMM 370 Health Communication

Credits 3. 3 Lecture Hours. Survey of theory and research in health communication, including interaction between patients and providers, communication in health care organizations, health care campaigns, and cultural meanings of health and illness. **Prerequisite:** Junior or senior classification or approval of instructor.

COMM 375 Media Audiences

Credits 3. 3 Lecture Hours. Media audiences; research and theory; processes and effects of mass communication; audience members' uses and interpretations of media; topics including political media, news, and entertainment, health and information campaigns, children and other special audiences. **Prerequisite:** Junior or senior classification or approval of instructor.

COMM 377 Entrepreneurship and New Media

Credits 3. 3 Lecture Hours. Communicative principles and skills necessary to launch future multimedia entrepreneurial endeavors in a saturated digital environment; exploration of shift in the entrepreneurial landscape; emphasis on collaborative communication methods as a means to free market success. **Prerequisite:** Grade of C or better in COMM 275/JOUR 275; junior or senior classification or approval of instructor.

COMM 403 Media, Children and Adolescents

Credits 3. 3 Lecture Hours. Critical analysis of popular culture and mass media issues related to children and adolescents; deconstruction of media created by, for and about children and youth. **Prerequisite:** Junior or senior classification or approval of instructor.

COMM 407/WGST 407 Gender, Race and Media

Credits 3. 3 Lecture Hours. The contributions of women and ethnic groups to the evolution of the media; the portrayal of women and ethnic groups in the mass media; issues resulting from the recognition of women and ethnic groups as media audiences. **Prerequisites:** Junior or senior classification and approval of instructor. **Cross Listing:** WGST 407/COMM 407.

COMM 410 Radio, Records, and Popular Music

Credits 3. 3 Lecture Hours. History of radio and record industries; communication technology and media industries related to American popular music; interaction of communication technologies, media industries, social and cultural processes in evolution of popular music.

Prerequisite: Junior or senior classification or approval of instructor.

COMM 411/WGST 411 Representations of Motherhood

Credits 3. 3 Lecture Hours. Examination of understandings of motherhood from a humanities perspective and over a variety of cultures and time periods, as reflected in written, media and/or oral texts.

Prerequisite: Junior or senior classification or approval of instructor.

Cross Listing: WGST 411/COMM 411.

COMM 415 New Media and Civil Society

Credits 3. 3 Lecture Hours. Critical analysis of new media technologies, civic participation, and social capital in democratic, non-democratic, and nascent civil societies around the world. **Prerequisite:** Junior or senior classification or approval of instructor.

COMM 420/WGST 420 Gender and Communication

Credits 3. 3 Lecture Hours. Survey of the role of gender in communication processes; focus on communication differences between men and women in contexts such as the family, school and work organizations; discussion of media influence in gender stereotypes. **Cross Listing:** WGST 420/COMM 420.

COMM 423/LMAS 423 Communicating Latinidad

Credits 3. 3 Lecture Hours. Examination of communication by and about Latinos; analysis of critical and historical orientation; topics include social movements, organizational and institutional discourse, and media.

Prerequisite: Junior or senior classification or approval of instructor.

Cross Listing: LMAS 423/COMM 423.

COMM 425/AFST 425 Communication and Black Freedom Dreams

Credits 3. 3 Lecture Hours. Examination of historical and contemporary communication practices of Black freedom activities, movements, and organizations in the United States and around the globe. **Prerequisite:** Junior or senior classification. **Cross Listing:** AFST 425/COMM 425.

COMM 428/WGST 428 Women's Rhetoric

Credits 3. 3 Lecture Hours. Examination of the historical imbrication of masculinity and rhetoric in relation to women's participation in political life, reception of women's rhetoric in the public sphere, and remembrance and representation of women as rhetorical agents throughout history; consideration of women's rhetoric in various cultural arenas. **Prerequisite:** Junior or senior classification. **Cross Listing:** WGST 428/COMM 428.

COMM 431 Rhetoric of Social Movements

Credits 3. 3 Lecture Hours. Survey of events and rhetorical documents of major U.S. social movements, including abolitionist, labor, socialist, women's rights, civil rights, pro-life, gay and lesbian, and student movements. **Prerequisites:** Junior or senior classification.

COMM 434 Topics in Rhetorical Theory

Credits 3. 3 Lecture Hours. Application of rhetorical theories and concepts to rhetorical problems and methods; emphasis on the relationship between theory and practice. **Prerequisite:** Junior or senior classification.

COMM 435/FILM 445 Rhetoric of Television and Film

Credits 3. 3 Lecture Hours. Critical analysis of television and film; close readings of such mediated texts; special attention to writing television and film criticism. **Prerequisite:** Junior or senior classification. **Cross Listing:** FILM 445/COMM 435.

COMM 437 Visual Communication

Credits 3. 3 Lecture Hours. Critical analysis of visual communication including photographs, advertising, memorials, tattoos, comics, public protest. **Prerequisite:** Junior or senior classification.

COMM 438 Propaganda

Credits 3. 3 Lecture Hours. Examination of common propaganda strategies in contemporary mass mediated environments. **Prerequisite:** Junior or senior classification.

COMM 440 Political Communication

Credits 3. 3 Lecture Hours. Rhetorical analysis of messages, media and speakers in political campaigns, institutions and movements.

COMM 443 Communication and Conflict

Credits 3. 3 Lecture Hours. Communication principles for addressing conflict situations through such practices as negotiation, mediation and arbitration; the study of strategies, influence and language in conflict management approaches. **Prerequisite:** Junior or senior classification or approval of instructor.

COMM 446 Communication, Organizations and Society

Credits 3. 3 Lecture Hours. Communicative processes through which organizations influence and are influenced by the societies from which they draw their members. **Prerequisites:** Junior or senior classification or approval of instructor.

COMM 447 Communication, Group Processes and Collaboration

Credits 3. 3 Lecture Hours. Communication processes in teamwork including collaboration in dyads, teams, and group processes that contribute to or detract from team effectiveness. **Prerequisites:** COMM 210; junior or senior classification.

COMM 450 Media Campaigns

Credits 3. 3 Lecture Hours. Principles of designing media campaigns as applied to commercial advertising, political advertising and health campaigns; processes that drive the planning and execution of these campaigns. **Prerequisite:** Junior or senior classification or approval of instructor.

COMM 452 Cultural Studies of Communication Technology

Credits 3. 3 Lecture Hours. Exploration of theories concerning technology; emphasis on technological culture; examination of the emergence of and societal reactions to technologies during modern era; consideration of utopian/dystopian discourse of technology in popular media narratives; contemplation of technology as constitutive of power and knowledge. **Prerequisite:** Junior or senior classification.

COMM 453 Communication and Video Games

Credits 3. 3 Lecture Hours. Business and industry aspects of video games; cultural and social aspects of gaming. **Prerequisite:** Junior or senior classification.

COMM 458/JOUR 458 Global Media

Credits 3. 3 Lecture Hours. Study of globalization through media ownership; content, flow, cultural values, political power and technological impact; implications of globalization for local economies and audiences. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** JOUR 458/COMM 458.

COMM 460 Communication and Contemporary Issues

Credits 3. 3 Lecture Hours. Rhetorical, critical or other approaches to study how communication practices influence the construction of social issues. **Prerequisites:** Junior or senior classification.

COMM 470 Communication in Health Care Contexts

Credits 3. 3 Lecture Hours. Principles of health communication applied in situations ranging from physician-patient communication to public health campaign theory, design, implementation and evaluation. **Prerequisites:** Junior or senior classification.

COMM 471 Media, Health and Medicine

Credits 3. 3 Lecture Hours. Analysis and evaluation of representations of health in media; examination of gender, class and race as they intersect with health issues. **Prerequisite:** Junior or senior classification.

COMM 476 Advanced Social Media

Credits 3. 3 Lecture Hours. Analysis of social media platforms and social media accounts used by organizations and individuals in professional contexts; production of individual posts for various purposes and goals; production of photos, videos and graphics for social sharing. **Prerequisites:** Grade of B or better in COMM 275/JOUR 275; junior or senior classification.

COMM 480/RELS 480 Religious Communication

Credits 3. 3 Lecture Hours. The role of religious communication as manifested in speeches, sermons, debates, campaigns, and social movements throughout history. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** RELS 480/COMM 480.

COMM 483 Health Communication Practicum

Credits 0-1. 0-1 Other Hours. Directed individual health communication practicum. **Prerequisites:** Junior or senior classification and approval of instructor.

COMM 484 Internship in Communication

Credits 0 to 23. 0 to 23 Other Hours. Directed internship in a public or private organization to provide students with on-the-job training and applied research experience; application of communication theory and practice in career settings; designed to enhance and clarify students' career objectives. May be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** Cumulative GPR of 2.5 or higher for credits taken in residence; approval of department head.

COMM 485 Directed Studies

Credits 0 to 3. 0 to 3 Other Hours. Directed individual study of identified topics in communication; may include specific research, readings or other approved project in any area of communication; written report is required. May be repeated for credit. **Prerequisites:** Cumulative GPR of 2.5 or higher; approval of instructor and department head.

COMM 487 Communication, Diversity and Social Justice Capstone Experience

Credits 0-1. 0-1 Other Hours. Directed individual communication, diversity, social justice capstone experience. **Prerequisites:** Junior or senior classification and approval of capstone director.

COMM 488 Global Media Practicum

Credits 0-1. 0-1 Other Hours. Directed global media experience. **Prerequisites:** Junior or senior classification and approval of instructor.

COMM 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of communication. May be repeated for credit.

COMM 491 Research

Credits 0 to 3. 0 to 3 Other Hours. Research conducted under the direction of faculty member in the department of communication. May be taken four times for credit. **Prerequisites:** GPA 2.5 or higher; junior or senior classification and approval of instructor and department head.

COMM 497 Independent Honors Studies

Credits 0 to 3. 0 to 3 Other Hours. Directed independent studies for upper division Honors students, regardless of academic major, in select aspects of communication. May be repeated for credit. **Prerequisites:** Junior or senior classification either as Honors student or with GPR of 3.25; letter of approval from head of student's department.

COSC - Construction Science (COSC)

COSC 153 Introduction to the Construction Industry

Credits 3. 3 Lecture Hours. Characteristics of the construction industry; types of construction companies; contracts; people involved in a project, their responsibilities and interrelationships; evolution of a project; interpreting working drawings; construction bonds; contract documents. **Prerequisite:** COSL majors only.

COSC 175 Construction Graphics Communication

Credits 3. 3 Lecture Hours. Visualization, interpretation and communication of graphical geometry in construction design and engineering; graphical analysis of problems; sketching applications, computer aided design and fundamentals of information modeling software; introduction to common quantitative tools in construction. **Prerequisite:** AREN and COSL majors only.

COSC 184 Construction Safety I

Credit 1. 1 Lecture Hour. Administration and application of the OSHA Act in the construction industry; includes standards, the general duty clause, competent person, and hazard identification; fulfills the requirements for the ten-hour OSHA certifications. **Prerequisite:** COSL majors.

COSC 202 Introduction to Housing

Credits 3. 3 Lecture Hours. Overview of the social, economic, environmental and cultural impacts of housing on communities and nations; varied perspectives to understand the different facets of housing and their impacts on the human experience; critical thinking skills to gain knowledge and to be informed of housing choices.

COSC 214 Introduction to Facilities Management

Credits 3. 3 Lecture Hours. Overview of facilities management principles; acquisition, operation, maintenance and disposition of the built environment; topics include construction documents, building systems (envelope, architectural, mechanical, electrical, plumbing), utility services, real estate and events and emergency management; owner's interaction with occupants, architects, engineers and contractors.

COSC 222 Social Issues in the History of the Construction Environment

Credits 3. 3 Lecture Hours. Introduction to cultural and social issues in the built environment; exploration of how individual and collective ideas, values and beliefs are expressed in the construction environment; how the field of construction internalizes and thinks about these values across cultures and how authority, majorities and privilege affect the creativity of the built environment; emphasizes civil discourse to help recognize positionality and work collaboratively in a multicultural society.

COSC 253 Construction Materials and Methods I

Credits 3. 3 Lecture Hours. (ARCH 2312) Construction Materials and Methods I. Overview of construction materials, methods, and sequences of the construction process; introduction to material specifications and construction drawings; focus of study includes wood, concrete, masonry, and steel.

COSC 275 Estimating I

Credits 3. 2 Lecture Hours. 3 Lab Hours. Systems approach to determining required quantities of construction materials; quantification of various types of foundation systems, structural systems and building envelope systems; excerpts of contract documents from a variety of different building projects. **Prerequisite:** COSC 253; concurrent enrollment in COSC 175.

COSC 284 Introduction to Applied Workplace Ethics, Etiquette and Communications

Credit 1. 1 Lecture Hour. Professional ethics, etiquette and communication for employment preparation with a construction or construction related company; various case studies emphasizing personal accountability, integrity and codes of conduct; etiquette and communication of all forms will be presented, applied and discussed in reflective writing assignments in order to prepare to meet the professional expectations of employers upon graduation. **Prerequisite:** COSL majors.

COSC 285 Directed Studies

Credits 1 to 3. 1 to 3 Other Hours. Special project in construction science. Project must be approved by the department. **Prerequisite:** Approval of department head.

COSC 291 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of faculty member in construction science. May be repeated 2 times for credit. **Prerequisites:** Freshman or sophomore classification; approval of instructor.

COSC 301 Construction Surveying

Credits 2. 1 Lecture Hour. 3 Lab Hours. Practical applications of surveying to the practice of construction project management; distance, grade and angular measurement; surveying equipment and its application to construction layout and control; surveying documentation and field work; introduction to other three dimensional measurement and positioning systems. **Prerequisite:** Admission to upper level in Construction Science.

COSC 303 High Performance Residential Building

Credits 3. 3 Lecture Hours. Exploration into the concepts of homebuilding operations using green building methods, tools to reach consumers, organizational and operational theories and market driven green building solutions; alignment with ICC 700 National Green Building Standard; operations of publicly traded and private production homebuilders and best practices; application for the professional designation of Certified Green Professional (CGP) given by the National Association of Home Builders (NAHB) upon completion. **Prerequisite:** Admission to upper level in Construction Science.

COSC 310 Design and Construction Leadership Education I

Credit 1. 1 Lecture Hour. Promotion of personal leadership skills utilized within the design and construction professions; primary understanding and developing management skills with specific attention to developing personal attributes and skills necessary for achieving organizational goals. **Prerequisite:** CARC majors only pursuing the minor in leadership in the design & construction professions; junior or senior classification.

COSC 314 Immersion in Facilities Management

Credits 3. 3 Lecture Hours. In-depth exploration of tasks required for acquisition, operation, maintenance, and disposition of the built environment; includes commercial, healthcare, education, performance, athletic and high-rise residential buildings; site visits to relevant facilities. **Prerequisites:** Grade of C or better COSC 214; junior or senior classification.

COSC 321 Structural Systems I

Credits 3. 3 Lecture Hours. Introduction to the physical principles that govern classical statics and strengths of materials through the design of architectural structures. **Prerequisite:** Admission to upper level in Construction Science.

COSC 322 Construction Discourse Leadership

Credits 3. 3 Lecture Hours. Practicum on leadership skills; leading and managing difficult discussions in a professional setting; mentorship of new students; presentation of difficult discussion topics, demonstration of constructive critique methods. **Prerequisite:** Grade of C or better in COSC 222.

COSC 325 Mechanical, Electrical and Plumbing Systems in Construction I

Credits 3. 3 Lecture Hours. Design, operation, materials and installation methods of mechanical, electrical and plumbing systems in construction. **Prerequisite:** Admission to upper level in construction science or minor in facility management.

COSC 326 Mechanical, Electrical and Plumbing Systems in Construction II

Credits 3. 3 Lecture Hours. In depth coverage of mechanical, electrical and plumbing (MEP) system operations, materials and installation methods; development of MEP drawings, specifications and contract documents as used in MEP specialty contracting industry. **Prerequisite:** COSC 325.

COSC 333 Project Management for Facility Managers

Credits 3. 3 Lecture Hours. Overview of project management for facility managers covering concepts and components of project management and their interrelationships in construction practice. **Prerequisite:** Minor in facility management; junior or senior classification or approval of instructor.

COSC 335 Life Cycle Assessment in Building Construction

Credits 3. 3 Lecture Hours. Life Cycle Assessment from a coupled energy-carbon-water (ECW) nexus perspective; key LCA concepts; the LCA process; LCA standards; application of LCA approaches and software to assess the energy, greenhouse gas (GHG) emissions, water, and other environmental impacts of building construction industry at the material and whole building levels; study and analysis of factors relating to material and assembly choices, site logistics, on-site and off-site construction and/or fabrication processes, additive construction (large-scale 3D printing), and construction and demolition waste to reduce the energy use, GHG emissions, and water use; analysis and comparison of LCA results of process-based and macro-economic model-based Life Cycle Inventory (LCI). **Prerequisites:** Junior or senior classification.

COSC 340 Building Codes and Construction

Credits 3. 3 Lecture Hours. Exploration of the complex interrelationship of building codes and their influence on construction projects; emphasis on building code organization, construction types, and occupancy classifications; examines the role and responsibilities of the construction professional, the permitting process, and the inspection process. **Prerequisites:** Admission to upper level in Construction Science.

COSC 353 Construction Project Management

Credits 3. 3 Lecture Hours. An introduction to construction project management covering concepts of project selection, estimating bidding, scheduling, subcontracting practices, cost controls, project documentation, construction bonds, insurance, payments and the elements of close out; development of professional communication skills through prepared multi-media presentations. **Prerequisite:** Admission to upper level in Construction Science.

COSC 354 Construction Materials and Methods II

Credits 3. 3 Lecture Hours. Continuation of COSC 253; emphasis on advanced building methods for the assembly of building systems; focus of study includes concrete, masonry, and steel. **Prerequisite:** COSC 253.

COSC 359 Industrial Construction

Credits 3. 3 Lecture Hours. Industry specific knowledge such as concepts of developing construction management strategies of industrial projects, materials and methods, structural and mechanical components; preparation to effectively resolve challenges faced in the industrial construction sector. **Prerequisites:** Admission to upper level in construction science.

COSC 375 Estimating II

Credits 3. 2 Lecture Hours. 3 Lab Hours. Quantification and pricing of direct field costs and general condition costs from construction documents; preparation of complete pricing proposal ready for project execution; completion of a response to a bid or request for proposal. **Prerequisites:** Admission to upper level in Construction Science; COSC 275.

COSC 381 Professional Ethics in the Construction Industry

Credit 1. 1 Lecture Hour. Principles of ethical behavior in preparation for a professional internship with a construction or construction-related company; various construction company case studies emphasizing personal accountability, integrity, moral courage, individual, association and company codes of conduct; accepted business practices, decision making, company cultures, peer pressure, public opinion. **Prerequisite:** Admission to upper level in Construction Science.

COSC 410 Design and Construction Leadership Education II

Credit 1. 1 Lecture Hour. Development of competencies in various leadership and management practices that are useful in an array of situations; emphasis on organizational leadership and management development with specific attention to intragroup relationships and techniques for achieving group goals. **Prerequisite:** COSC 310, CARC majors only pursuing the minor in leadership in the design and construction professions; junior or senior classification.

COSC 411 Seminar in Design and Construction Executive Leadership

Credit 1. 1 Lecture Hour. Promotes an understanding of leadership and builds the capacity to understand and meet the challenges involved in developing and leading ethical and sustainable organizations in today's economy; examination of theory, conceptualizing, reflection and application; share experiences in everyday life and learn to predict outcomes based on theoretical models. **Prerequisite:** COSC 410; CARC majors only pursuing the minor in leadership in the design and construction; junior or senior classification.

COSC 414 Contracted Services Management

Credits 3. 3 Lecture Hours. Overview of contracted services management for facilities design, construction, operations, and maintenance; topics include scope of work development, A/E and vendor selection and procurement, contract administration (insurance, payment, communication, scope execution, field oversight, closeout), and common tools, equipment, and material. **Prerequisites:** Grade of C or better COSC 214; Minor in Facilities Management; junior or senior classification or approval of instructor.

COSC 421 Soil and Structural Analysis.

Credits 3. 3 Lecture Hours. Advanced structural analysis of steel and concrete members with an introduction to soil properties and constituents; utilizations of computer analysis tools. **Prerequisite:** COSC 321.

COSC 427 Project Execution and Administration - Constructionarium United Kingdom

Credits 3. 3 Lecture Hours. Development of project execution and management of a mock commercial construction project; includes aspects of estimating, bidding, schedule development, real time scheduling, job-site safety plans, project execution plans, material procurement, cost controls, construction management, owner, and architect presentations, close out, and post-construction requirements; includes multiple day field trip during the mock construction project. **Prerequisites:** Admission to upper level in Construction Science.

COSC 428 Preconstruction - the Art of the Project

Credits 3. 3 Lecture Hours. Instruction in the pre-construction processes that are necessary in construction project evolution; exploration of alternative project delivery options from the traditional design-bid-build linear approach; focus on engagement of Construction Professionals at earliest project phase; familiarization with the roles of professionals in all phases of construction including design, construction, and ownership. **Prerequisites:** Admission to upper level in Construction Science.

COSC 433 Immersion in Facilities Management

Credits 3. 3 Lecture Hours. 1 Lab Hour. In-depth exploration of the varied tasks required for the acquisition, operation, maintenance and disposition of the built environment including commercial, healthcare, education, performance, athletic, high-rise residential buildings; exploration that entails site visits to appropriate buildings and their operational systems. **Prerequisites:** COSC 214; minor in Facilities Management or admission to upper level in Construction Science.

COSC 440 Interdisciplinary Capstone

Credits 3. 3 Lecture Hours. A senior capstone for students preparing to enter the designbuild sector of the construction industry; integration of the design and construction processes into a single, cohesive project delivery system, starting with project inception, and carrying through construction, operation and maintenance of various types of construction projects. **Prerequisite:** COSC 475; must be taken in graduating semester.

COSC 441 Residential Capstone

Credits 3. 3 Lecture Hours. A senior capstone course for students preparing to enter the residential construction industry; project management of residential projects, including market analysis, site analysis, residential design, building codes, estimating, scheduling, financing, subcontracting, marketing, business planning and current trends in design and construction. **Prerequisite:** COSC 475; must be taken in graduating semester.

COSC 442 Commercial Capstone

Credits 3. 3 Lecture Hours. A senior capstone course for students preparing to enter the commercial construction sector; project management of commercial construction projects, including aspects of design, bidding/estimating; presentation, value engineering, contracts/negotiation, subcontractor relations, cost controls, management during construction, close out, and post-construction requirements. **Prerequisite:** COSC 475; must be taken in graduating semester.

COSC 443 Industrial Capstone

Credits 3. 3 Lecture Hours. A senior capstone course for students preparing to enter the industrial construction sector; project management of industrial construction projects including project acquisition, planning and staffing, engineering, procurement, construction, start-up, close out, operations and maintenance, and turn-arounds. **Prerequisite:** COSC 475; must be taken in graduating semester.

COSC 446 Specialty Capstone

Credits 3. 3 Lecture Hours. Senior capstone course for students preparing to enter the mechanical, electrical or other specialty construction company; project management of specialty contracts including project acquisition, schematic system design, estimating/bidding, scheduling, systems integration, value engineering, management during construction of crews and procurement, contract administration, business planning and current industry issues. **Prerequisite:** COSC 475; must be taken in graduating semester.

COSC 461 Building Information Modeling System

Credits 3. 3 Lecture Hours. Exploration of a data-rich, object-oriented, and parametric digital representation of the facility, from which views and information can be extracted and analyzed for construction project acquisition, planning, and control. **Prerequisite:** Admission to upper level in Construction Science.

COSC 463 Introduction to Construction Law

Credits 3. 3 Lecture Hours. Introduction to basic contract and tort issues and their application in the construction industry; delineation of the various types of contracts and remedies available to parties involved in a construction project; additional related topics including bidding, delays, mechanics liens, site conditions, warranties and the Uniform Commercial Code as it relates to the construction industry, introduction to legal research and reasoning as used by professional constructors. **Prerequisite:** Admission to upper level in Construction Science.

COSC 464 Construction Safety

Credits 3. 3 Lecture Hours. Administration and application of the Occupational Safety and Health Administration Act in the construction industry; includes OSHA standards, the general duty clause, competent person and hazard identification; fulfills the requirements for the thirty-hour OSHA, CPR and First Aid certifications. **Prerequisite:** Admission to upper-level in construction science.

COSC 465 Advanced Topics in Construction Law

Credits 3. 3 Lecture Hours. Legal issues affecting construction, including the parties to construction work, contracting, responsibilities and risk, risk management, damages, handling of claims and disputes, indemnification, bonds, insurance, bankruptcy, labor and employment, and subcontract management; litigation and alternative dispute resolution methods regularly used in the construction industry. **Prerequisite:** COSC 463.

COSC 468 Risk Management in the Built Environment

Credits 3. 3 Lecture Hours. Decision-making and risk analysis concepts in the context of the built environment and construction projects; major categories and tools of risk management regularly used in the construction industry such as contracts, insurance and bonds. **Prerequisites:** Admission to upper level in construction science and COSC 463 or concurrent enrollment.

COSC 473 Built Environment in International Setting

Credits 3. 3 Lecture Hours. Survey of the built environment and how changing global societies have adapted in design, labor and materials used; exposure to to opinions and practices in the areas of politics, culture, gender and religion. **Prerequisite:** Junior or Senior construction science majors or instructor approval.

COSC 474 Facility Management Internship

Credits 3. 3 Lecture Hours. An internship (10 weeks, 400 hours) in a facility management related position that exposes the student to facility management activities; daily logs, monthly reports, final report and completion letter required; distance education off-campus course; does not satisfy College of Architecture semester away requirement. **Prerequisites:** COSC 333; approval of internship faculty coordinator.

COSC 475 Construction Project Planning

Credits 3. 2 Lecture Hours. 3 Lab Hours. Development of parameter cost estimates for activities that relate to the construction of a building project; work packages sequenced, planned and leveled to develop a working project execution document; development of procedures to monitor actual field progress. **Prerequisite:** COSC 353, COSC 375.

COSC 477 Construction Project Controls

Credits 3. 3 Lecture Hours. Introduction to construction related financial documents including schedule of values, labor and operations cost reports, income statements, balance sheets and construction budgets; emphasis on the development of techniques required to effectively monitor the financial aspects of a construction project. **Prerequisite:** COSC 353 and COSC 494.

COSC 481 Seminar

Credit 1. 1 Lecture Hour. Seminar discussion of construction equipment selection, utilization maintenance and operating cost. **Prerequisite:** Admission to upper level in Construction Science.

COSC 484 Internship - 10 Week

Credits 3. 3 Other Hours. An internship (10 weeks, 400 hours) with a construction or construction-related company that exposes the student to construction-related activities; daily logs, monthly reports, final report and completion letter required; distance education course with non-resident status; does not satisfy the College of Architecture semester away requirement unless taken while on Construction Science Spring Study Abroad. **Prerequisites:** COSC 284, COSC 353, and COSC 375; approval of internship faculty coordinator.

COSC 485 Directed Studies

Credits 1 to 5. 1 to 5 Other Hours. Special problems in building construction. **Prerequisite:** Admission to upper-level in Construction Science.

COSC 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified field of construction science. May be repeated for credit. **Prerequisite:** Admission to upper-level in Construction Science.

COSC 491 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of faculty member in construction science. May be repeated 2 times for credit. Registration in multiple sections of this course is possible within a given semester provided that the per semester credit hour limit is not exceeded. **Prerequisites:** Admission to upper level in Construction Science and approval of instructor.

COSC 494 Internship

Credits 6. 6 Other Hours. An internship (15 weeks, 600 hours) with a construction or construction-related company that exposes the student to construction-related activities, daily logs, monthly reports, final report and completion letter required; distance education course with non-resident status. No other Texas A&M Construction Science courses may be taken while enrolled in COSC 494. **Prerequisites:** COSC 284, COSC 353, and COSC 375; approval of internship faculty coordinator.

CSCE - Computer Sci & Engr (CSCE)

CSCE 110 Programming I

Credits 4. 3 Lecture Hours. 2 Lab Hours. Basic concepts in using computation to enhance problem solving abilities; understanding how people communicate with computers, and how computing affects society; computational thinking; representation of data; analysis of program behavior; methods for identifying and fixing errors in programs; understanding abilities and limitation of programs; development and execution of programs.

CSCE 111 Introduction to Computer Science Concepts and Programming

Credits 4. 3 Lecture Hours. 2 Lab Hours. Computation to enhance problem solving abilities; understanding how people communicate with computers, and how computing affects society; computational thinking; software design principles, including algorithm design, data representation, abstraction, modularity, structured and object oriented programming, documentation, testing, portability, and maintenance; understanding programs' abilities and limitations; development and execution programs.

CSCE 120 Program Design and Concepts

Credits 3. 3 Lecture Hours. 1 Lab Hour. Extension of prior programming knowledge and creation of computer programs that solve problems; use of the C++ language; application of computational thinking to enhance problem solving; analysis of, design of and implementation of computer programs; use of basic and aggregate data types to develop functional and object oriented solutions; development of classes that use dynamic memory and avoid memory leaks; study of error handling strategies to develop more secure and robust programs. **Prerequisite:** Grade of C or better in ENGR 102, CSCE 110, CSCE 111, CSCE 206 or PHYS 150.

CSCE 121 Introduction to Program Design and Concepts

Credits 4. 3 Lecture Hours. 2 Lab Hours. Computation to enhance problem solving abilities; computational thinking; understanding how people communicate with computers, how computing affects society; design and implementation of algorithms; data types, program control, iteration, functions, classes, and exceptions; understanding abstraction, modularity, code reuse, debugging, maintenance, and other aspects of software development; development and execution of programs.

Prerequisite: Programming course (high school or college); also taught at Galveston campus.

CSCE 181 Introduction to Computing

Credit 1. 1 Lecture Hour. Introduction to the broad field of computing; presentations from industry and academia about how computer science concepts are used in research and end products; includes a major writing component.

CSCE 201/CYBR 201 Fundamentals of Cybersecurity

Credits 3. 3 Lecture Hours. Basic terminology, concepts, technology, and trends of cybersecurity; foundations of cybersecurity to include cryptography, public key infrastructure, standards and protocols, physical security, network fundamentals; workings of systems, networks, infrastructure; legal and ethical issues in cybersecurity. **Cross Listing:** CYBR 201/CSCE 201.

CSCE 206 Structured Programming in C

Credits 4. 3 Lecture Hours. 2 Lab Hours. (COSC 1420) Structured Programming in C. Basic concepts, nomenclature and historical perspective of computers and computing; internal representation of data; software design principles and practice; structured and object-oriented programming in C; use of terminals, operation of editors and executions of student-written programs.

CSCE 221 Data Structures and Algorithms

Credits 4. 3 Lecture Hours. 2 Lab Hours. Specification and implementation of basic abstract data types and their associated algorithms including stacks, queues, lists, sorting and selection, searching, graphs, and hashing; performance tradeoffs of different implementations and asymptotic analysis of running time and memory usage; includes the execution of student programs written in C++.

Prerequisite: Grade C or better in CSCE 120 or CSCE 121; grade of C or better in CSCE 222/ECEN 222 or ECEN 222/CSCE 222, or concurrent enrollment.

CSCE 222/ECEN 222 Discrete Structures for Computing

Credits 3. 3 Lecture Hours. Mathematical foundations from discrete mathematics for analyzing computer algorithms, for both correctness and performance; introduction to models of computation, including finite state machines and Turing machines. **Prerequisite:** Grade of C or better in MATH 142, MATH 147, MATH 151, or MATH 171. **Cross Listing:** ECEN 222/CSCE 222.

CSCE 285 Directed Studies

Credits 0 to 4. 0 to 4 Lecture Hours. Special project in computer science; project must be approved by the department. **Prerequisite:** Approval of department head; also taught at Galveston campus.

CSCE 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of computer science. May be repeated for credit. **Prerequisite:** Approval of instructor.

CSCE 291 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in computer science. May be taken three times for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

CSCE 305 Computational Data Science

Credits 3. 3 Lecture Hours. Computational practice of data science through a sequence of interactive modules that provides an integrated hands-on approach to its methods, tools, applications and supporting technologies including high performance and cloud computing platforms. **Prerequisites:** Grade of C or better in ENGR 102, CSCE 110, CSCE 111, or CSCE 206; grade of C or better in MATH 251, MATH 253, or STAT 211; junior or senior classification. **Cross Listing:** ECEN 360 and STAT 315.

CSCE 310 Database Systems

Credits 3. 3 Lecture Hours. File structures and access methods; database modeling, design and user interface; components of database management systems; information storage and retrieval, query languages, high-level language interface with database systems. **Prerequisites:** CSCE 221 with a grade of C or better; junior or senior classification.

CSCE 312 Computer Organization

Credits 4. 3 Lecture Hours. 2 Lab Hours. Computer systems from programmer's perspective including simple logic design, data representation and processor architecture, programming of processors, memory, control flow, input/output, and performance measurements; hands-on lab assignments. **Prerequisite:** Grade of C or better in CSCE 221, or concurrent enrollment.

CSCE 313 Introduction to Computer Systems

Credits 4. 3 Lecture Hours. 2 Lab Hours. Introduction to system support for application programs, both on single node and over network including OS application interface, inter-process communication, introduction to system and network programming, and simple computer security concepts; hands-on lab assignments. **Prerequisite:** CSCE 221 with a grade of C or better; grade of C or better in CSCE 312 or concurrent enrollment in CSCE 350/ECEN 350 or ECEN 350/CSCE 350.

CSCE 314 Programming Languages

Credits 3. 3 Lecture Hours. Exploration of the design space of programming languages via an in-depth study of two programming languages, one functional and one object-oriented; focuses on idiomatic uses of each language and on features characteristic for each language. **Prerequisite:** Grade of C or better in CSCE 221, or concurrent enrollment.

CSCE 315 Programming Studio

Credits 3. 2 Lecture Hours. 2 Lab Hours. Intensive programming experience that integrates core concepts in Computer Science and familiarizes with a variety of programming/development tools and techniques; students work on 2 or 3 month-long projects each emphasizing a different specialization within Computer Science; focuses on programming techniques to ease code integration, reusability, and clarity. **Prerequisite:** CSCE 312 and CSCE 314, or CSCE 350/ECEN 350 or ECEN 350/CSCE 350; concurrent enrollment in CSCE 313.

CSCE 320/STAT 335 Principles of Data Science

Credits 3. 3 Lecture Hours. Theoretical foundations, algorithms and methods of deriving valuable insights from data; includes foundations in managing and analyzing data at scale, e.g. big data; data mining techniques and algorithms; exploratory data analysis; statistical methods and models; data visualization. **Prerequisites:** STAT 211 or ECEN 303; STAT 212 or CSCE 222/ECEN 222; MATH 304. **Cross Listing:** STAT 335/CSCE 320.

CSCE 331 Foundations of Software Engineering

Credits 4. 3 Lecture Hours. 2 Lab Hours. Intensive programming experience and provision of the fundamentals needed for larger-scale software development; integration of concepts in computer science and familiarization with a variety of programming and development tools and techniques; team projects each with an emphasis on a different specialization within computer science; emphasis on programming techniques to ease code integration and clarity; practical exposure to software-engineering processes through large-scale projects and specification and documentation. **Prerequisite:** Grade of C or better in CSCE 314, CSCE 350/ECEN 350, or ECEN 350/CSCE 350; grade of C or better or concurrent enrollment in CSCE 313.

CSCE 350/ECEN 350 Computer Architecture and Design

Credits 4. 3 Lecture Hours. 3 Lab Hours. Computer architecture and design; use of register transfer languages and simulation tools to describe and simulate computer operation; central processing unit organization, microprogramming, input/output and memory system architectures. **Prerequisites:** Grade of C or better in ECEN 248 and CSCE 120; junior or senior classification. **Cross Listing:** ECEN 350/CSCE 350.

CSCE 399 High-Impact Experience

Credits 0. 0 Other Hours. Participation in an approved high-impact learning practice; documentation and self-assessment of learning experience. **Prerequisite:** Junior or senior classification; also taught at Galveston campus.

CSCE 402 Law and Policy in Cybersecurity

Credits 3. 3 Lecture Hours. Examination of law and policy issues related to cybersecurity for the spectrum of cybersecurity jobs; includes procurement, operations and maintenance, governance and oversight, protection and defense, analysis, intelligence collection and operation and investigation cybersecurity jobs. **Prerequisites:** Junior or senior classification; MARA-403 taught at Galveston campus. **Cross Listing:** MARA 403 and CYBR 402.

CSCE 410 Operating Systems

Credits 3. 3 Lecture Hours. Hardware/software evolution leading to contemporary operating systems; basic operating systems concepts; methods of operating systems design and construction including algorithms for CPU scheduling, memory and general resource allocation, process coordination and management; case studies of several operating systems. **Prerequisites:** Grade of C or better in CSCE 313; grade of C or better in CSCE 315 or CSCE 331.

CSCE 411 Design and Analysis of Algorithms

Credits 3. 3 Lecture Hours. Study of computer algorithms for numeric and non-numeric problems; design paradigms; analysis of time and space requirements of algorithms; correctness of algorithms; NP-completeness and undecidability of problems. **Prerequisite:** Grade of C or better in CSCE 221 and CSCE 222/ECEN 222; junior or senior classification or approval of instructor.

CSCE 412 Cloud Computing

Credits 3. 3 Lecture Hours. Operating system and distributed systems fields that form the basis of cloud computing such as virtualization, key-value storage solutions, group membership, failure detection, peer to peer systems, datacenter networking, resource management and scalability; popular frameworks such as MapReduce and HDFS and case studies on failure determination. **Prerequisite:** Grade of C or better in CSCE 315 or CSCE 331.

CSCE 416/ECEN 416 Hardware Design Verification

Credits 3. 3 Lecture Hours. Hardware functional verification; case studies on verification in integrated circuit design; introduction to industry best practices; introduction to logic functional verification. **Prerequisites:** CSCE 312, CSCE 350/ECEN 350, or ECEN 350/CSCE 350, or equivalent in computer architecture; familiarity with C/C++/Verilog/VHDL programming. **Cross Listing:** ECEN 416/CSCE 416.

CSCE 420 Artificial Intelligence

Credits 3. 3 Lecture Hours. Fundamental concepts and techniques of intelligent systems; representation and interpretation of knowledge on a computer; search strategies and control; active research areas and applications such as notational systems, natural language understanding, vision systems, planning algorithms, intelligent agents and expert systems. **Prerequisite:** CSCE 411 or approval of instructor.

CSCE 421 Machine Learning

Credits 3. 3 Lecture Hours. Theoretical foundations of machine learning, pattern recognition and generating predictive models and classifiers from data; includes methods for supervised and unsupervised learning (decision trees, linear discriminants, neural networks, Gaussian models, non-parametric models, clustering, dimensionality reduction, deep learning), optimization procedures and statistical inference. **Prerequisite:** Grade of C or better in MATH 304, MATH 311, or MATH 323; Grade of C or better in STAT 211, and STAT 404 or CSCE 221, or ECEN 303, and CSCE 121 or CSCE 120. **Cross Listing:** ECEN 427 and STAT 421.

CSCE 426/ECEN 426 Security of Embedded Systems

Credits 3. 3 Lecture Hours. Security principles; common security features and flaws in day-to-day embedded systems; security analysis, vulnerability exploits and security fixes for embedded systems.

Prerequisite: Grade of C or better in ECEN 350/CSCE 350, CSCE 350/ECEN 350, or CSCE 312; junior or senior classification. **Cross Listing:** ECEN 426/CSCE 426.

CSCE 429 Software Development, Globalization and Culture Abroad

Credits 3. 3 Lecture Hours. Software development cycle; software outsourcing model, execution and practices; software industries on products, services and consultancy; software globalization; and offshore development culture; travel abroad required. **Prerequisite:** CSCE 315 or approval of instructor.

CSCE 430 Problem Solving Programming Strategies

Credits 3. 2 Lecture Hours. 3 Lab Hours. Methods for analyzing fundamental programming problems from a variety of domains and implementing solutions quickly and efficiently; problems based on competitive programming contests to develop skills in problem analysis, coding and testing; solving problems will involve identifying and applying a range of algorithmic solutions; includes dealing with combinatorics, dynamic programming, graphs, numerical calculations, string processing and geometry, along with other specialized algorithms. **Prerequisites:** CSCE 411 or approval of instructor.

CSCE 431 Software Engineering

Credits 3. 2 Lecture Hours. 2 Lab Hours. Application of engineering approach to computer software design and development; life cycle models, software requirements and specification; conceptual model design; detailed design; validation and verification; design quality assurance; software design/development environments and project management. **Prerequisite:** Grade of C or better in CSCE 315 or CSCE 331 or approval of instructor.

CSCE 432 Accessible Computing

Credits 3. 3 Lecture Hours. Exploration of the characteristics of traditionally disenfranchised user populations due to disability including discrimination; universal design concepts; exploration of ethical and legal motivations for creating accessible technology; development, evaluation, design, and implementation of equitable and inclusive software and computer based solutions; study of multiple existing accessibility standards. **Prerequisite:** Grade of C or better in CSCE 315 or CSCE 331.

CSCE 433 Formal Languages and Automata

Credits 3. 3 Lecture Hours. Basic types of abstract languages and their acceptors; the Chomsky hierarchy; solvability and recursive function theory; application of theoretical results to practical problems. **Prerequisite:** CSCE 315 or CSCE 331 or approval of instructor.

CSCE 434 Compiler Design

Credits 3. 3 Lecture Hours. Programming language translation; functions and general organization of compiler design and interpreters; theoretical and implementation aspects of lexical scanners; parsing of context free languages; code generation and optimization; error recovery.

Prerequisite: Grade of C or better in CSCE 315 or CSCE 331.

CSCE 435 Parallel Computing

Credits 3. 3 Lecture Hours. Overview of parallel computing technology and programming methods; includes multiprocessor architectures, programming tools, parallel performance, parallel algorithms, and applications of parallel computing. **Prerequisite:** Grade of C or better in CSCE 315 or CSCE 331; junior or senior classification or approval of instructor.

CSCE 436 Computer-Human Interaction

Credits 3. 3 Lecture Hours. Comprehensive study of the Computer-Human Interaction (CHI) area; includes history and importance of CHI; CHI design theories; modeling of computer users and interfaces; empirical techniques for task analysis and interface design; styles of interaction and future directions of CHI including hypermedia and computer-supported collaborative work. **Prerequisites:** Grade of C or better in CSCE 315 or CSCE 331 or concurrent enrollment; or approval of instructor.

CSCE 438 Distributed Systems

Credits 3. 3 Lecture Hours. Principles and techniques for engineering distributed systems with topics including communication, concurrency, programming paradigms, naming, managing shared state, caching, synchronization, reaching agreement, fault tolerance, security, middleware and distributed applications; design, implement and debug large software systems. **Prerequisite:** CSCE 313; junior or senior classification, or approval of instructor.

CSCE 439 Data Analytics for Cybersecurity

Credits 3. 3 Lecture Hours. Theoretical foundations, algorithms and methods of data analytics for cybersecurity; study of data analytics including cluster analysis, supervised machine learning, anomaly detection, and visualization applied to cyber attacks, anomaly detection, vulnerability analysis, strategic manipulation, propaganda and other topics. **Prerequisites:** Grade of C or better in CSCE 221; grade of C or better in ECEN 303, STAT 211, STAT 301, STAT 302, or STAT 303.

CSCE 440 Quantum Algorithms

Credits 3. 3 Lecture Hours. Introduction to the design and analysis of quantum algorithms; basic principles of the quantum circuit model; gives a gentle introduction to basic quantum algorithms; reviews recent results in quantum information processing. **Prerequisites:** Grade of C or better in CSCE 315 or CSCE 331 or approval of instructor.

CSCE 441 Computer Graphics

Credits 3. 3 Lecture Hours. Principles of interactive computer graphics; 2-D and 3-D rendering pipelines, including geometric object and view transformations, projections, hidden surface removal, and rasterization; lighting models for local and global illumination; hierarchical models of 3-D objects; systems and libraries supporting display and user interaction.

Prerequisite: CSCE 221; junior or senior classification or approval of instructor.

CSCE 442 Scientific Programming

Credits 3. 3 Lecture Hours. Introduction to numerical algorithms fundamental to scientific and engineering applications of computers; elementary discussion of error; algorithms, efficiency; polynomial approximations, quadrature and systems of algebraic and differential equations. **Prerequisites:** CSCE 221 with a grade of C or better; MATH 304 or MATH 308 or concurrent enrollment.

CSCE 443/VIST 487 Game Development

Credits 3. 2 Lecture Hours. 2 Lab Hours. Aesthetic and technical aspects of computer game development, including game mechanics, story development, content creation and game programming; includes game design, interface design, 3D modeling and animation, graphics algorithms, shader programming and artificial intelligence; group project includes the design and development of a game from start to finish.

Prerequisites: Grade of C or better in VIST 386 or CSCE 441, or approval of instructor. **Cross Listing:** VIST 487/CSCE 443.

CSCE 444 Structures of Interactive Information

Credits 3. 2 Lecture Hours. 2 Lab Hours. A systems approach to the programming, design, authoring and theory of hypermedia; object-oriented visual and interactive programming; visual design, including color, space, text and layering; the reference as a metadisciplinary structure; collecting and sampling; ontologies, maps and navigation as means of structuring information; create dynamic hypermedia that is expressive and interpretive. **Prerequisite:** CSCE 315 or approval of instructor.

CSCE 445 Computers and New Media

Credits 3. 3 Lecture Hours. Potential and realized impact of computers in the design of new media; relationship between authors and readers of interactive material; influence of media design on the content expressed. **Prerequisite:** CSCE 221 or approval of instructor.

CSCE 446/VIST 477 Virtual Reality

Credits 3. 2 Lecture Hours. 2 Lab Hours. Theory and practice of virtual reality; interactive 3D virtual environments; input/output devices, 3D interaction techniques, augmented reality, role of realism in VR, navigation techniques, design guidelines and evaluation methods.

Prerequisite: Grade of C or better in VIST 272, CSCE 221, or CSCE 441.

Cross Listing: VIST 477/CSCE 446.

CSCE 447/VIST 476 Data Visualization

Credits 3. 3 Lecture Hours. Visual representation and design of data and information; 3D visualization, infographics, data narratives, principles of visual data encoding and interaction techniques. **Prerequisite:** Grade of C or better in VIST 272, or CSCE 221, or CSCE 441. **Cross Listing:** VIST 476/CSCE 447.

CSCE 448 Computational Photography

Credits 3. 3 Lecture Hours. Cameras and the image formation process; basic image and video processing tools like sampling, filtering and pyramids; several image-based algorithms, including panorama creation, lightfields, image retargeting, high dynamic range imaging and texture synthesis. **Prerequisite:** CSCE 315 or CSCE 331; MATH 304 or MATH 311.

CSCE 449 Applied Cryptography

Credits 3. 3 Lecture Hours. Applied cryptography; secure multi-party computations; zero knowledge proofs; blockchain and machine learning. **Prerequisite:** CSCE 221.

CSCE 450 Computer Animation

Credits 3. 3 Lecture Hours. Investigation of computational problems in computer animation; study of the mathematical and algorithmic foundations behind various techniques used for computer animation for real-time and offline use. **Prerequisite:** Grade of C or better in CSCE 315 or CSCE 331; grade of C or better in or concurrent enrollment in CSCE 441.

CSCE 451 Software Reverse Engineering

Credits 3. 2 Lecture Hours. 2 Lab Hours. Overview of the compilation mechanism to generate executable files and raw binary codes from source codes; executable file formats for an operating system to run the binary code; disassembly algorithms and control graph analysis; static and dynamic analyses; case studies on code obfuscation, codebreaking, malware analysis. **Prerequisite:** Grade of C or better in CSCE 313 or approval of instructor.

CSCE 452 Robotics and Spatial Intelligence

Credits 3. 3 Lecture Hours. Algorithms for executing spatial tasks; path planning and obstacle avoidance in two- and three-dimensional robots—configuration space, potential field, free-space decomposition methods; stable grasping and manipulation; dealing with uncertainty; knowledge representation for planning—geometric and symbolic models of the environment; task-level programming; learning. **Prerequisite:** CSCE 315 or CSCE 331; MATH 304 or MATH 311.

CSCE 461/BMEN 428 Embedded Systems for Medical Applications

Credits 3. 2 Lecture Hours. 3 Lab Hours. Principles of embedded system architecture and programming; fundamentals and theoretical foundations of wireless communication systems; hands-on experiences of how an embedded system could be used to solve problems in biomedical engineering; projects on wireless sensors and imaging for medical devices. **Prerequisite:** Grade of C or better in BMEN 321, CSCE 350/ECEN 350, or CSCE 315, or approval of instructor. **Cross Listing:** BMEN 428/CSCE 461.

CSCE 462 Microcomputer Systems

Credits 3. 2 Lecture Hours. 1 Lab Hour. Microcomputers as components of systems; VLSI processor and coprocessor architectures, addressing and instruction sets; I/O interfaces and supervisory control; VLSI architectures for signal processing; integrating special purpose processors into a system. **Prerequisite:** CSCE 313.

CSCE 463 Networks and Distributed Processing

Credits 3. 3 Lecture Hours. Basic hardware/software, architectural components for computer communications; computer networks, switching, routing, protocols and security; multiprocessing and distributed processing; interfacing operating systems and networks; case studies of existing networks and network architectures. **Prerequisite:** CSCE 313 or approval of instructor.

CSCE 464 Wireless and Mobile Systems

Credits 3. 3 Lecture Hours. Introduction to wireless and mobile systems; wireless communication fundamentals; wireless medium access control design; transmission scheduling, network and transport protocols over wireless design, simulation and evaluation; wireless capacity; telecommunication systems; vehicular, adhoc, and sensor network systems; wireless security; mobile applications. **Prerequisites:** CSCE 313; junior or senior classification or approval of instructor.

CSCE 465 Computer and Network Security

Credits 3. 3 Lecture Hours. Fundamental concepts and principles of computer security, operating system and network security, secret key and public key cryptographic algorithms, hash functions, authentication, firewalls and intrusion detection systems, IPsec and VPN, wireless and web security. **Prerequisites:** Grade of C or better in CSCE 315 or CSCE 331, and CSCE 313; junior or senior classification; approval of instructor.

CSCE 469/ECEN 469 Advanced Computer Architecture

Credits 3. 3 Lecture Hours. Advanced computer architectures including memory designs, pipeline techniques, and parallel structures such as vector computers and multiprocessors. **Prerequisite:** Grade of C or better in ECEN 350/CSCE 350 or CSCE 350/ECEN 350; junior or senior classification. **Cross Listing:** ECEN 469/CSCE 469.

CSCE 470 Information Storage and Retrieval

Credits 3. 3 Lecture Hours. Representation of, storage of and access to very large multimedia document collections; fundamental data structures and algorithms of current information storage and retrieval systems and relates various techniques to design and evaluation of complete retrieval systems. **Prerequisite:** Grade of C or better in CSCE 315 or CSCE 331 or approval of instructor.

CSCE 477/CYBR 403 Cybersecurity Risk

Credits 3. 3 Lecture Hours. Risks in cybersecurity; avoidance, acceptance, mitigation, or transference strategies; developing reliable cybersecurity risk assessments to include analysis, categorization, and evaluation; cybersecurity risk audit frameworks. **Prerequisite:** Grade of C or better in CYBR 201/CSCE 201, CSCE 201/CYBR 201, or CSCE 221; junior or senior classification. **Cross Listing:** CYBR 403/CSCE 477.

CSCE 481 Seminar

Credit 1. 1 Lecture Hour. Investigation and report by students on topics of current interest in computer science. **Prerequisite:** Junior or senior classification.

CSCE 482 Senior Capstone Design

Credits 3. 1 Lecture Hour. 6 Lab Hours. Development of system integration skills for solving real-world problems in computer science; significant team software project that uses integration of advanced concepts across computer science specializations; projects require design, implementation, documentation and demonstration, as well as design methodology, management process and teamwork. **Prerequisite:** Grade of C or better in CSCE 411, and CSCE 315 or CSCE 331; senior classification; also taught at Galveston campus.

CSCE 483 Computer Systems Design

Credits 3. 1 Lecture Hour. 6 Lab Hours. Engineering design; working as a design-team member, conceptual design methodology, design evaluations, total project planning and management techniques, design optimization, systems manufacturing costs considerations; emphasis placed upon students' activities as design professionals. **Prerequisites:** Grade of C or better in CSCE 315 or CSCE 331, and CSCE 462 or ECEN 449, and ECEN 325; senior classification.

CSCE 485 Directed Studies

Credits 0 to 6. 0 to 6 Other Hours. Permits work on special project in computer science; project must be approved by the department. **Prerequisite:** Senior classification; also taught at Galveston campus.

CSCE 489 Special Topics in...

Credits 1 to 4. 1 to 4 Other Hours. Special topics in computer science that are new or unique that are not covered in existing courses.

CSCE 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in computer science. May be taken four times for credit. **Prerequisites:** Junior or senior classification and approval of instructor.

CULN - Culinology (CULN)

CULN 305 Culinary Health

Credits 4. 3 Lecture Hours. 3 Lab Hours. Integration of nutrition science principles, dietary recommendations, and food and cooking skills to facilitate healthy eating behaviors for health promotion; application to recipe development and modification to meet specific dietary needs and sensory acceptability. **Prerequisites:** NUTR 301; enrollment in culinary health certificate program; junior or senior classification.

CULN 483 Culinary Health Practicum

Credits 2. 5 Lab Hours. Demonstration and application of culinary nutrition skills learned in CULN 305 to prepare and critically evaluate recipes and meals for health promotion and disease prevention interventions; planning and implementation of a culinary nutrition education program. **Prerequisites:** CULN 305; enrollment in culinary health certificate program; junior or senior classification.

CVEN - Civil Engineering (CVEN)

CVEN 207 Introduction to the Civil Engineering Profession

Credits 2. 1 Lecture Hour. 2 Lab Hours. Introduction to the study and practice of civil engineering; specialized subdisciplines of civil engineering; professionalism and professional registration; engineering ethics; exercises in engineering technical communications. **Prerequisite:** Grade of C or better in ENGL 103 or ENGL 104; admitted to major degree sequence in civil engineering.

CVEN 221 Engineering Mechanics: Statics

Credits 3. 2 Lecture Hours. 2 Lab Hours. General principles of mechanics; concurrent force systems; statics of particles; equivalent force/moment systems; centroids and center of gravity; equilibrium of rigid bodies; trusses, frames, and machines; internal forces in structural members; friction; second moments of areas. **Prerequisites:** Grade of C or better in MATH 251 or MATH 253, or concurrent enrollment; grade of C or better in PHYS 206 and ENGR 216/PHYS 216 or PHYS 216/ENGR 216; admitted to major degree sequence in civil engineering.

CVEN 250 Introduction to Graphics and Visualization Applications in Civil Engineering Design

Credits 2. 1 Lecture Hour. 3 Lab Hours. Graphical communication in the civil engineering design process; introduction to industry standard software; construction documents and contract drawings in civil engineering applications; data analysis; introduction to project visualization. **Prerequisites:** Admitted to major degree sequence in civil engineering.

CVEN 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of civil engineering. May be repeated for credit. **Prerequisite:** Approval of department head.

CVEN 291 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in civil engineering. May be taken four times for credit. **Prerequisites:** Freshman or sophomore classification or approval of instructor.

CVEN 301/EVEN 301 Environmental Engineering

Credits 3. 3 Lecture Hours. Water quality; material balances; chemical, physical and biological processes; water quality modeling; water and wastewater treatment; air quality; solid and hazardous waste management. **Prerequisites:** Grade of C or better in CHEM 107; Grade of C or better in CVEN 302 and MATH 308, or concurrent enrollment. **Cross Listing:** EVEN 301/ CVEN 301.

CVEN 302 Computer Applications in Engineering and Construction

Credits 3. 3 Lecture Hours. Application of computers to solution of civil engineering problems using various numerical methods; structured computer programming; mathematical modeling and error analysis; solution of algebraic and differential equations; numerical differentiation and integration; curve-fitting; root-finding. **Prerequisites:** Grade of C or better in ENGR 102 and PHYS 206; grade of C or better in MATH 308 or concurrent enrollment; admitted to major degree sequence in civil and environmental engineering.

CVEN 303 Civil Engineering Measurement

Credits 3. 2 Lecture Hours. 3 Lab Hours. Introduction to geodetic positions, datums, map projections; theory of civil engineering measurements and errors applied to horizontal and vertical control, curves, earthwork and mapping using state-of-the-art technology for data capture; processing and presentation of result. **Prerequisite:** Grade of C or better in MATH 151; admitted to major degree sequence in civil engineering.

CVEN 304/EVEN 304 Environmental Engineering Lab

Credit 1. 3 Lab Hours. Environmental measurements on physical, chemical, biological and biotechnological parameters of water.

Prerequisites: CVEN 301/EVEN 301 or EVEN 301/CVEN 301, or concurrent enrollment; CVEN 311/EVEN 311 or concurrent enrollment; or approval of instructor. **Cross Listing:** EVEN 304/CVEN 304.

CVEN 305 Mechanics of Materials

Credits 3. 3 Lecture Hours. Applications of conservation principles and stress/deformation relationships for continuous media to structural members; axially loaded members; thin-walled pressure vessels; torsional and flexural members; shear; moment; deflection of members; combined loadings; stability of columns; nonsymmetrical bending, shear center; indeterminate members; elastic foundations. **Prerequisites:** Grade of C or better in CVEN 221, MEEN 221 or MEEN 225; also taught at Qatar campus.

CVEN 306 Materials Engineering for Civil Engineers

Credits 3. 2 Lecture Hours. 2 Lab Hours. Scientific concepts of civil engineering materials; relationship between macroscopic material properties and response and microscopic properties; physical, mechanical, surface, fracture, and rheological properties of civil engineering materials including metals, composites, and polymers.

Prerequisites: Grade of C or better in CHEM 107 and CVEN 221; grade of C or better in PHYS 207, and ENGR 217/PHYS 217 or PHYS 217/ENGR 217; grade of C or better in CVEN 305 and MATH 308, or concurrent enrollment.

CVEN 307 Transportation Engineering

Credits 3. 3 Lecture Hours. Fundamental principles and methods in planning, design, and operation of transportation systems; driver and vehicle performance capabilities; highway geometric and pavement design principles; traffic analysis and transportation planning.

Prerequisites: Grade of C or better in PHYS 206 and STAT 211.

CVEN 311/EVEN 311 Fluid Dynamics

Credits 3. 3 Lecture Hours. Fluid properties; statics; kinematics; basic conservation principles of continuity, energy and momentum; similitude and hydraulic models; incompressible flow in pipes; fluid dynamic drag.

Prerequisites: Grade of C or better in MATH 251 or MATH 253; grade of C or better in CVEN 221; grade of C or better in CVEN 302, or concurrent enrollment; also taught at Galveston campus. **Cross Listing:** EVEN 311/CVEN 311.

CVEN 314 Sensor Technology in Civil Engineering

Credits 2. 2 Lecture Hours. Fundamentals of sensor technology and its application in civil engineering; investigation of data acquisition systems and sensors used in the civil engineering field; examples and hands-on demonstrations relevant to the natural and built environment.

Prerequisite: Grade of C or better in CVEN 302, or approval of instructor.

CVEN 315 Sensor Technology for the Built Environment

Credits 3. 2 Lecture Hours. 3 Lab Hours. Fundamentals of sensor technology including laboratory safety, error analysis, statistical analysis, electric circuits, data acquisition, signal conditioning, signal analysis, strain gages, laser technology, image acquisition and analysis, fiber optic sensors, wireless sensors; its applications in civil engineering; and hands-on demonstrations relevant to the natural and built environment.

Prerequisites: Grade of C or better in CVEN 302, junior or senior classification, or approval of instructor.

CVEN 322 Civil Engineering Systems

Credits 3. 3 Lecture Hours. Fundamentals of engineering economics; economic analysis and evaluation of engineering projects; application of systems analysis to civil engineering problems; optimization modeling and solution techniques; introduction to sustainability; simulation and statistical methods. **Prerequisites:** Grade of C or better in ENGR 102; grade of C or better in MATH 251 or MATH 253; grade of C or better in STAT 211 or concurrent enrollment; admitted to major degree sequence in civil or environmental engineering or approval of instructor.

CVEN 336 Fluid Dynamics Laboratory

Credit 1. 2 Lab Hours. Basic fluid mechanics instrumentation; flow visualization and measurements; experimental verification and reinforcement of the principles and concepts introduced in CVEN 311/EVEN 311 and EVEN 311/CVEN 311. **Prerequisites:** Grade of C or better in CVEN 311/EVEN 311 or EVEN 311/CVEN 311, or concurrent enrollment.

CVEN 339/EVEN 339 Water Resources Engineering

Credits 3. 3 Lecture Hours. Quantitative hydrology, precipitation, hydrograph analysis, reservoir and stream routing; groundwater, Darcy equation, well equation, well design; probability concepts in design; water law; dams; reservoirs; spillways; open channel and pipe network hydraulics; pumps; urban stormwater drainage; flood damage mitigation.

Prerequisite: Grade of C or better in CVEN 311/EVEN 311 or EVEN 311/CVEN 311. **Cross Listing:** EVEN 339/CVEN 339.

CVEN 342 Materials of Construction

Credits 3. 2 Lecture Hours. 3 Lab Hours. Physical, mechanical and rheological properties and behavior of components and composite construction materials including aggregates, Portland cement concrete, bituminous materials, wood and masonry; production processes and proportioning of composite construction materials used in civil engineering. **Prerequisites:** Grade of C or better in CVEN 302 or concurrent enrollment; grade of C or better in CVEN 305 and CVEN 306; grade of C or better in CVEN 207, ENGL 210, or COMM 205; or approval of instructor.

CVEN 343 Portland Cement Concrete Materials for Civil Engineers

Credits 3. 2 Lecture Hours. 3 Lab Hours. Physical and chemical characteristics of Portland cement concrete systems; constituent materials; mixture proportioning; fresh concrete characteristics; hardened concrete properties; durability characteristics; and concrete construction methods. **Prerequisites:** Grade of C or better in CVEN 302 or concurrent enrollment; grade of C or better in CVEN 305 and CVEN 306; grade C or better CVEN 207, ENGL 210, or COMM 205; or approval of instructor.

CVEN 345 Theory of Structures

Credits 3. 3 Lecture Hours. Structural engineering—functions of structure, design loads, reactions and force systems; analysis of statically determinate structures including beams, trusses and arches; energy methods of determining deflections of structures; influence lines and criteria for moving loads; analysis of statically indeterminate structures including continuous beams and frames. **Prerequisites:** Grade of C or better in CVEN 221 and CVEN 305; grade of C or better in CVEN 302 or concurrent enrollment; also taught at Galveston campus.

CVEN 349 Civil Engineering Project Management

Credits 3. 3 Lecture Hours. Basic elements of management of civil engineering projects; roles of all participants in the process—owners, designers, contractors and suppliers; emphasis on contractual aspect of the process—project estimating, planning and controls. **Prerequisites:** Grade of C or better in CVEN 322, or concurrent enrollment; or approval of instructor.

CVEN 363 Engineering Mechanics: Dynamics

Credits 3. 2 Lecture Hours. 2 Lab Hours. Application of first principles to model dynamic particles and rigid body systems with ordinary differential equations; solutions to models using analytical and numerical approaches; interpreting solutions/performance measures; linear vibrations; modeling of civil engineering systems and evaluating dynamic response to natural hazards. **Prerequisites:** Grade of C or better in CVEN 302, CVEN 305 and MATH 308.

CVEN 365 Introduction to Geotechnical Engineering

Credits 3. 2 Lecture Hours. 3 Lab Hours. Physical properties of soils, classification systems, soil exploration, permeability, consolidation, compaction, and shear strength; laboratory tests conducted to determine the physical and engineering soil properties needed for application in geotechnical engineering design. **Prerequisites:** Grade of C or better in CVEN 302 or concurrent enrollment; grade of C or better in CVEN 305; grade of C or better in CVEN 207, ENGL 210, or COMM 205.

CVEN 399 Mid-Curriculum Professional Development

Credits 0. 0 Lecture Hours. 0 Lab Hours. 0 Other Hours. No Credit. Participation in an approved high-impact learning practice; reflection on professional outcomes from civil engineering body of knowledge; documentation of experience appropriate to eventual professional licensure; self-assessment of learning at mid-curriculum point. **Prerequisites:** Grade of C or better in CVEN 207, CVEN 250, CVEN 303, CVEN 306, CVEN 311/EVEN 311, CVEN 322, CVEN 345; grade of C or better in CVEN 363, CVEN 342, CVEN 343, or CVEN 365.

CVEN 400 Design Problems in Civil Engineering

Credits 3. 2 Lecture Hours. 3 Lab Hours. Applications of civil engineering principles to the design and preparation of the plans and specifications of civil engineering projects. **Prerequisite:** Grade of C or better in CVEN 303, CVEN 322, CVEN 345 and CVEN 399; Grade of C or better in CVEN 304/EVEN 304, CVEN 336, CVEN 342, CVEN 343 or CVEN 365; Grade of C or better in CVEN 402/EVEN 402, CVEN 418, CVEN 435, CVEN 444, CVEN 446, CVEN 455, CVEN 457, CVEN 458/EVEN 458, CVEN 462/EVEN 462, CVEN 465 or CVEN 473; senior classification; or approval of instructor.

CVEN 402/EVEN 402 Engineered Environmental Systems

Credits 3. 3 Lecture Hours. Unit operations and processes in environmental engineering; physical, chemical and biological treatment of water and wastewater; treatment system analysis and design. **Prerequisite:** Grade of C or better in CVEN 301/EVEN 301 or EVEN 301/CVEN 301. **Cross Listing:** EVEN 402/CVEN 402.

CVEN 403 Applied Civil Engineering Surveying

Credits 2. 6 Lab Hours. Application of land surveying principles; topographic surveying, boundary surveying, and construction staking through field exercises using state-of-the-art equipment and data capture/analysis techniques; preparation of topographic and boundary maps with related documents; presentation of results. **Prerequisites:** Grade of C or better in CVEN 303; junior or senior classification.

CVEN 405 Construction Management of Field Operations

Credits 3. 3 Lecture Hours. Effects of industrialization on construction methods and resultant construction management problems. **Prerequisite:** Grade of C or better in CVEN 349.

CVEN 406/EVEN 406 Environmental Protection and Public Health

Credits 3. 3 Lecture Hours. Communicable and noncommunicable diseases; environmental risk assessment; environmental assessments; comprehensive environmental planning; small water and wastewater systems; solid waste management; hazardous spills and waste management; vector control; environmental administration. **Prerequisite:** Grade of C or better in CVEN 301/EVEN 301 or EVEN 301/CVEN 301; or approval of instructor. **Cross Listing:** EVEN 406.

CVEN 413/EVEN 413 Natural Environmental Systems

Credits 3. 3 Lecture Hours. Water quality assessment of natural environmental systems; development and calibration of models to describe fate and transport of contaminants in aquatic systems; application of models to design of water quality control facilities. **Prerequisite:** Grade of C or better in EVEN 301/CVEN 301 or CVEN 301/EVEN 301. **Cross Listing:** EVEN 413/CVEN 413.

CVEN 417 Bituminous Materials

Credits 3. 2 Lecture Hours. 3 Lab Hours. Origin, production, specifications and tests of bituminous materials and mixtures used in flexible pavements including mix design, construction, maintenance and quality assurance processes. **Prerequisite:** Senior classification in engineering; grade of C or better in CVEN 342 or CVEN 343 or approval of instructor.

CVEN 418 Highway Materials and Pavement Design

Credits 3. 3 Lecture Hours. Theory and practice in pavement design; pavement performance; structural design of pavement layers; types of materials used in pavement layers; characterization of pavement layer materials; introduction to pavement management concepts.

Prerequisites: Grade of C or better in CVEN 307; grade of C or better in CVEN 342 or CVEN 343.

CVEN 423 Geomatics for Civil Engineering

Credits 3. 2 Lecture Hours. 3 Lab Hours. Use of GIS, GPS, Survey and Remotely-sensed data integrated with predictive models for infrastructure management systems. **Prerequisite:** Grade of C or better in CVEN 303 or EVEN 339/CVEN 339; or approval of instructor.

CVEN 424 Civil Engineering Professional Practice

Credits 2. 1 Lecture Hour. 2 Lab Hours. Professional practice issues; current civil engineering issues that impact design, construction, and operation of the civil engineer facilities; developing engineering solutions that better serve society; business and public policy concerns; life-long learning; problem solving; professional licensure. **Prerequisites:** Grade of C or better in CVEN 322; satisfactory grade in CVEN 399; senior classification in civil engineering.

CVEN 435 Geotechnical Engineering Design

Credits 3. 2 Lecture Hours. 3 Lab Hours. A design course covering prediction of settlement, analysis of the stability of slopes, prediction of bearing capacity of shallow and deep foundations and determination of earth pressures acting on retaining structures; a general course in geotechnical engineering design for undergraduates and for graduate students not primarily interested in the geotechnical field, but desiring additional study beyond the introductory undergraduate level.

Prerequisite: Grade of C or better in CVEN 365.

CVEN 436 Case Histories in Geotechnical Engineering

Credits 3. 2 Lecture Hours. 2 Lab Hours. Examination of geotechnical problems through the use of case studies associated with foundations, waste disposal, slope stability, retaining structures, soil improvement and other civil engineering works. **Prerequisite:** Grade of C or better in CVEN 365.

CVEN 444 Structural Concrete Design

Credits 3. 3 Lecture Hours. Behavior, design, and detailing of reinforced concrete structural members according to the ACI Building Code Requirements; design for ultimate limit states (flexure, shear, and axial loads) and serviceability requirements (cracking and deflection); applications include continuous beams and moment frames.

Prerequisites: Grade of C or better in CVEN 345; grade of C or better in CVEN 342 or CVEN 343, or concurrent enrollment.

CVEN 445 Matrix Methods of Structural Analysis

Credits 3. 2 Lecture Hours. 2 Lab Hours. Analysis of framed structures using linear algebra concepts; matrix algebra and solution of linear algebraic equations; energy principles and virtual work; stiffness; coordinate transformations; use of commercial software for structural analysis. **Prerequisites:** Grade of C or better in CVEN 345 and CVEN 363.

CVEN 446 Structural Steel Design

Credits 3. 3 Lecture Hours. Design of structural steel elements found in building structures, including tension members, compression members, beams, beam-columns and base plates; design of bolted and welded simple connections; design of bolted eccentric connections; design of bolted and welded partially and fully restrained connections. **Prerequisite:** Grade of C or better in CVEN 345; also taught at Galveston campus.

CVEN 449 Visualization and Building Information Modeling in Structural Engineering Design

Credit 1. 1 Lecture Hour. Graphical communication in the structural engineering design process; introduction to Building Information Modeling (BIM); construction documents and contract drawings in structural engineering applications, data analysis and project visualization. **Prerequisites:** Grade of C or better in CVEN 250 and CVEN 345.

CVEN 450 AutoCAD in Civil Engineering

Credit 1. 3 Lab Hours. Review and application of basic commands and operations in AutoCAD; overview of civil engineering design projects and land surveying; use of AutoCAD Civil 3D or proprietary packages for reduction of land surveying data. **Prerequisites:** Grade of C or better in CVEN 250; junior or senior classification.

CVEN 451 Public Works Engineering

Credits 3. 3 Lecture Hours. Public works engineering; service demand estimates; water, wastewater and solid waste collection systems; urban drainage; code enforcement and public decision making. **Prerequisites:** Grade of C or better in CVEN 301/EVEN 301 or EVEN 301/CVEN 301; grade of C or better in CVEN 339/EVEN 339 or EVEN 339/CVEN 339.

CVEN 454 Urban Planning for Engineers

Credits 3. 2 Lecture Hours. 3 Lab Hours. Urban planning from an engineering point of view; determinants of land use patterns, planning data collection and analysis; location and design requirements for various land uses; interrelationship of transportation and land use; and methods of plan development. **Prerequisite:** Grade of C or better in CVEN 307.

CVEN 455 Urban Stormwater Management

Credits 3. 3 Lecture Hours. Hydrologic, hydraulic, and general civil engineering design and implementation of stormwater systems including drainage and detention storage facilities, floodplain regulation measures, and flood control structures; stormwater aspects of land development and public works engineering; flood hydrology and hydraulics; institutional aspects of urban stormwater management. **Prerequisite:** Grade of C or better in CVEN 339/EVEN 339 or approval of instructor.

CVEN 456 Highway Design

Credits 3. 2 Lecture Hours. 3 Lab Hours. Theory and practice in highway design; highway classification and design criteria, location studies, design of vertical and horizontal alignment, cross section, pavement, intersections and highway drainage elements. **Prerequisites:** Grade of C or better in CVEN 307; satisfactory grade in CVEN 399; grade of C or better in CVEN 342 or CVEN 343; grade of C or better in CVEN 418, CVEN 444 or CVEN 457; senior classification; or approval of instructor.

CVEN 457 Urban Traffic Facilities

Credits 3. 3 Lecture Hours. Driver, vehicle and roadway characteristics related to design and operation of traffic facilities; selection and design of traffic control devices and information systems for streets and highways; accident analysis and tort liability related to traffic engineering. **Prerequisite:** Grade of C or better in CVEN 307.

CVEN 458/EVEN 458 Hydraulic Engineering of Water Distribution Systems

Credits 3. 3 Lecture Hours. Pressure conduit hydraulics; design, modeling, and analysis of water conveyance and distribution systems including pipelines, pipe networks, and pumps. **Prerequisite:** Grade of C or better in CVEN 339/EVEN 339 or EVEN 339/CVEN 339 or approval of instructor. **Cross Listing:** EVEN 458/CVEN 458.

CVEN 462/EVEN 462 Engineering Hydrogeology

Credits 3. 3 Lecture Hours. Groundwater in the hydrologic cycle; aquifer properties; well hydraulics, testing, and design; groundwater quality; and groundwater management and sustainability. **Prerequisites:** Grade of C or better in CVEN 311/EVEN 311 or EVEN 311/CVEN 311; Grade of C or better in CVEN 301/EVEN 301, EVEN 301/CVEN 301, CVEN 339/EVEN 339, or EVEN 339/CVEN 339; junior or senior classification; or approval of instructor. **Cross Listing:** EVEN 462/CVEN 462.

CVEN 463/EVEN 463 Engineering Hydrology

Credits 3. 3 Lecture Hours. Occurrence, distribution and properties of natural waters of the earth; measurement and engineering analysis of hydrologic phenomena including precipitation, streamflow and groundwater, hydrologic design of water resources development and management projects. **Prerequisite:** Grade of C or better in CVEN 339/EVEN 339 or EVEN 339/CVEN 339. **Cross Listing:** EVEN 463/CVEN 463.

CVEN 464 Environmental Fluid Mechanics

Credits 3. 3 Lecture Hours. Examination of fluid and mass transport in naturally occurring flows; includes Navier-Stokes equations; molecular and turbulent diffusion; advective, reacting transport equation; dispersion; river, lake, estuary and atmospheric mixing; dissolution boundary layers; wastewater outfalls; introduction to environmental quality numerical modeling. **Prerequisites:** Grade of C or better in CVEN 311/EVEN 311, or approval of instructor.

CVEN 465 Coastal Resilience

Credits 3. 3 Lecture Hours. Mechanics of wave motion, coastal water level fluctuations, wave transformation, coastal processes, wave forecasting, coastal structures, and coastal development and management, planning and design of coastal engineering projects. **Prerequisites:** Grade of C or better in CVEN 311/EVEN 311 or EVEN 311/CVEN 311, or approval of instructor.

CVEN 473 Engineering Project Estimating and Planning

Credits 3. 2 Lecture Hours. 3 Lab Hours. Application of cost estimating and planning techniques for civil engineering projects; introduction to labor, materials and equipment costing; productivity analysis; indirect and general overhead costs; preparation of approximate and definitive estimates; and integration of time/cost relationships through critical path method and resource leveling. **Prerequisites:** Grade of C or better in CVEN 349; senior classification.

CVEN 483 Analysis and Design of Structures

Credits 3. 2 Lecture Hours. 3 Lab Hours. Overall procedure of analysis and design including functions, loads, layouts of force systems; analysis, specifications, cost comparisons, and maintenance as applied to typical building structures. **Prerequisites:** Grade of C or better in CVEN 365 or concurrent enrollment; satisfactory grade in CVEN 399; grade of C or better in CVEN 444 and CVEN 446; senior classification; or approval of instructor.

CVEN 485 Directed Studies

Credits 0 to 3. 0 to 3 Other Hours. Research and design problems of limited scope approved on an individual basis intended to promote independent study; results of study presented in writing. **Prerequisite:** Approval of department head.

CVEN 489 Special Topics in...

Credits 1 to 4. 0 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of civil engineering. May be repeated for credit. **Prerequisite:** Approval of department head.

CVEN 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty members in civil engineering. May be taken three times for credit. **Prerequisites:** Junior or senior classification and approval of instructor.

CYBR - Cybersecurity (CYBR)

CYBR 201/CSCE 201 Fundamentals of Cybersecurity

Credits 3. 3 Lecture Hours. Basic terminology, concepts, technology, and trends of cybersecurity; foundations of cybersecurity to include cryptography, public key infrastructure, standards and protocols, physical security, network fundamentals; workings of systems, networks, infrastructure; legal and ethical issues in cybersecurity. **Cross Listing:** CSCE 201/CYBR 201.

CYBR 285 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Directed individual study in cybersecurity. May be repeated for credit.

CYBR 289 Special Topics in...

Credits 0 to 4. 0 to 4 Other Hours. Selected topics in an identified area of cybersecurity. May be repeated for credit.

CYBR 291 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in cybersecurity topics. May be repeated for credit.

CYBR 402 Law and Policy in Cybersecurity

Credits 3. 3 Lecture Hours. Examination of law and policy issues related to cybersecurity for the spectrum of cybersecurity jobs; includes procurement, operations and maintenance, governance and oversight, protection and defense, analysis, intelligence collection and operation and investigation cybersecurity jobs. **Prerequisites:** Junior or senior classification; MARA-403 taught at Galveston campus. **Cross Listing:** CSCE 402 and MARA 403.

CYBR 403/CSCE 477 Cybersecurity Risk

Credits 3. 3 Lecture Hours. Risks in cybersecurity; avoidance, acceptance, mitigation, or transference strategies; developing reliable cybersecurity risk assessments to include analysis, categorization, and evaluation; cybersecurity risk audit frameworks. **Prerequisite:** Grade of C or better in CYBR 201/CSCE 201, CSCE 201/CYBR 201, or CSCE 221; junior or senior classification. **Cross Listing:** CSCE 477/CYBR 403.

CYBR 405 Applied Digital Forensics and Incident Response

Credits 3. 3 Lecture Hours. Collection of digital evidence; digital evidence analytics; analysis of log data; malware triage; recover damaged digital evidence; write technical reports on malware and incidents; legal and ethical components of digital forensic science. **Prerequisites:** Junior or senior classification.

CYBR 466/ECEN 466 Unconditionally Secure Electronics

Credits 3. 3 Lecture Hours. Data security; cryptography; key exchange; conditional security; unconditional (information-theoretic) security; quantum key distribution; the Kirchhoff-law-Johnson-noise (KLJN) key exchange, electronic noise; advanced issues of KLJN; schemes, protocols, attacks, defense, privacy amplification, credit cards, PUF, autonomous vehicles and smart grids. **Prerequisites:** Grade of C or better in ECEN 214; grade of C or better in ECEN 303 or STAT 211; junior or senior classification. **Cross Listing:** ECEN 466/CYBR 466.

CYBR 484 Professional Internship

Credits 0 to 6. 0 to 6 Other Hours. Directed internship in an organization to provide students with a learning experience supervised by professionals in organizational settings appropriate to the student's professional objectives.

CYBR 485 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Directed individual study in cybersecurity. May be repeated for credit.

CYBR 489 Special Topics in...

Credits 0 to 4. 0 to 4 Other Hours. Selected topics in an identified area of cybersecurity. May be repeated for credit.

CYBR 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in cybersecurity topics. May be repeated for credit.

DAEN - Data Engineering (DAEN)

DAEN 210 Uncertainty Modeling

Credits 3. 3 Lecture Hours. Models and methods for exploration of data based on probability and statistics; random variables, expectation, data collection, distribution fitting, goodness of fit tests, point estimates and interval estimates and central limit theorem. **Prerequisite:** Grade of C or better STAT 211.

DAEN 300 Data Engineering Coding Experience I

Credit 1. 0 Lecture Hours. 3 Lab Hours. Application of computational tools to model and solve data engineering problems primarily involving machine learning and optimization techniques. **Prerequisite:** Grade of C or better in ECEN 360; concurrent enrollment in DAEN 321 and DAEN 331; junior or senior classification.

DAEN 301 Data Engineering Coding Experience II

Credit 1. 0 Lecture Hours. 3 Lab Hours. Application of computational tools to model and solve data engineering problems involving stochastic systems, reinforcement learning, ensemble learning and data visualization. **Prerequisites:** Grade of C or better in DAEN 300; concurrent enrollment in DAEN 323 and DAEN 328; junior or senior classification.

DAEN 321 Quantitative Models for Statistical and Machine Learning

Credits 3. 3 Lecture Hours. Principles of parameter estimation, confidence interval, p-values, hypothesis testing, design of experiments, model building, multiple regression, ANOVA, statistical quality control, Shewhart charts, CUSUM, EWMA, and residual-based control charts. **Prerequisite:** Grade of C or better DAEN 210; junior senior classification.

DAEN 323 Statistical Learning and Decisions

Credits 3. 3 Lecture Hours. Stochastic systems components; stochastic process models using Markov chains; Markov-decision processes; use of multi-armed bandit problems; exploration and exploitation; reinforcement learning; Bayesian updates; ensemble learning with bagging, boosting and stacking. **Prerequisite:** Grade of C or better in DAEN 321; junior or senior classification.

DAEN 328 Data Engineering for Humans

Credits 3. 3 Lecture Hours. Human considerations and constraints for data engineering, including human factors of data visualization; data processing and analysis of human physiological, psychological and performance data; the role of human biases in model development, analysis and interpretation; human factors of interactions with machine learning-based artificial intelligence tools in complex systems such as healthcare, manufacturing and transportation. **Prerequisites:** Junior senior classification.

DAEN 331 Optimization of Analytics

Credits 3. 3 Lecture Hours. Mathematical optimization algorithms with applications to data analytics; primary topics include convexity, gradient and subgradient methods and their variants, Newton's and quasi-Newton methods, Frank-Wolfe, duality, derivative-free optimization. **Prerequisites:** Grade of C or better in MATH 251 or MATH 253; grade of C or better in MATH 304 or MATH 323.

DAEN 399 Professional Development

Credits 0. 0 Lecture Hours. Participation in an approved high-impact learning practice; reflection on professional outcomes from the National Society of Professional Engineers' Engineering Body of Knowledge; documentation and self-assessment of learning experience at mid-curriculum point. Must be taken on a satisfactory/unsatisfactory basis.

Prerequisite: Junior or senior classification.

DAEN 400 Case Studies in Data Engineering

Credits 3. 3 Lecture Hours. Exploration of a set of diverse case studies; application of analytical and computational tools to model and develop solutions to open ended problems from different application areas; development of writing capabilities through the writing of case study reports. **Prerequisite:** Grade of C or better DAEN 301.

DAEN 410 Optimization Algorithms for Data Engineering

Credits 3. 3 Lecture Hours. . Development of optimization skills for solving problems faced in data engineering; introduction to quantitative solution of optimization problems; exploration of branch and bound, and other IP techniques; methodologies for network flow algorithms, dynamic programming, and nonlinear optimization algorithms, and their applications in data engineering problems. **Prerequisite:** Grade of C or better in DAEN 331; junior or senior classification.

DAEN 420 Smart Manufacturing

Credits 3. 3 Lecture Hours. Hands-on learning experiences of sensing, measurement and elementary prognostic technologies for modern manufacturing operations; introduction to the emerging challenges and opportunities for harnessing information to substantially improve quality assurance, process design and discovery resulting from advances in sensors, machine tool and plant-floor and a range of system-wide sensor technologies. **Prerequisites:** Grade of C or better DAEN 321; junior or senior classification.

DAEN 427/ISEN 427 Decision and Risk Analysis

Credits 3. 3 Lecture Hours. Overview of the state of the art in descriptive and prescriptive theories of decision making under uncertainty with emphasis on the ways in which human decisions depart from normative models of rationality; analytical foundations stemming from several disciplines, economics, psychology, management science; application in engineering systems will be considered. **Prerequisites:** Grade of C or better in ISEN 310, DAEN 321, or STAT 212. **Cross Listing:** ISEN 427/DAEN 427.

DAEN 429 Data Analytics II

Credits 3. 3 Lecture Hours. Deep learning, including basic machine learning, supervised learning, logistic regression, loss functions, neural networks, optimization, error back-propagation, regularization and generalization, convolutional neural networks, recurrent neural networks, attention models, applications to natural language processing and computer vision. **Prerequisites:** Grade of C or better in DAEN 301 and DAEN 323; junior or senior classification.

DAEN 430 Forecasting Using Machine-Learning Approaches

Credits 3. 3 Lecture Hours. Forecasting principles and methods, including point and interval forecasts; accuracy; statistical methods in the context of forecasting, including exponential smoothing and Auto Regressive Integrated Moving Average (ARIMA), exogenous variables, seasonality and trends; tree-based models for predictions, prophet models, probabilistic forecasts and predictive and prescriptive analytics. **Prerequisites:** Grade of C or better in DAEN 321; junior or senior classification.

DAEN 459 Capstone Senior Design Planning

Credits 3. 2 Lecture Hours. 3 Lab Hours. First in a two-course sequence for the capstone senior design experience; formation of a senior design team, visitation with the team sponsor, preparation of the groundwork for the project, preparation of the project charter and collection or acquisition of initial set of data; provision of instructions on different aspects of capstone design, including ethics, design constraints, applicable standards, project management, report writing specifications and requirements, and oral and visual presentations. **Prerequisite:** Grade of C or better in DAEN 301; concurrent enrollment in DAEN 400, ISEN 427/DAEN 427, and DAEN 429.

DAEN 460 Capstone Senior Design

Credits 3. 1 Lecture Hour. 6 Lab Hours. Second course in a two-course sequence for the capstone senior design experience; continuation of work on the senior design project in teams; data collection, analysis, application of data engineering methods and tools and development of recommendations considering design constraints, evaluation of alternative design, and application of relevant standards; engagement in oral presentations and creation of the project report, with relevant feedback provided during the semester. **Prerequisite:** Grade of C or better in DAEN 459.

DAEN 489 Special Topics in...

Credits 1 to 4. 0 Lecture Hours. 1 to 4 Other Hours. Selected topics in an identified area of data engineering. May be repeated for credit. **Prerequisite:** Junior or senior classification; approval of instructor.

DAEN 491 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of faculty member in data engineering. May be repeated for credit. **Prerequisites:** Junior or senior classification and approval of instructor.

DASC - Dairy Science (DASC)

DASC 418 Dairy Science Consortium

Credits 4. 3 Lecture Hours. 2 Lab Hours. Advanced topics including concepts of herd dynamic modeling, advanced dairy nutrition and forage production, human resource development, OSHA safety concepts and training for dairy, advanced reproductive programs, young-stock and heifer management, precision management, facilities and heat stress reduction programs. **Prerequisites:** Grade of C or better in ANSC 305, ANSC 307, ANSC 318, and ANSC 333; junior or senior classification or approval of instructor.

DASC 485 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Special problems in dairy production or dairy manufacturing. **Prerequisites:** Junior or senior classification; written approval of professor supervising the activity; 2.0 GPR in major and overall.

DCED - Dance Education (DCED)

DCED 165 Fundamentals of Ballet

Credits 2. 5 Lab Hours. Basic mechanics of ballet movements and appropriate terminology; exploration of historical background, and cultural heritage; focuses on refined body alignment, and cross-training exercises to increase physical performance in ballet. **Prerequisites:** Dance science majors; dance minors; or approval of instructor.

DCED 201 Dance History

Credits 3. 3 Lecture Hours. Overview of current dance scene, career fields, education; development of theatrical, social, educational dance from lineage based to contemporary cultures; emphasis on dance in America, genres, roots, heritage, pioneers, crusading artists; impacts, influences, growth, development, trends and continual metamorphosis in the art world.

DCED 202 Dance Appreciation

Credits 3. 3 Lecture Hours. (DANC 2303) Dance Appreciation. Survey of dance as a cultural and artistic form in numerous countries; exploration of the development and influence of dance in various cultures; analysis of various genres of artistic dance and their development; discussion of aesthetic principles of dance as an art form and how choreographers are influenced by society to create work.

DCED 203 Dance Production

Credits 3. 3 Lecture Hours. Overview of philosophy, major aspects and common elements in producing dance concerts; lighting, sound, stage design, terminology, costuming, management, production designs, practical experience with on-stage performances. **Prerequisites:** Dance science majors, dance concentration majors and dance minors; or approval of instructor.

DCED 205 Fundamentals of Pilates

Credits 2. 1 Lecture Hour. 3 Lab Hours. Study of Contrology; fundamentals of the Pilates Method; mat exercises beginner through advanced; historical background and philosophy; developing modifications of exercises based on individual needs.

DCED 210 Functional Anatomy for Pilates

Credits 3. 3 Lecture Hours. Examination of major muscles, bones and joints as they relate to Pilates exercises and fundamentals; anatomical analysis of Pilates exercises and identification of supplemental movements to improve performance; practice-based anatomy lessons.

DCED 215 Pilates Apparatus I

Credits 2. 1 Lecture Hour. 3 Lab Hours. Study of beginner Pilates apparatus work as designed by Joseph H. Pilates; basic principles of Pilates including breathing, pelvic and ribcage placement, scapulae stabilization, head and cervical alignment; uses apparatuses such as reformer, cadillac, chair, and barrel; incorporates the use of props such as rollers, mini balls, physioballs, blocks, therabands and pinky balls into apparatus work. May be taken two times for credit. **Prerequisites:** DCED 205 or approval of instructor.

DCED 216/VIST 216 Performance Documentation and Editing

Credits 3. 3 Lecture Hours. Exploration of the technical and artistic skills required for filming and documenting performance; fundamental techniques of camera movement and frame composition; hands-on experience learning and operating various cameras, movement apparatuses and camera rigs, lighting equipment, and professional editing programs to produce archival and promotional documentation of live performances. **Cross Listing:** VIST 216/DCED 216.

DCED 217 Musicality and Movement for Performers

Credits 3. 3 Lecture Hours. Study of music terminology, rhythm, music embodiment, music history, and compositional approaches; exploration of how music, sound, and musicality impact performance; topics include understanding how to communicate with collaborating with musicians and composers; understanding musicality and how it relates to dance practice.

DCED 222 Introduction to Dance Science

Credits 2. 2 Lecture Hours. Introduction to the field of dance science including history, related professions and organizations, post graduate work and current research in the field; exploring basic anatomy and kinesiology concepts relevant to dance; injury prevention, common injuries in dance and return to dance procedures; wellness concepts directly related to dance nutrition, physiological and psychological issues for dancers. **Prerequisites:** Dance science majors or approval of instructor.

DCED 230 Conditioning for Dancers

Credits 2. 1 Lecture Hour. 2 Lab Hours. Introduction to the fitness and conditioning needs of dancers; explanation of physical demands of different dance genres; understanding stretching mechanics and techniques for dancers with and without hypermobility; exploration of strengthening exercises to specific areas of the body; identification of individual conditioning needs; design and implement conditioning program for dancer needs.

DCED 240 Improvisation and Partnering

Credits 2. 1 Lecture Hour. 3 Lab Hours. Description of movement principles of space, time, and force experiment with exploration of these principles through dance improvisation and partnering; development of movement sequences individually from various stimuli such as poetry, pictures, sculpture, and other art; experimentation with concepts of leading and following others through movement, and explore properties of momentum, weight sharing, contact improvisation, timing and trust.

DCED 242 Contact Improvisation

Credits 2. 1 Lecture Hour. 3 Lab Hours. Introduction to and exploration of the principles of improvisational partnering including touch, trust, weight sharing, and non-verbal communication; experiment with non-codified/free movement in collaboration with peers including concepts of listening, responding, leading, following, pushing, and pulling; understanding principles of safe alignment and lifting; learning about the history of contact improvisation from creation to present day and understanding the social/cultural influences which shape the form.

DCED 250 Contemporary Ballet

Credits 2. 1 Lecture Hour. 3 Lab Hours. Introduction to contemporary ballet technique for dancers; series of barre exercises progressing to center work, explanation of positions of the body and port de bras; understand proper body alignment as it relates to ballet and integrated contemporary techniques; exploration of choreographic phrases of movement; identifying and appreciating contemporary ballet as a sub-genre of ballet. **Prerequisites:** Grade of B or better in DCED 260 or DCED 261; Dance Science majors; Dance minors; University Studies: Dance Concentration students; approval of instructor.

DCED 260 Ballet I

Credits 2. 5 Lab Hours. (DANC 1241) Ballet I. Introduction to ballet technique for dancers; series of barre exercises progressing to center work, explanation of positions of the body and port de bras; understand proper body alignment as it relates to ballet technique; appreciation of ballet as an instrument of expression. May be taken 3 times for credit. **Prerequisites:** Dance science majors, dance concentration majors and dance minors; or approval of instructor.

DCED 261 Movement Lab: Ballet I

Credits 2. 5 Lab Hours. Understand body alignment through ballet technique; assess individual muscular and skeletal imbalances during a ballet technique class; video references of proper body alignment; anatomical explanation and assessment of individual's use of lateral rotation in ballet technique. May be taken three times for credit. **Prerequisite:** Dance science majors; university studies dance concentration majors; dance minors; or approval of instructor.

DCED 265 Dance Performance Practicum

Credit 1. 3 Lab Hours. Dance repertory to engage in dance practice through the process of rehearsals and performance; collaborating in choreographic processes with varying approaches; understanding of rehearsal processes including studio practice, performance spacing, and technical and dress rehearsals; execution of performance in various settings including the stage, community, and other various professional engagements. May be taken three times for credit. **Prerequisite:** Approval of instructor.

DCED 271 Modern Dance I

Credits 2. 5 Lab Hours. Study and understanding of modern dance concepts; lateral curve, contraction, spiral, high curve, high release, rotation versus parallel, body alignment, moving in and out of the floor, fluidity of phrase work, musicality and kinesthetic awareness. May be taken 3 times for credit. **Prerequisites:** Dance science majors, dance concentration majors and dance minors; or approval of instructor.

DCED 272 Movement Lab: Modern Dance I

Credits 2. 5 Lab Hours. Understand body alignment through modern dance; assess individual muscular and skeletal body imbalances during a modern dance class; introduction of how to work with imbalances in the body while executing proper dance technique; understand the structural and muscular alignment of parallel versus lateral rotation. May be taken three times for credit. **Prerequisite:** Dance Science majors and minors; approval of instructor.

DCED 286 Jazz Dance I

Credits 2. 1 Lecture Hour. 3 Lab Hours. Introduction to the study of jazz dance; includes basic steps, locomotor and axial phrases of movement, concepts, and techniques to develop motor and rhythmical skills for jazz movement; development of coordination, stamina, flexibility, and proper alignment; fostering of individual style and creativity towards performing various combinations; historical background and cultural heritage of jazz dance including various styles and choreographers.

DCED 289 Special Topics in...

Credits 0 to 4. 0 to 4 Other Hours. Selected topics in an identified area of dance. May be repeated for credit.

DCED 292 Tap Dance I

Credits 2. 1 Lecture Hour. 3 Lab Hours. Fundamentals of tap dance; introductory exploration of rhythms and basic steps, concepts, vocabulary, and techniques used to develop motor skills; historical background of the development of tap dance and its cultural heritage throughout the 20th century. May be taken three times for credit. **Prerequisites:** BS Dance Science Majors; Performance Minors; approval of instructor.

DCED 297 Hip Hop Dance I

Credits 2. 1 Lecture Hour. 3 Lab Hours. Fundamentals of street dance styles primarily performed to hip hop music or that have evolved as part of hip hop culture; styles may include breaking, locking, and popping; basic steps, concepts, and techniques used to develop motor and rhythmical skills; historical background of the development of hip hop dance and its cultural heritage.

DCED 303 Health Practices for Dancers

Credits 3. 2 Lecture Hours. 3 Lab Hours. Focuses on health issues common to the dancer such as overtraining, drug use and performance anxiety, anatomy in relation to proper dance technique, misalignments, imbalances and injuries common to the dancer. **Prerequisites:** Dance science majors only or approval of instructor; junior or senior classification.

DCED 304 Creative Dance for Children

Credits 3. 3 Lecture Hours. Theory and practice of creative movement classes for children; the development stages and learning outcomes of creative movement; incorporation of creative movement into children's classes; dance elements and benefits of creative movement; lesson plans and student assessment. **Prerequisite:** Junior or senior classification or approval of instructor.

DCED 306 Choreographic Principles

Credits 3. 2 Lecture Hours. 3 Lab Hours. Introduces choreographic devices in solo and duet movement studies; exploration of design principles; creating multiple movement studies using various elements of choreography. **Prerequisites:** Grade of C or better in DCED 240 or DCED 242; junior or senior classification; approval of instructor.

DCED 307 Artificial Intelligence in Dance Composition

Credits 3. 2 Lecture Hours. 3 Lab Hours. Exploration and application of Artificial Intelligence (AI) in dance through multifaceted perspectives; including dance making, investigating the impact of AI on originality, the role of the artist in an AI-driven process, the ethical and social implications of AI in dance making. **Prerequisites:** PVFA 201 or concurrent enrollment; junior or senior classification or approval of instructor.

DCED 308 Safe Practices in Teaching Dance

Credits 3. 3 Lecture Hours. Effectively teach a dance technique class safely; explore scientific research and evidence through three areas including environmental, physical and psychological components of a dance class for a multitude of genres and ages; create a safe supportive dance environment; application of relevant anatomical principles; develop a safe dance class.

DCED 310 Research Methods in Dance

Credits 2. 2 Lecture Hours. Understanding of basic research methods and statistical analysis techniques used in dance science research; development of basic skills in reading, reviewing and understanding publications in dance research; topics include research design, ethics in research, information retrieval, data collection methods, subject selection, sources of error, types of research; demonstration of knowledge by analyzing, interpreting, and summarizing research writing in professional journals and by planning a research study. **Prerequisites:** Junior and senior classification.

DCED 315 Special Populations in Dance

Credits 3. 3 Lecture Hours. Explanation of how dance influences other populations including children, the elderly, people with learning and physical disabilities, Parkinson's patients, and other populations; understanding the specific needs of children and adults in special populations; exploration of teaching techniques and movement designed for the specific needs of varied populations and possible physical and/or mental limitations; design movement class based on the needs of a specific group of people with specific physical needs and limitations. **Prerequisites:** Junior and senior classification.

DCED 320 Pilates Apparatus II

Credits 2. 1 Lecture Hour. 3 Lab Hours. Study of intermediate Pilates apparatus work; use of apparatuses such as reformer, cadillac, chair, and barrel; incorporating the use of props such as rollers, mini balls, physioballs, blocks, therabands, and pinky balls into intermediate apparatus work. **Prerequisites:** DCED 215 or approval of instructor.

DCED 325 Screendance

Credits 3. 2 Lecture Hours. 3 Lab Hours. Practical application to establish a working knowledge for creating art within screendance; choreographic principles are transposed from stage to screen; production from conception to dissemination; utilizes technologies to forward artistic and creative vision; use of software and equipment specific to screendance. **Prerequisites:** Junior or senior classification; DCED 216/VIST 216 or VIST 216/DCED 216 recommended.

DCED 351 Pointe and Variations

Credits 2. 1 Lecture Hour. 3 Lab Hours. Technical study of foundational ballet pointe work; learning and performing choreographed ballet variations; understanding the history and evolution of pointe work and the pointe shoe as it applies to classroom exercises and choreography; strengthening the feet and ankles for pointe work and refining alignment and ballet technique; cultivating a deep appreciation and knowledge of choreographic works throughout history and embodying those works through physical performance. **Prerequisites:** Grade of B or better in DCED 260, DCED 261, DCED 361, DCED 362, DCED 462, or DCED 463; junior or senior classification; Dance Science or Dance Concentration major or Dance minor; or approval of instructor.

DCED 361 Ballet II

Credits 2. 5 Lab Hours. Intermediate study of ballet; historical background and the knowledge and understanding of its cultural heritage; increased level of difficulty in barre, center and across the floor; concentration and continual refinement of body/spatial awareness, musicality, alignment and execution of correct classical technique. May be taken 3 times for credit. **Prerequisite:** Dance science majors, dance concentration majors and dance minors; or approval of instructor.

DCED 362 Movement Lab: Ballet II

Credits 2. 5 Lab Hours. Self evaluation of correct body alignment and imbalances while executing proper ballet technique; observation and assessment of the student's progression throughout the semester in regards to proper alignment and technique. May be taken three times for credit. **Prerequisite:** Dance Science majors and minors; approval of instructor.

DCED 372 Modern Dance II

Credits 2. 5 Lab Hours. Intermediate study of modern dance; reviews, historical background and its development within society; continual study and understanding of modern dance concepts; fall/recovery, contract/release, use of breath and weight, spine work, inversion and spatial awareness. May be taken 3 times for credit. **Prerequisite:** Dance science majors, dance concentration majors and dance minors; or approval of instructor.

DCED 373 Movement Lab: Modern Dance II

Credits 2. 5 Lab Hours. Self evaluation of correct body alignment and imbalances while executing proper modern dance technique; observation and assessment of the student's progression throughout the semester in regards to proper alignment and technique. May be taken three times for credit. **Prerequisite:** Dance Science majors and minors; approval of instructor.

DCED 387 Jazz Dance II

Credits 2. 1 Lecture Hour. 3 Lab Hours. Intermediate study of jazz dance; review of historical background and cultural heritage; includes several jazz styles; proper body mechanics and alignment; placement exam required on the second day of class. May be taken three times for credit. **Prerequisite:** Grade of B or better in DCED 286 or approval of instructor.

DCED 392 Tap Dance II

Credits 2. 1 Lecture Hour. 3 Lab Hours. Intermediate study of tap dance; continuation of the development of tap technique and fundamentals with a focus on speed, transitions, complex rhythms, and improvisation; exploration of the historical background of the development of tap dance in the 21st century. May be taken three times for credit. **Prerequisites:** Grade of B or better in DCED 286 or approval of instructor.

DCED 398 Hip Hop Dance II

Credits 2. 1 Lecture Hour. 3 Lab Hours. Advanced study of street dance styles primarily performed to hip hop music or that have evolved as part of hip hop culture; styles may include breaking, locking, and popping; advanced steps, concepts, and techniques used to enhance motor and rhythmical skills; study of the current culture of hip hop dance and its social impact. **Prerequisites:** Grade of B or better in DCED 297 or approval of instructor.

DCED 400 Group Choreography

Credits 3. 2 Lecture Hours. 3 Lab Hours. Introduces choreographic devices related to group movement studies; explore and create movement studies as a means of first and second function art, use choreographic tools in the dance making process as it relates to group work. **Prerequisites:** Grade of C or better in DCED 306 or approval of instructor.

DCED 401 Dance Pedagogy

Credits 3. 2 Lecture Hours. 3 Lab Hours. Study of dance pedagogy; major aspects of a dance teacher including knowledge of injury prevention, correct technique, preparation, presentation, evaluation of dance materials, levels and technique class; focus on various teaching methods, tools, planning, communication/instructional skills and learning experiences/styles. **Prerequisite:** Approval of instructor; junior or senior classification.

DCED 402 Concert Choreography and Production

Credits 3. 2 Lecture Hours. 3 Lab Hours. Choreograph, design, and produce a concert; accumulation of previous course work in composition should be used to bring the elements of the choreographic process to a final concert including the choreography, costumes, lighting and stage management. **Prerequisites:** Junior or senior classification, grade of C or better in DCED 400 or approval of instructor.

DCED 403 Dance Movement Analysis

Credits 3. 3 Lecture Hours. Using scientific methods to evaluate the dancer's body; implementation of dance screening process and creation of programs to address specific dance related injuries, imbalances or misalignments; study of current research in dance medicine/science and application of this knowledge to increase longevity of movement. **Prerequisite:** Grade of C or better in BIOL 319 and BIOL 320; Dance Science majors or approval of instructor; junior or senior classification.

DCED 405 Career Preparation in Dance

Credit 1. 1 Lecture Hour. Preparation for entering desired career field within dance after graduation, including areas of dance performance, dance science, and dance pedagogy; development of materials for self-promotion for jobs or graduate school; develop original portfolio of work. **Prerequisite:** Grade of C or better in DCED 306 or concurrent enrollment; approval of instructor.

DCED 410 Dance Teams in Secondary Education

Credits 3. 3 Lecture Hours. Development of the skills necessary to direct a dance team in secondary education; budgeting, scheduling and interpersonal relationships; examination of the the different seasons and their unique needs, including football, contest, spring show and summer camps; definition of injury protocols and discussion of return to dance procedures; examination of work and life balance; creation of a professional portfolio specific to directing dance. **Prerequisite:** Junior or senior classification; approval of instructor.

DCED 411 Wellness and the Performing Artist

Credits 3. 3 Lecture Hours. Issues related to the mental health and wellness of the performing artist; dealing with emotions, creating healthy habits, perfectionism, motivation, and performance anxiety; introduction to the scientific study of behavior and mental processes related to performing artists; broad overview of human development, learning, and memory for all performing artists. **Prerequisites:** DCED 222 and DCED 315; junior or senior classification; approval of instructor.

DCED 413 Pilates Apparatus III

Credits 3. 2 Lecture Hours. 3 Lab Hours. Study of advanced Pilates apparatus work; exploration of modification and transitional exercises to achieve the advanced; uses apparatuses such as reformer, cadillac, chair, and barrel; incorporates the use of props such as rollers, mini balls, physioballs, blocks, therabands and pinky balls into advanced apparatus work. **Prerequisites:** DCED 320 or approval of instructor.

DCED 415 Teaching Pilates

Credits 3. 3 Lecture Hours. Study of teaching methods used in Pilates mat and apparatus work; exploration of special considerations in teaching Pilates; implementation of appropriate modifications for all exercises. **Prerequisites:** DCED 413 or approval of instructor.

DCED 416 Conducting Dance Science Research

Credit 1. 1 Lecture Hour. Application of knowledge and skills in dance science; design and implement dance science research; develop research skills and lead a research project; includes data collection, analysis, and drawing conclusions from results; presenting research and engaging in discussions. **Prerequisites:** DCED 305.

DCED 419 Supervised Student Teaching

Credits 6. 6 Other Hours. Experience a practicum in an accredited public school classroom where techniques of instruction are developed for identified teaching field(s); observing implementation of appropriate instructional strategies for assigned student population. **Prerequisites:** Grade of C or better in DCED 304 or DCED 411 and DCED 401.

DCED 462 Ballet III

Credits 2. 5 Lab Hours. Technical study of classical and contemporary ballet; elevated barre work, traditional components including turns, footwork, adagios, advanced center and floor phrases; study of Cecchetti, Vaganova and collaborative methods; focus on strength, concentration and correct technique on performance combinations. May be taken 3 times for credit. **Prerequisite:** Dance science majors, dance concentration majors and dance minors; or approval of instructor.

DCED 463 Movement Lab: Ballet III

Credits 2. 5 Lab Hours. Peer evaluation of body alignment, imbalances and biomechanics of movement; explanation of kinesthetic principles and injury prevention through ballet technique; conditioning programs for a peer's imbalances and improper technique in a ballet class. May be taken three times for credit. **Prerequisite:** Dance Science majors and minors; approval of instructor.

DCED 473 Modern Dance III

Credits 2. 5 Lab Hours. Physical and artistic exploration of both traditional and contemporary training methods; three dimensional spine work, inversion, floor work and dynamics. May be taken 3 times for credit. **Prerequisite:** DCED 372 or approval of instructor.

DCED 474 Movement Lab: Modern Dance III

Credits 2. 5 Lab Hours. Peer evaluation of body alignment, imbalances and biomechanics of movement; explanation of kinesthetic principles and injury prevention through modern dance technique; develop conditioning program for a peer's imbalances and improper technique in a modern dance class. May be taken three times for credit. **Prerequisite:** Junior or senior classification; Dance Science majors and minors; approval of instructor.

DCED 485 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Special problems in dance assigned to individual students or to groups. May be repeated for credit. **Prerequisites:** Junior or senior classification; approval of instructor.

DCED 488 Jazz Dance III

Credits 2. 1 Lecture Hour. 3 Lab Hours. Advanced study of jazz dance; locomotor and axial phrases of movement, concepts, and techniques to challenge and refine motor and rhythmical skills for jazz movement; increase coordination, stamina, flexibility, and proper alignment; historical background and cultural heritage of jazz dance including various styles and choreographers. May be taken three times for credit. **Prerequisite:** Grade of B or better in DCED 387 or approval of instructor.

DCED 489 Special Topics in...

Credits 0 to 4. 0 to 4 Other Hours. Selected topics in an identified area of dance. May be repeated for credit.

DCED 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in dance. May be taken four times for credit. **Prerequisites:** Junior or senior classification and approval of instructor.

DDHS - Dental Hygiene (DDHS)

DDHS 3020 Theory of Dental Hygiene Practice I

Credits 2. 2 Lecture Hours. Emphasis on advanced dental hygiene skills and services; provision of services to medically compromised patients.

DDHS 3110 Introduction To Dentistry

Credit 1. 1 Lecture Hour. Introduction to dental hygiene as it relates to the dental specialties. Guest lecturers will describe what their specialty encompasses and the dental hygienist's role in that field of dentistry.

DDHS 3120 Dental Anatomy

Credits 2. 2 Lecture Hours. Form and function of the primary and permanent human dentition; laboratory and seminar emphasis on morphology and comparisons of teeth.

DDHS 3160 Preclinical Dental Hygiene

Credits 6. 4 Lecture Hours. 0.5 Lab Hours. 8 Other Hours. This course introduces the student to the foundational knowledge and skills needed to provide basic dental hygiene services. With faculty guidance, the student learns how to assess a patient's oral health needs, plan dental hygiene services to meet those needs, and implement and evaluate newly learned preventive and therapeutic procedures.

DDHS 3220 Oral Radiology

Credits 0 to 2. 2 Lecture Hours. 1 Lab Hour. 1 Other Hour. This course is intended to provide the student with an understanding of the generation, properties, and techniques for use of X-rays in dentistry. The principles of radiation safety and health physics, interpretative recognition techniques and clinical patient management.

DDHS 3250 Biomedical Sciences I

Credits 5. 5 Lecture Hours. 0 Lab Hours. Structure of the human body, including its anatomy, biochemistry, histology and physiology. Emphasis is placed on the structures of the head and neck region that surrounds the oral cavity.

DDHS 3310 Health Education and Behavioral Science

Credit 1. 1 Lecture Hour. This course is designed to introduce the student to health education and behavioral science as it relates to educating patients and changing behaviors. Students will gain knowledge in evaluating and delivering educational services to culturally diverse populations.

DDHS 3325 Microbiology

Credits 2.5. 2.5 Lecture Hours. 0 Lab Hours. A lecture course designed to teach the basic principles of medical microbiology, immunology and the infectious disease process.

DDHS 3340 Biomedical Sciences II

Credits 4. 4 Lecture Hours. 0 Lab Hours. Structure of the human body, including its anatomy, bio-chemistry, histology and physiology. Emphasis is placed on the structures of the head and neck region that surrounds the oral cavity.

DDHS 3410 Introduction to Pathology

Credit 1. 1 Lecture Hour. Introduction to Pathology is primarily a didactic lecture oriented course. Although clinically oriented, it is designed to provide a base of knowledge about pathologic processes and specific disease entities. Emphasis is on concepts and vocabulary essential to understanding basic pathologic process; systemic pathology of organ systems and tissues; clinical manifestations that result from biological cellular alterations.

DDHS 3425 Health Promotion and Disease Prevention

Credits 2.5. 2.5 Lecture Hours. This course introduces the student to the etiology and prevalence of oral diseases and oral problems. The emphasis of the course is on the role of the dental hygienist in the promotion of optimal oral health, the prevention of oral diseases, and the importance of achieving and maintaining excellent personal oral health habits. The importance of and the techniques for educating the patient in self-care skills will also be examined.

DDHS 3530 Applied Dental Materials

Credits 3. 2 Lecture Hours. 2.5 Lab Hours. Didactic, laboratory and clinical instruction in the principles of the science of dental materials and in procedures within the scope of dental hygiene practice.

DDHS 3830 Clinical Dental Hygiene I

Credits 3. 9 Other Hours. Comprehensive dental hygiene care through clinical application of procedures. Includes intramural dental hygiene and dental school rotations.

DDHS 4010 National Board Review

Credit 1. 1 Lecture Hour. Reviews applications of previous course content using a seminar format in preparation for the National Board Dental Hygiene Exam.

DDHS 4015 Pharmacology

Credit 1.5. 1.5 Lecture Hour. Actions, indications and contraindications of drugs; emphasis on drugs frequently encountered in dentistry.

DDHS 4025 Oral Pathology

Credits 2.5. 2.5 Lecture Hours. A didactic lecture oriented course. The lecture portion of the course, although, clinically oriented is designed to provide a base of knowledge about pathologic processes and specific disease entities. Diseases unique to the oral regions as well as oral manifestations of systemic disease will be covered. The Clinical Pathologic Conference (CPC) attempts to assimilate that information and apply it to relevant clinical situations in a case-based PDL format. Cases which illustrate a variety of clinical signs and symptoms will be presented with clinical histories. Students will be given the opportunity to develop a differential diagnosis and discuss the implications of this relevant to the patient's treatment.

DDHS 4110 Medical Emergencies

Credits 0-1. 0-1 Lecture Hours. Discussions on the preparations for handling emergencies; prevention, recognition and management of various emergencies. The course includes case scenario presentations and mock hands-on drills.

DDHS 4140 Clinical Dental Hygiene III

Credits 4. 12 Other Hours. Comprehensive dental hygiene care through clinical application of procedures. Includes intramural dental hygiene and dental school rotations and extramural site rotations.

DDHS 4210 Professional Ethics

Credit 1. 1 Lecture Hour. The didactic lecture course and case-based small group decision making exercises draw from general ethics, bioethics, dental-specific ethics and obligations of health-care professionals.

DDHS 4220 Comprehensive Care Seminar

Credits 0 to 2. 0 to 2 Lecture Hours. Topics and activities designed to integrate dental hygiene care with total patient care; includes a case presentation.

DDHS 4240 Clinical Dental Hygiene IV

Credits 4. 12 Other Hours. Comprehensive dental hygiene care through clinical application of procedures. Includes intramural dental hygiene and dental school rotations and extramural site rotations.

DDHS 4310 Oral Radiography

Credits 0-1. 0-1 Other Hours. Provides the student with clinical experience in the application of the principles, procedures and techniques of oral radiography.

DDHS 4320 Perspectives in Dental Hygiene

Credits 2. 2 Lecture Hours. In addition to preparing the student for private practice dental hygiene positions, this course introduces other potential career options including hospital/clinic administration, sales, consulting, public health, insurance and education. The importance of the dental team concept, résumé writing and interviewing skills will be discussed. Legal, ethical and professional issues involving record keeping, licensing, informed consent, sexual harassment and the standard of care will be explored. The business aspects of dental hygiene, personal financial planning, and insurance options will also be addressed. In addition, this course will prepare students for the Texas Jurisprudence Exam required for state licensure.

DDHS 4410 Gerontology

Credit 1. 1 Lecture Hour. This course will examine the unique considerations a dental professional will encounter when providing care to a geriatric patient. Social, psychological and biological aspects of aging will be discussed. Strategies for patient care will be outlined and discussed. Appropriate community referral agencies will be explored to aid the hygienist in providing assistance to the elderly patient.

DDHS 4510 Pediatric Dentistry

Credit 1. 1 Lecture Hour. Child development as the basis for management of behavior in the dental environment.

DDHS 4530 Public and Community Health

Credits 0 to 3. 0 to 3 Other Hours. This course examines dental public health and pro-motes a greater understanding of the important role of the dental hygienist within the community. The student is exposed to opportunities to promote oral health and prevent dental diseases in the community through organized community-based programs versus the traditional clinical approach.

DDHS 4610 Periodontics

Credit 1. 1 Lecture Hour. Characteristics, etiology and treatment of inflammatory diseases of the supporting tissues of the teeth and their substitutes. Emphasis is placed on the relationship of periodontics to the practice of dental hygiene.

DDHS 4620 Theory of Dental Hygiene Practice II

Credits 2. 2 Lecture Hours. Fundamental knowledge and techniques in managing patients with special needs.

DDHS 4710 Applied Research Methods

Credit 1. 1 Lecture Hour. Practical experience in applying principles of research methodology; includes preparation of a formal proposal and table clinic under mentorship of individual faculty.

DDHS 4715 Research Methods

Credit 1.5. 1.5 Lecture Hour. Identification of research problems and variables; sampling; research design; statistical testing of data; critical review of dental literature; table clinic development for presentation to the public and professional groups.

DDHS 4810 Local Anesthesia and Nitrous Oxide/Oxygen Sedation

Credit 1. 1 Lecture Hour. The primary method of presentation is lecture, a detailed outline is provided to each student to facilitate the lecture or textbook notes to supplement the outline. Students are given outside assignments to practice dose calculations for each local anesthetic and for a variety of patients. The lecture material is supplemental with videotapes designed to show the correct administration techniques, the neural innervations of each area of the oral cavity and the area anesthetized.

DDHS 4820 Clinical Dental Hygiene II

Credits 2. 6 Other Hours. Comprehensive dental hygiene care through clinical application of procedures. Includes intramural dental hygiene and dental school rotations and extramural site rotations.

DIVE - Diving Tech and Methods (DIVE)

DIVE 250 SCUBA Diving I

Credits 4. 3 Lecture Hours. 3 Lab Hours. Fundamental academic knowledge and practical application of SCUBA diving practices and theory; introduction to diving tables and diving physiology. **Prerequisite:** Must complete a medical statement showing no contraindications to diving, or have a recreational SCUBA diver's physical examination.

DIVE 251 SCUBA Diving II

Credits 3. 2 Lecture Hours. 2 Lab Hours. Methods to promote safe, self-reliant diving and improve the diver's comfort, coordination and strength in the water; to build competency in dive planning and organization. **Prerequisite:** Must complete a medical statement showing no contraindications to diving, or have a recreational SCUBA diver's physical examination; open water certification from a nationally recognized agency; Divers Alert Network (DAN) insurance or equivalent.

DIVE 260 Scuba Diving III

Credits 4. 3 Lecture Hours. 3 Lab Hours. Methods to promote safe, self-reliant diving and improve the diver's comfort, coordination and strength in the water; build competency in dive planning and organization; practice accident prevention and effective accident management. **Prerequisites:** Must complete a medical statement showing no contraindication to diving or have a recreational scuba diver's physical examination; open water certification from a nationally recognized training agency; Diver's Alert Network (DAN) diving accident insurance or equivalent.

DIVE 310 Techniques in Boat and Wreck Diving

Credits 3. 2 Lecture Hours. 2 Lab Hours. 0 Other Hours. Overview of different types of boat diving and the skills needed to plan and conduct boat dives safely; discussion of the equipment and techniques commonly employed while performing external survey of and limited penetration of wrecks. **Prerequisites:** Must complete a medical statement showing no contraindications to diving, or have a recreational SCUBA diver's physical examination; Advanced Open Water certification from a nationally recognized training agency, and must have completed a deep diver specialty certification or be able to provide proof of experience in order to dive deeper than 60 feet in this course, or approval of instructor; Enriched Air Nitrox certification; Divers Alert Network (DAN) diving accident insurance or equivalent for course duration; junior or senior classification.

DIVE 330 Rescue Diving

Credits 3. 2 Lecture Hours. 2 Lab Hours. Relates skills necessary to perform basic life support, administer dive first aid, evacuate victim, assist and rescue other divers in water; illustrate proper dive planning; practice accident prevention and effective accident management. **Prerequisites:** Must complete a medical statement showing no contraindications to diving, or have a recreational SCUBA diver's physical examination; certification as a SDI SCUBA diver or equivalent; Divers Alert Network (DAN) diving accident insurance or equivalent.

DIVE 331 Alternative Diving Technology

Credits 3. 2 Lecture Hours. 2 Lab Hours. Illustrates the realities of operating in the scientific, public safety and military diving disciplines; practice real world training scenarios involving multiple aspects of each of the three fields. **Prerequisites:** Must complete a medical statement showing no contraindications to diving, or have a recreational SCUBA diver's physical examination (or AAUS physical if rating with AAUS); certification as an Advanced and Rescue Diver or equivalent; Divers Alert Network (DAN) diving accident insurance or equivalent; junior or senior classification or approval of instructor.

DIVE 357 Dive Leadership – Divemaster

Credits 4. 3 Lecture Hours. 3 Lab Hours. Examines divemaster level dive knowledge, dive leadership theory and application, presentation and instructional skills, physical diving skills, logistics and planning, risk management and emergency response, and operational execution; develops a multi-environment capable diving leader. **Prerequisites:** Minimum of 18 years of age; current certification in CPR, AED, First Aid for Dive Professionals or Equivalent; current certification in Oxygen Provider or equivalent; a minimum of verifiable 40 logged open water scuba dives to begin the course and 60 by the end of the course, dives shall be varied in environment, depth, and activities; verification of good physical condition as documented by a medical examination and unconditional approval in the last 12 months; water skills and ability equivalent to that of a divemaster; must hold certifications as a Rescue Diver, Advanced Open Water Diver and Nitrox diver; junior or senior classification or approval of instructor.

DIVE 405 Expedition Planning

Credits 2. 2 Lecture Hours. Overview of the background knowledge to successfully plan, coordinate and execute diving-based research expeditions; topics include dive planning, travel logistics, health and safety requirements, and research parameter development. **Prerequisites:** Certification as an Advanced Diver or equivalent; junior or senior classification; or approval of instructor.

DIVE 410 AAUS Scientific Diving

Credits 4. 3 Lecture Hours. 3 Lab Hours. Information and training necessary to qualify as Scientific Divers under the auspices of American Academy of Underwater Sciences and the Scientific Diving Program; implementation of project design, advanced study of diving physics and physiology, diving risk management and risk mitigation. **Prerequisites:** Must have a current Science Diving physical examination; Master Level Diver's Alert Network (DAN) diving accident insurance or equivalent; open water, advanced open water certifications and Nitrox, or approval of instructor; current certification in First Aid, AED, CPR and Emergency Oxygen Administration; Scientific Diving Swim Test.

DIVE 411 Offshore Research Diving

Credits 4. 3 Lecture Hours. 4 Lab Hours. Application of research methods and techniques to collect data using scuba diving; opportunities to dive with non-Texas A&M-Galveston dive programs, increase depth ratings under American Academy of Underwater Sciences and Texas A&M-Galveston auspices and to conduct safe, efficient dives to collect and record data underwater. **Prerequisites:** DIVE 410 or approval of instructor; must hold nitrox certification, must be active Scientific Divers under Texas A&M University Galveston auspices; current and complete Texas A&M University Galveston Science Diving physical examination on file; minimum of 12 logged dives in the previous 12 months; current certification in First Aid, AED, O2 Administration and CPR, including hands-on skill evaluations, prior to any open-water work; Master Level or higher Divers Alert Network (DAN) diving accident insurance or equivalent; see the Texas A&M University Galveston Diving Manual for additional specifications.

DIVE 430 Techniques in Overhead Environment Diving

Credits 4. 3 Lecture Hours. 3 Lab Hours. Instruction in overhead environment diving, technical diving skills, technical diving configurations, dive risk assessment; emphasis on building competency in dive planning, techniques and execution. **Prerequisites:** DIVE 410 or proof of equivalent experience with approval of instructor; must complete a medical statement showing no contraindication to diving or have a recreational scuba diver's physical examination; open water certification from a nationally recognized training agency; Master level or higher or equivalent Diver's Alert Network (DAN) diving accident insurance; 25 logged dives; SDI Deep Diver or equivalent certification or proof of equivalent experience with approval of instructor.

DIVE 440 Decompression and Mixed Gas Procedures

Credits 3. 2 Lecture Hours. 3 Lab Hours. Extension of allowable dive time and depth through staged decompression; examination of the theory, methods, and procedures for planning and executing staged decompression dives utilizing helium in the breathing mixture to reduce the effects of inert gas narcosis and using decompression breathing gases containing up to 100 percent oxygen. **Prerequisites:** Must complete a scuba training agency medical evaluation form showing no contradictions to diving, or complete a scuba training agency medical evaluation and physician approval form indicating that a physician has advised and approved a student to participate in the activity of scuba diving; certification as an Advanced Diver with Deep specialty or TDI Intro to Tech Diver; DIVE 410 strongly recommended; proof of 50 logged dives; Divers Alert Network (DAN) diving accident insurance (Master Level) or equivalent; junior or senior classification; or approval of instructor.

DIVE 489 Special Topics In...

Credits 0 to 4. 0 to 4 Other Hours. Selected topics in an identified area of diving technology and methods. **Prerequisite:** Junior or senior classification or approval of instructor.

DIVE 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in the Dive program. May be taken three times for credit. **Prerequisites:** Junior or senior classification and approval of instructor.

ECCB - Eco & Conservation Biol (ECCB)

ECCB 101 Introduction to Ecology and Conservation Biology

Credit 1. 1 Lecture Hour. Introduction to professional opportunities and activities in the areas of ecology and conservation biology; presentation of a variety of career options focusing on job descriptions, educational and training requirements, challenges, professional societies and opportunities for advancement; overview of departmental and campus resources that will assist with their collegiate goals including research, internships, resumé building and professional writing. **Prerequisite:** Freshman classification and ECCB major, or approval of instructor.

ECCB 105 Secondary Education in Ecology and Conservation Biology

Credit 1. 1 Lecture Hour. Introduction to a career as a secondary science teacher and classroom activities in the areas of ecology and conservation biology; presentation of education and certification requirements, exploration of the structure of schools and districts, classroom and professional expectations; overview of departmental and campus resources that will assist with collegiate and career goals.

ECCB 203 Forest Trees of North America

Credits 3. 2 Lecture Hours. 2 Lab Hours. Taxonomy, phylogeny, and identification of the important forest trees of North America and their ecological and social uses and benefits.

ECCB 205 Fundamentals of Ecology

Credits 3. 3 Lecture Hours. Principles of ecology using a holistic approach treating plants, animals and humans as one integrated whole; composition, structure, nutrient cycles and energetics of biotic communities; adaptations to environmental factors; biotic relationships; and problems of environmental quality and resource use.

ECCB 215 Fundamentals of Ecology--Laboratory

Credit 1. 3 Lab Hours. Sampling and estimating plant-animal populations, measuring environmental factors and recognizing and studying morphological, physiological and behavioral adaptations of plants and animals to biotic or abiotic influences.

ECCB 285 Directed Studies

Credit 1. 0 Lecture Hours. 1 Other Hour. Directed study of selected problems in an area of ecology and conservation biology not covered in other courses. **Prerequisite:** ECCB 101, ECCB 205, ECCB 215.

ECCB 291 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in ecosystem science and management. May be repeated 2 times for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

ECCB 300/ENTO 300 Field Studies

Credits 3. 3 Other Hours. Integration of principles of animal and plant ecology with environmental factors to characterize wildlife populations; intensive analysis of specific areas will emphasize either the development of a wildlife management plan or a general vertebrate natural history survey. **Prerequisites:** Prior approval of instructor and concurrent enrollment in ECCB 450/ENTO 450 and ECCB 451/ENTO 451. **Cross Listing:** ENTO 300/ECCB 300.

ECCB 301 Diversity and Evolution of Plants

Credits 3. 2 Lecture Hours. 2 Lab Hours. Interpretation of plant morphology for keying and identification of important flowering rangeland plants; vegetative and floral characters for important plant families including toxic compounds affecting domestic livestock. Plant collection required.

ECCB 302 Diversity and Evolution of Vertebrates

Credits 3. 2 Lecture Hours. 2 Lab Hours. Life histories of fishes, amphibians, reptiles, birds and mammals; lecture covers vertebrate groups on a worldwide scale and emphasizes a comparative approach to the study of adaptation to the environment; lecture topics include behavior, reproduction, feeding specializations, evolutionary history, locomotion, hibernation, migration, endangered species, zoogeography and importance to man; laboratory emphasizes the recognition of Texas vertebrates. Designed for both science and non-science majors.

Prerequisites: Grade of C or better in BIOL 111 and BIOL 112 or BIOL 101 and BIOL 107 or equivalent.

ECCB 303 Fire Ecology and Biogeochemistry

Credits 3. 3 Lecture Hours. Cycling of the elements like carbon, nitrogen and phosphorus, and their influence on ecosystem functions and the climate system; human impacts on biogeochemistry; global changes that threaten the sustainability of ecosystem services; wildland fire science and fire ecology showing the interrelated nature of the climate system, vegetation and human activities; classic and current scientific literature.

Prerequisites: Grade of a C or better in ECCB 205, BIOL 111, or BIOL 112; junior or senior classification or instructor approval.

ECCB 304 Conservation Biology

Credits 3. 3 Lecture Hours. Ecological principles used to conserve and manage wildlife and fisheries resources at the individual, population and community levels; topics include conservation biology, species interactions, animal-habitat relationships, population dynamics and harvesting, habitat management and restoration and human dimensions of fish and wildlife conservation. **Prerequisites:** Grade of C or better in ECCB 205 and junior or senior classification or approval of instructor.

ECCB 307 Forest Protection

Credits 3. 2 Lecture Hours. 3 Lab Hours. Destructive agents in forestry as related to importance, identification, cause, extent of losses and protective measures. **Prerequisites:** ECCB 205, or equivalent, junior or senior classification or approval of instructor.

ECCB 308 Fundamentals of Environmental Decision-Making

Credits 3. 3 Lecture Hours. Introduction to environmental issues in natural resources management; fundamental principles and methods for understanding biosocial interdependencies in complex environmental issues; use of computer-aided group decision-making techniques to develop cooperative strategies for resolving local or global environmental issues. **Prerequisites:** Junior or senior classification or approval of instructor.

ECCB 309 Forest Ecology

Credits 3. 3 Lecture Hours. Life history and general characteristics of trees; structure and function of forest ecosystems; fundamental principles of forest tree physiology and ecology applied to an analysis of tree growth in relation to environmental factors and present day forest management; global changes and forests. **Prerequisites:** Junior or senior classification or approval of instructor; introductory courses in ecology and chemistry recommended.

ECCB 310 Forest Tree Physiology and Breeding

Credits 3. 3 Lecture Hours. Genetic improvement or manipulation of forest trees through breeding or transformation; regeneration of forests including reproduction, nursery production, stand establishment, natural regeneration and problems affecting regeneration. **Prerequisites:** Grade of a C or better in BIOL 111; junior or senior classification or approval of instructor.

ECCB 311 Ichthyology

Credits 3. 2 Lecture Hours. 3 Lab Hours. Introduction to the study of fishes, their biology, classification, evolution, distribution, ecology and economic importance. **Prerequisites:** Grade of C or better in ECCB 302 or BIOL 318.

ECCB 312 Diversity, Evolution, and Ecology of Grasses

Credits 3. 1 Lecture Hour. 6 Lab Hours. Classification and identification of grasses based on macro- and micromorphological variations of spikelets; interpretation of spikelet variation and use of diagnostic keys to identify important species of North America including range, forest and other natural resources; a grass collection required. **Prerequisites:** Junior or senior classification or approval of instructor.

ECCB 313 Diversity and Evolution of Invertebrates

Credits 3. 3 Lecture Hours. Survey of invertebrate animal diversity focusing on phylogeny, body patterns, ecology, ethology, zoogeography, anatomy, physiology and adaptations to the environment. **Prerequisites:** Grade of C or better in BIOL 111 and 112.

ECCB 314 Down River: Biology of Gulf Coastal Fishes

Credits 3. 2 Lecture Hours. 3 Lab Hours. Understanding the biological complexity of Gulf coast river systems while gaining hands-on experience in field and museum ichthyological techniques; sampling of the Guadalupe and San Antonio rivers; participation in lectures, museum preparation and archiving specimens at the Biodiversity Research and Teaching Collections (BRTC). **Prerequisites:** ECCB 311 with a grade of B or better and approval of instructor.

ECCB 315 Herpetology

Credits 3. 2 Lecture Hours. 2 Lab Hours. Evolutionary ecology of reptiles and amphibians and conservation biology of the major groups; labs concentrate on the global diversity of herps and the herpetofauna of Texas; foundation for students in wildlife science and biology. **Prerequisites:** Grade of C or better in ECCB 302 or BIOL 318, or approval of instructor.

ECCB 316 Field Herpetology

Credit 1. 3 Lab Hours. Field work involving collection and preservation of herpetological specimens; natural history, ecological relations; available for students enrolled in ECCB 315 who would like to have field trips. **Prerequisites:** ECCB 315 or concurrent enrollment.

ECCB 318 Coupled Social and Ecological Systems

Credits 3. 3 Lecture Hours. Resilience-based stewardship of social-ecological systems including range, forest and other natural resources; ecological concepts of resilience, sustainability, ecosystem services and vulnerability; investigation of linkages among social and ecological system components; contribution to sustainability and provisioning of ecosystem services; evaluation of multiple knowledge sources as the basis for adaptive ecosystem management. **Prerequisites:** Grade of C or better in ECCB 205 and AGECE 105, ECON 202, or ECON 203; junior or senior classification, or approval of instructor.

ECCB 319 Principles of Forestry

Credits 3. 2 Lecture Hours. 2 Lab Hours. Theory and practice of forestry in controlling forest establishment, composition, structure and growth; principles of natural and artificial regeneration; intermediate cultural operations; silvicultural systems; use and control of fire in forests; principles of sustainable stand management. **Prerequisites:** ECCB 309 or instructor approval.

ECCB 320 Ecosystem Restoration and Management

Credits 3. 3 Lecture Hours. A basic conceptual framework for restoration ecology and ecological restoration including range, forest and other natural resources; major principles of ecology related to practical problems confronting humankind, such as, environmental pollution and degradation, exotic species invasions, land use and management trade-offs and consequences; importance of biological diversity. **Prerequisites:** ECCB 205 or approval of instructor.

ECCB 324 Forest Measurements

Credits 2. 4 Lab Hours. Measures and measurement of the dimensions and attributes of forested areas including the diameters, heights, volume and biomass of trees within a well-defined area; tools used for forest measurement; the conduct of forest inventories; summary measures and reports of inventory results; remote sensing and related technologies that assist forest measurements. **Prerequisites:** Junior or senior classification or approval of instructor.

ECCB 325 Field Studies in Forest Ecosystems

Credits 3. 1 Lecture Hour. 6 Lab Hours. Field-oriented focus on forest ecosystem science and management; problem-solve management questions through data collection and team-based research; investigate the relationships between landowner objectives, mensuration, silviculture, ecology, soils, and regeneration-focused harvesting systems; foster the development of student-faculty relationships; enhance professional knowledge and skills. **Prerequisites:** Junior or senior classification or approval of instructor.

ECCB 351 Geographic Information Systems for Resource Management

Credits 3. 2 Lecture Hours. 2 Lab Hours. Geographic Information Systems (GIS) approach to solving spatial problems and managing natural resources, including the acquisition, management, manipulation, analysis, and mapping of spatial and non-spatial databases; identification of natural and relevant features from various data sources; integration of relevant technologies and data; extensive use of GIS software to solve real-world problems. Only one of the following will satisfy the requirements for a degree: AGSM 461, ECCB 351, ECCB 651, BAEN 651, or RENR 651. **Prerequisites:** Junior or senior classification or approval of instructor. **Cross Listing:** AGSM 461 and RWFM 351.

ECCB 385 Communication in Ecology and Conservation Biology

Credit 1. 1 Other Hour. Formal development and delivery of scientific poster on topic related to ecology or conservation biology. **Prerequisites:** Grade of C or better in ECCB 101 and 205.

ECCB 400 Molecular Ecology

Credits 3. 3 Lecture Hours. Fundamentals of molecular ecology applied to conservation and management of wildlife and fisheries; presentation and discussion of scientific papers on wildlife and fisheries molecular ecology; topics in conservation, management and aquaculture. **Prerequisites:** Grade of a C or better in BIOL 112; MATH 142, MATH 151, or MATH 171; STAT 301, STAT 302, or STAT 303; junior or senior classification or approval of instructor.

ECCB 401 General Mammalogy

Credits 3. 2 Lecture Hours. 3 Lab Hours. Mammalian biology; evolution, classification, biogeography, reproduction, physiology, ecology, and behavior; focuses on basic concepts necessary for a foundation in both wildlife science and biology. **Prerequisites:** Grade of C or better in ECCB 302 or BIOL 318; junior classification.

ECCB 402 General Ornithology

Credits 3. 2 Lecture Hours. 3 Lab Hours. Introduction to study of birds, their structure, classification, geographic distribution, ecological relations and economic status; foundation of wildlife science, also for museum work. **Prerequisites:** Grade of C or better in ECCB 302 or BIOL 318; junior classification.

ECCB 403 Population and Community Ecology

Credits 3. 3 Lecture Hours. Concepts in animal ecology; topics include population dynamics, competition, predator-prey interactions, biodiversity, infectious disease, and harvesting. **Prerequisites:** Grade of C or better in ECCB 205 or approval of instructor; junior classification.

ECCB 405 Forest Resource Assessment and Management

Credits 3. 1 Lecture Hour. 4 Lab Hours. Integration of biophysical, economic and social factors in forest resource analysis, management planning and decision making; applications of interdisciplinary knowledge and multiple-use principles to practical forest management problems. **Prerequisites:** Senior classification or approval of instructor.

ECCB 406/GEOG 462 Advanced GIS Analysis for Natural Resources Management

Credits 3. 2 Lecture Hours. 2 Lab Hours. Advanced topics in geographic information systems (GIS) to solve natural resource problems; manipulation of raster data types; three-dimensional modeling; emphasis on geoprocessing as it relates to applied projects particularly with habitat suitability models; field and lab use of global positioning systems (GPS); internet-based GIS modeling. **Prerequisites:** ECCB 351, RWFM 351, or AGSM 461, or equivalent, or approval of instructor; junior or senior classification. **Cross Listing:** GEOG 462/ECCB 406.

ECCB 407 Programming for Spatial Data Applications with R

Credits 3. 3 Lecture Hours. 0 Lab Hours. Integration of geospatial data and R programming to support analyses in ecology and conservation biology; emphasis on managing and mapping spatial data, applying geocomputation to vector and raster data, conducting spatiotemporal analysis, and creating incident maps. **Prerequisites:** STAT 301, STAT 302, or STAT 303, or approval of instructor.

ECCB 408 Arboriculture

Credits 3. 2 Lecture Hours. 2 Lab Hours. Tree selection and planting to fit climatic, space and edaphic conditions; diagnosing tree abnormalities and practicing intensive tree care. Frequent field work and demonstrations. **Prerequisite:** Senior classification or approval of instructor.

ECCB 416 Fire Ecology and Natural Resource Management

Credits 3. 3 Lecture Hours. Behavior and use of fire in the management of natural resources including range, forest and other natural resources; principles underlying the role of weather, fuel characteristics and physical features of the environment related to the development and implementation of fire management plans. **Prerequisites:** ECCB 205 or equivalent, junior or senior classification or approval of instructor.

ECCB 417 Prescribed Fire

Credits 4. 2 Lecture Hours. 5 Lab Hours. Use of prescribed fire to achieve ecosystem management objectives; understanding of how to plan and implement prescribed fires; coursework on fire behavior, fuel properties and the social aspects of prescribed fire and wildfire; how to safely use fire to achieve multiple outcomes including biodiversity conservation, reduced hazardous fire risk, livestock production and timber management. **Prerequisites:** Junior or senior classification or approval of instructor.

ECCB 420 Ecological Restoration of Wetland and Riparian Systems

Credits 3. 2 Lecture Hours. 2 Lab Hours. How wetland and riparian areas link terrestrial and aquatic systems and function hydrologically and ecologically within watersheds; integrated approaches for restoration of degraded wetland and riparian systems; improving water resources through vegetation management with a special interest in rangelands. **Prerequisites:** ECCB 205, junior or senior classification or approval of instructor.

ECCB 422 Behavioral Ecology

Credits 3. 3 Lecture Hours. Survey of the control, ontogeny, function and natural selection of behavior in a variety of vertebrate and invertebrate species; interaction between the organism and its environment with regard to the mechanisms and adaptive significance of behavior; evolution of anti-predator, feeding, reproductive and cooperative traits. **Prerequisites:** Grade of C or better in BIOL 112 or equivalent.

ECCB 430 Advanced Restoration Ecology

Credits 3. 3 Lecture Hours. A dynamic discipline relying heavily on the fundamentals of ecology; practice translating and communicating key ecological concepts to advanced case studies in ecological restoration; enhance skills for professional applications. **Prerequisites:** ECCB 205 and ECCB 320; or approval of instructor.

ECCB 444 Remote Sensing of the Environment

Credits 3. 2 Lecture Hours. 3 Lab Hours. Principles and techniques necessary for applying remote sensing to diverse issues in studying and mapping land uses and land covers of the terrestrial environment; emphasizes a hands-on learning approach with theoretical foundations and applications in both aerial and satellite remote sensing, using optical and lidar datasets. **Prerequisites:** Junior or senior classification or approval of instructor.

ECCB 446 Drones for Environmental Remote Sensing

Credits 3. 2 Lecture Hours. 2 Lab Hours. Fundamental components of small unmanned aerial systems (sUAS), sensors and platforms, UAS operational concepts, the principles of UAS data collection, legal framework within which UAS should be operated and applied, data processing software and the generation of orthomosaics and 3D point clouds; emphasis on the use of UAS in a broad spatial sciences, technology and applications context, including vegetated ecosystems. **Prerequisites:** ECCB 444; junior or senior classification.

ECCB 448 Fish Ecophysiology

Credits 3. 3 Lecture Hours. Ecological domains and demands placed on physiological performance; physiological mechanisms and control in fishes, interaction of physiological mechanisms with environment, emphasis in adaptive value of physiological traits; analysis of physiology and adaptation with models; process and functional modeling. **Prerequisite:** Junior or senior classification or approval of instructor.

ECCB 450/ENTO 450 Caribbean Conservation

Credits 2. 6 Lab Hours. Provide experience in and appreciation for diverse tropical habitats and the problems associated with conserving these habitats; design and conduct individual research projects on topics of their choice with approval from the instructors on project design and feasibility. **Prerequisites:** Concurrent enrollment in ENTO 300/ECCB 300 and ENTO 451/ECCB 451; junior or senior classification. **Cross Listing:** ENTO 450/ECCB 450.

ECCB 451/ENTO 451 Caribbean Research Seminar

Credit 1. 1 Other Hour. Document research activities; keep a journal of activities and research methods during study abroad trips. **Prerequisites:** Concurrent enrollment in ENTO 300/ECCB 300 and ENTO 450/ECCB 450; junior or senior classification. **Cross Listing:** ENTO 451/ECCB 451.

ECCB 452/RWFM 400 Study Abroad in Natural Resources

Credits 2 to 12. 2 to 12 Lecture Hours. Focus on an individual student effort assessing the ecological and human dimensions of biodiversity conservation and nature tourism; exposure to the ecological aspects of managing natural resources, especially wildlife populations and their habitat, as well as the economic, social, and cultural factors affecting biodiversity conservation and nature tourism in a developing country. May be taken two times for credit. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** RWFM 400/ECCB 452.

ECCB 454 Amazon Field School

Credits 4. 4 Lecture Hours. Investigation of social and ecological complexities of biodiversity conservation in tropical ecosystems; biological and social science approaches to evaluate causes, consequences and solutions to biodiversity loss through ecology, culture and governance. **Prerequisites:** Junior or senior classification with a minimum GPA of 2.0 and approval of instructor.

ECCB 460/RPTS 460 Nature, Values, and Protected Areas

Credits 3. 3 Lecture Hours. Writing-intensive discussion of the ways in which protected areas reflect human values about nature; identify stakeholders in and around protected areas, exploring how interests either conflict or coincide; evaluate social, economic, cultural, and ecological trade-offs of different approaches to conservation. **Prerequisites:** Junior or senior classification or approval of instructor. **Cross Listing:** RPTS 460/ECCB 460.

ECCB 462 Amazon River Tropical Biology

Credits 3. 3 Lecture Hours. History, ecology, evolutionary-biology, geography and culture of the Amazon River and Rio Negro; exploration of the world's most bio-diverse river during a 10-day expedition from Manaus, Brazil; survey biota, record observations about the ecosystem, select research topics, development of presentations. **Prerequisites:** BIOL 107, BIOL 111, BIOL 357, or ECCB 205; or approval of instructor.

ECCB 481 Seminar

Credit 1. 1 Other Hour. Oral discussion of selected topics from technical literature on recent advances in the field. **Prerequisites:** Senior classification in wildlife and fisheries sciences; 6 hours of 300- or 400-level wildlife and fisheries sciences courses. May be repeated for credit.

ECCB 484 Internship

Credits 0 to 4. 0 to 4 Other Hours. Supervised experience program conducted in the student's area of specialization. **Prerequisites:** Approval of student's advisor.

ECCB 485 Directed Studies

Credits 0 to 3. 0 to 3 Other Hours. Individual study and research upon a selected range problem. **Prerequisites:** Approval of student's advisor.

ECCB 489 Special Topics in...

Credits 1 to 4. 1 to 4 Other Hours. Selected topics in an identified area of rangeland ecology and management. May be repeated for credit.

Prerequisites: Approval of instructor.

ECCB 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in ecosystem science and management. May be repeated for credit. **Prerequisites:** Junior or senior classification and approval of instructor.

ECDE - Early Chldhd Devl & Educ (ECDE)

ECDE 352 Partnering with Families in Early Childhood

Credits 3. 3 Lecture Hours. Application of an ecological model to the understanding of variation in family roles, perspectives, approaches, strengths, and goals; effective communication and partnership approaches for families of young children; family education programming. **Prerequisites:** Junior or senior classification.

ECDE 382 Supporting Diverse Learners and Their Families

Credits 3. 3 Lecture Hours. Historical background and current educational policies in relation to diverse learners' instruction in classrooms; sociocultural dimensions of teaching and learning central to diversity; implications of inclusion and the integration of research-based practices in the classroom for early childhood teachers; engaging families. **Prerequisites:** Junior or senior classification.

ECDE 472 Evaluation of Human Service Programs

Credits 3. 3 Lecture Hours. Theory, methods and skills used to evaluate human services programs; programs aimed at improving the quality of life of individuals and families; prepare beginning human service professionals for the task of evaluating the effectiveness of programs. **Prerequisites:** Junior or senior classification.

ECDE 473 Administration and Supervision in Early Childhood Settings

Credits 3. 3 Lecture Hours. Administration of early childhood programs including identification of community needs; analysis of business opportunities; evaluation and appropriate use of space and quality programming; consideration of policy and legal responsibilities; professionalism in the field; examination of best practices in staff selection, training, coaching, and supervision. **Prerequisites:** EDCI 353 and EDCI 364.

ECDE 484 Internship

Credits 6. 6 Other Hours. Professional experience in a community organization; provide a 270 hour, on-site learning experience in an agency working directly with families and professionals; work under the direct supervision of agency personnel and connect the theoretical concepts learned in course work to a practical setting. **Prerequisites:** Senior classification.

ECEN - Electrical & Comp Engr (ECEN)

ECEN 209 Introduction to Computer Programming and Algorithms

Credits 3. 3 Lecture Hours. 1 Lab Hour. Introduction to C language programming and common algorithms; computer systems; simple C programs; basic language constructs; file I/O; modular programming and functions; arrays and matrices; pointers and strings; simple data structures; searching, sorting, and numerical algorithms; algorithmic complexity. **Prerequisites:** Grade of C or better in ENGR 102.

ECEN 210 Computer Programming and Algorithms

Credits 4. 3 Lecture Hours. 3 Lab Hours. Introduction to C language and common algorithms; computer systems; simple C programs; basic language constructs; file I/O; modular programming and functions; arrays and matrices; pointers and strings; simple data structures; searching, sorting, and numerical algorithms; algorithmic complexity. **Prerequisite:** Sophomore classification in an engineering major; Qatar campus.

ECEN 214 Electrical Circuit Theory

Credits 4. 3 Lecture Hours. 3 Lab Hours. Resistive circuits including circuit laws, network reduction, nodal analysis, mesh analysis; introduction to operational amplifiers; circuit analysis with inductors and capacitors; sinusoidal steady state circuit analysis; AC power calculations; magnetically coupled circuits; the ideal transformer; resonance; introduction to circuit simulation. **Prerequisites:** Grade of C or better in PHYS 207; grade of C or better in PHYS 217/ENGR 217 or ENGR 217/PHYS 217; grade of C or better in CHEM 107, CHEM 102, or CHEM 120; grade of C or better in MATH 308, or concurrent enrollment.

ECEN 215 Principles of Electrical Engineering

Credits 3. 2 Lecture Hours. 2 Lab Hours. Fundamentals of electric circuit analysis and introduction to electronics for engineering majors other than electrical and computer engineering. **Prerequisites:** Grade of C or better in MATH 251 or MATH 253; Grade of C or better in PHYS 207 or PHYS 208.

ECEN 222/CSCE 222 Discrete Structures for Computing

Credits 3. 3 Lecture Hours. Mathematical foundations from discrete mathematics for analyzing computer algorithms, for both correctness and performance; introduction to models of computation, including finite state machines and Turing machines. **Prerequisite:** Grade of C or better in MATH 142, MATH 147, MATH 151, or MATH 171. **Cross Listing:** CSCE 222/ECEN 222.

ECEN 248 Introduction to Digital Systems Design

Credits 4. 3 Lecture Hours. 3 Lab Hours. Combinational and sequential digital system design techniques; design of practical digital systems. **Prerequisite:** Grade of C or better in MATH 152; grade of C or better in PHYS 207 or PHYS 208, or concurrent enrollment.

ECEN 250 Machine Learning for Electrical Engineering

Credits 3. 2 Lecture Hours. 3 Lab Hours. Engineering application-focused introduction to machine learning covering key machine learning concepts, guidance on selecting machine learning models, and application of python-based tools for data preparation, model development, and performance evaluation; practical engineering use-cases for machine learning from electronics, energy, motors, robotics, security, computer systems, and health; machine learning laboratory project including dataset management, ML model development, visualization, and deployment to an IoT platform showcasing ML expertise. **Prerequisites:** Grade of C or better in ENGR 102; grade of C or better in MATH 251 or MATH 253.

ECEN 285 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Problems of limited scope approved on an individual basis intended to promote independent study. **Prerequisite:** Approval of department head.

ECEN 289 Special Topics in...

Credits 1 to 4. 1 to 4 Other Hours. Selected topics in an identified area of electrical engineering. May be repeated for credit. **Prerequisite:** Approval of instructor.

ECEN 291 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in electrical engineering. May be repeated 3 times for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

ECEN 303 Random Signals and Systems

Credits 3. 3 Lecture Hours. Concepts of probability and random variables necessary for study of signals and systems involving uncertainty; applications to elementary problems in detection, signal processing and communication. **Prerequisites:** Grade of C or better in MATH 251 or MATH 253; Grade of C or better in ECEN 248.

ECEN 314 Signals and Systems

Credits 3. 3 Lecture Hours. Introduction to the continuous-time and discrete-time signals and systems; time domain characterization of linear time-invariant systems; Fourier analysis; filtering; sampling; modulation techniques for communication systems. **Prerequisites:** Grade of C or better in ECEN 214 or ECEN 215; grade of C or better in MATH 308; junior or senior classification.

ECEN 322 Electric and Magnetic Fields

Credits 3. 3 Lecture Hours. Vector analysis, Maxwell's equations, wave propagation in unbounded regions, reflection and refraction of waves, transmission line theory; introduction to waveguides and antennas. **Prerequisites:** Grade of C or better in ECEN 214, PHYS 207 or PHYS 208, and MATH 311; junior or senior classification.

ECEN 325 Electronics

Credits 4. 3 Lecture Hours. 3 Lab Hours. Electronic systems; linear circuits; operational amplifiers and applications; diodes, field effect transistors, bipolar transistors; amplifiers and nonlinear circuits. **Prerequisite:** Grade of C or better in MATH 311; grade of C or better in ECEN 314, or concurrent enrollment.

ECEN 326 Electronic Circuits

Credits 4. 3 Lecture Hours. 3 Lab Hours. Basic circuits used in electronic systems; differential and multistage amplifiers; output stages and power amplifiers; frequency response, feedback circuits, stability and oscillators, analog integrated circuits, active filters. **Prerequisites:** Grade of C or better in ECEN 314 and ECEN 325; junior or senior classification.

ECEN 333 At the Interface of Engineering and Life Sciences

Credits 3. 3 Lecture Hours. Broad overview of electrical and computer engineering principles applied to various areas of life sciences; medical imaging and biomedical signal processing; micro/nano devices and systems; computational biology and genomic signal processing; recent trends in interfacing engineering and life science that address emerging grand challenge problems in health, bio-energy and bio-security; taught in a team approach. **Prerequisites:** Grade of C or better in ECEN 214; junior or senior classification.

ECEN 338 Electromechanical Energy Conversion

Credits 4. 3 Lecture Hours. 3 Lab Hours. Introduction to magnetic circuits, transformers, electromechanical energy conversion devices such as dc, induction and synchronous motors; equivalent circuits, performance characteristics and power electronic control. **Prerequisite:** ECEN 214.

ECEN 340 Electric Energy Conversion

Credits 3. 3 Lecture Hours. Fundamental topics in power and energy systems; phasors; three-phase circuits; self and mutual inductance; transformers; electromechanical systems; synchronous and induction machines; advanced concepts in electric energy conversion; DC-DC converters; inverters and rectifiers; solar and wind energy systems; DC and single-phase machines. **Prerequisites:** Grade of C or better in ECEN 214; junior or senior classification.

ECEN 350/CSCE 350 Computer Architecture and Design

Credits 4. 3 Lecture Hours. 3 Lab Hours. Computer architecture and design; use of register transfer languages and simulation tools to describe and simulate computer operation; central processing unit organization, microprogramming, input/output and memory system architectures. **Prerequisites:** Grade of C or better in ECEN 248 and CSCE 120; junior or senior classification. **Cross Listing:** CSCE 350/ ECEN 350.

ECEN 360 Computational Data Science

Credits 3. 3 Lecture Hours. Computational practice of data science through a sequence of interactive modules that provides an integrated hands-on approach to its methods, tools, applications and supporting technologies including high performance and cloud computing platforms. **Prerequisites:** Grade of C or better in ENGR 102, CSCE 110, CSCE 111, or CSCE 206; grade of C or better in MATH 251, MATH 253, or STAT 211; junior or senior classification. **Cross Listing:** CSCE 305 and STAT 315.

ECEN 370 Electronic Properties of Materials

Credits 3. 3 Lecture Hours. Introduction to basic physical properties of solid materials; some solid state physics employed, but major emphasis is on engineering applications based on semiconducting, magnetic, dielectric and superconducting phenomena. **Prerequisite:** Grade of C or better in PHYS 222 or PHYS 309; junior or senior classification.

ECEN 399 High Impact Professional Development

Credits 0. 0 Other Hours. Participation in an approved high-impact learning practice; reflection on professional outcomes from engineering body of knowledge; documentation and self-assessment of learning experience at mid-curriculum point. **Prerequisites:** Grade of C or better in ECEN 484, ECEN 491, ENGR 484, ENGR 491, or ENGR 385; junior or senior classification.

ECEN 403 Electrical Design Laboratory I

Credits 3. 2 Lecture Hours. 3 Lab Hours. Application of design process and project engineering as practiced in industry; team approach to the design process; development of a project proposal; documentation of the proposal, implementation and project; development of execution and validation plan; project execution will begin in ECEN 403 and continue through to ECEN 404. **Prerequisites:** Grade of C or better in COMM 205 or COMM 243 or ENGL 210; grade of C or better in ECEN 314, ECEN 325, and ECEN 350/CSCE 350 or CSCE 350/ECEN 350; grade of C or better in ECEN 303, ECEN 322, and ECEN 370, or grade C or better in CSCE 315 or CSCE 331, and ECEN 303 or STAT 211, and ECEN 449 or CSCE 462, or concurrent enrollment; senior classification.

ECEN 404 Electrical Design Laboratory II

Credits 3. 2 Lecture Hours. 3 Lab Hours. Continuation of ECEN 403; application of the design process and project engineering as practiced in industry; team approach to the design process; completion of project based on proposal from ECEN 403; includes testing, evaluation and report writing. **Prerequisites:** Grade of C or better in ECEN 403; senior classification.

ECEN 410 Medical Imaging

Credits 4. 3 Lecture Hours. 2 Lab Hours. Fundamentals of physics and the engineering principles of medical imaging systems; focus on magnetic resonance imaging, x-ray computer tomography, ultrasonography, optical imaging and nuclear medicine; includes systems, sources, energy tissue interaction, image formation and clinical examples; virtual labs, on- and off-campus lab tours. **Prerequisites:** Grade of C or better in MATH 251 or MATH 253; ECEN 444 or grade of C or better in ECEN 314; junior or senior classification.

ECEN 411 Introduction to Magnetic Resonance Imaging and Magnetic Resonance Spectroscopy

Credits 3. 2 Lecture Hours. 3 Lab Hours. Introduction to the basic physics of magnetic resonance, the principles of MR imaging and spectroscopy, the major contrast mechanisms in MRI and MR imaging system hardware; development of pulse sequences for different imaging methods, including flow and spectroscopic imaging; will build RF coils. **Prerequisites:** Grade of C or better in MATH 251 or MATH 253; grade of C or better in PHYS 207 or PHYS 208; junior or senior classification.

ECEN 412 Ultrasound Imaging

Credits 3. 3 Lecture Hours. Mathematical analysis of wave propagation, scattering of ultrasound in biological tissues, electronic transducer arrays for the beam forming, models of the received signals and signal processing methods for medical ultrasound imaging of tissues; includes discussions of research related to fundamental ultrasound imaging concepts. **Prerequisites:** Grade of C or better in ECEN 314; junior or senior classification.

ECEN 414 Biosensors

Credits 3. 2 Lecture Hours. 2 Lab Hours. Hands-on lab experience in the development of miniaturized biosensors; includes microfluidic devices for biosensing. **Prerequisite:** Grade of C or better in ECEN 214; senior classification.

ECEN 415 Physical and Economical Operations of Sustainable Energy Systems

Credits 3. 3 Lecture Hours. Operational issues for sustainable electric energy systems; basic relevant topics in engineering, optimization and economic concepts; modular view of individual electric energy processing components; physical and market operations in electricity industry in support of sustainable energy integration; computer simulations and demonstrations to create and evaluate examples of power systems. **Prerequisites:** Grade of C or better in ECEN 340, and ECEN 420 or ECEN 460; junior or senior classification.

ECEN 416/CSCE 416 Hardware Design Verification

Credits 3. 3 Lecture Hours. Hardware functional verification; case studies on verification in integrated circuit design; introduction to industry best practices; introduction to logic functional verification. **Prerequisites:** CSCE 312, CSCE 350/ECEN 350, or ECEN 350/CSCE 350, or equivalent in computer architecture; familiarity with C/C++/Verilog/VHDL programming. **Cross Listing:** CSCE 416/ECEN 416.

ECEN 419 Genomic Signal Processing

Credits 3. 3 Lecture Hours. Fundamentals of molecular biology; application of engineering principles to systems biology; topics include unearthing intergene relationships, carrying out genebased classification of disease, modeling genetic regulatory networks, and altering their dynamic behavior. **Prerequisites:** Grade of C or better in ECEN 314; junior or senior classification.

ECEN 420 Linear Control Systems

Credits 3. 3 Lecture Hours. Application of state variable and frequency domain techniques to modeling, analysis and synthesis of single input, single output linear control systems. **Prerequisites:** Grade of C or better in ECEN 314 and MATH 308; junior or senior classification.

ECEN 423 Computer and Wireless Networks

Credits 3. 3 Lecture Hours. Fundamentals of wired and wireless computer networks, design and performance evaluations of wired and wireless networks, various unguided media characterizations and classifications/ comparisons, digital-data representations/transmissions, error control, MAC protocols, routing, TCP/UDP/IP, wireless TCP, queuing-delay/loss modeling, IEEE 802.11 and its interconnections with Internet, and QoS provisioning over wired/wireless networks. **Prerequisite:** Grade of C or better in MATH 311; junior or senior classification.

ECEN 424 Fundamentals of Networking

Credits 3. 3 Lecture Hours. 1 Lab Hour. Foundations of computer networking; layered architecture of the Internet, analysis of protocols, new-age networks such as the Web and social networks; computer network programming and offline analysis of real network data. **Prerequisites:** Grade of C or better in ECEN 303 or STAT 211; junior or senior classification.

ECEN 425 Radio Frequency and Microwave Engineering

Credits 3. 3 Lecture Hours. Fundamental Radio Frequency (RF) and microwave circuit analysis including scattering and ABCD matrices, return loss, insertion loss; transmission lines, lumped elements, impedance matching; theory, analysis and design of basic RF and microwave passive circuits; use of commercial CAD programs for RF and microwave circuit design and simulation. **Prerequisites:** Grade of C or better in ECEN 322; junior or senior classification.

ECEN 426/CSCE 426 Security of Embedded Systems

Credits 3. 3 Lecture Hours. Security principles; common security features and flaws in day-to-day embedded systems; security analysis, vulnerability exploits and security fixes for embedded systems. **Prerequisite:** Grade of C or better in ECEN 350/CSCE 350, CSCE 350/ ECEN 350, or CSCE 312; junior or senior classification. **Cross Listing:** CSCE 426/ECEN 426.

ECEN 427 Machine Learning

Credits 3. 3 Lecture Hours. Theoretical foundations of machine learning, pattern recognition and generating predictive models and classifiers from data; includes methods for supervised and unsupervised learning (decision trees, linear discriminants, neural networks, Gaussian models, non-parametric models, clustering, dimensionality reduction, deep learning), optimization procedures and statistical inference. **Prerequisites:** Grade of C or better in MATH 304, MATH 311, or MATH 323; Grade of C or better in STAT 211, and STAT 404 or CSCE 221, or ECEN 303, and CSCE 121 or CSCE 120. **Cross Listing:** CSCE 421 and STAT 421.

ECEN 428 Field Programmable Gate Arrays Information Processing Systems

Credits 4. 3 Lecture Hours. 2 Lab Hours. Signal processing and neural network implementations on field programmable gate arrays (FPGA); FPGA designs of digital filters, Fourier transform, JPEG decoding, fast convolution, Kalman filter and Viterbi decoding; circuit design techniques commonly used in signal processing and neural network, such as pipelining, parallel processing, folding, unfolding and systolic array. **Prerequisites:** Grade of C or better in ECEN 248 and ECEN 314; junior or senior classification.

ECEN 429 Machine Learning for Signal Processing

Credits 3. 3 Lecture Hours. Principles of pattern recognition and machine learning and electrical and computer engineering applications in signal estimation, detection and classification, detection of patterns in engineering systems and communications networks, assessment of normality and abnormality patterns in biomedical engineering applications and cyber security of power systems. **Prerequisites:** Grade of C or better in ECEN 314; grade of C or better in ECEN 303 or STAT 211; junior or senior classification.

ECEN 430 Automotive Electronics

Credits 4. 3 Lecture Hours. 3 Lab Hours. Vehicular electronic systems, electric powertrain, motors and motor control, battery management power management, driver assistance systems (ADAS), LIDAR/Radar/ Camera modules, sensing and actuator devices for anti-collision systems, automotive communication, vehicle-to-vehicle and vehicle to infrastructure communication systems, autonomous and driverless vehicles. **Prerequisites:** Grade of C or better in ECEN 325; junior or senior classification.

ECEN 431 RF Circuits for Wireless Communications

Credits 4. 3 Lecture Hours. 3 Lab Hours. Radio Frequency (RF) circuits for wireless communications applications; RF systems and their applications, noise, distortion, analog and digital modulations and radio architectures; transistor-level implementation of super-heterodyne AM/FM radios, RF/IF amplifiers, mixers, oscillators, demodulators, and baseband amplifiers. **Prerequisites:** Grade of C or better in ECEN 325; senior classification.

ECEN 432 Data Conversion Systems and Circuits

Credits 4. 3 Lecture Hours. 3 Lab Hours. Sampling theory and sampling circuit implementations, quantization architectures and interpolation techniques for data conversion interfaces such as analog-to-digital and digital-to-analog converters, noise modeling of sampled and quantized data, performance metrics, modeling of circuits errors (capacitor mismatch, gain mismatches, etc.) basic linear calibration techniques and compensation techniques. **Prerequisites:** Grade of C or better in ECEN 314 and ECEN 325; junior or senior classification.

ECEN 433 Advanced Micromachining Technologies for the Informational Era

Credits 3. 3 Lecture Hours. In-depth discussion of state-of-the-art fabrication and assembly techniques for micro sensors and actuators to be used in today and future's smart electronics and intelligent systems. **Prerequisites:** Grade of C or better in ECEN 370; junior or senior classification.

ECEN 434 Optimization for Electrical and Computer Engineering Applications

Credits 3. 3 Lecture Hours. Principles of optimization including linear and nonlinear optimization as well as electrical and computer engineering applications in signal estimation, routing in communication networks, flows in wireless networks, wafer fabrication plants, and economic dispatch in power systems. **Prerequisites:** Grade of C or better in MATH 304 or MATH 309 or MATH 311; grade of C or better in MATH 251 or MATH 253; junior or senior classification.

ECEN 438 Power Electronics

Credits 4. 3 Lecture Hours. 3 Lab Hours. Electric power conditioning and control; characteristics of solid state power switches; analysis and experiments with AC power controllers, controlled rectifiers, DC choppers and DC-AC converters; applications to power supplies, airborne and spaceborne power systems. **Prerequisites:** Grade of C or better in ECEN 340; junior or senior classification.

ECEN 440 Thin Film Technology and Device Application

Credits 3. 3 Lecture Hours. 1 Lab Hour. Thin film fundamentals, processing and industrial applications; topics include crystal structures in thin films, deposition techniques, thin film characterizations and several advanced topics related to electrical and optical devices; lab or tour sessions provided to promote teaching and learning. **Prerequisite:** Grade of C or better in ECEN 370; junior or senior classification.

ECEN 441 Electronic Motor Drives

Credits 4. 3 Lecture Hours. 3 Lab Hours. Application of semiconductor switching power converters to adjustable speed DC and AC motor drives; steady state theory and analysis of electric motion control in industrial, robotic and traction systems; laboratory experiments in power electronic motor drives and their control. **Prerequisite:** Grade of C or better in ECEN 340; junior or senior classification.

ECEN 442 DSP Based Electromechanical Motion Control

Credits 3. 2 Lecture Hours. 3 Lab Hours. Overview of energy conversion and basic concepts on electromechanical motion devices; different control strategies including the solid-state drive topologies; for every electromechanical motion device, its DSP control implementation discussed and implemented in the lab. **Prerequisites:** Grade of C or better in ECEN 314; junior or senior classification.

ECEN 444 Digital Signal Processing

Credits 4. 3 Lecture Hours. 3 Lab Hours. Digital signal processing; discrete-time signals and systems, linear shift-invariant systems, the discrete Fourier transform and fast Fourier transform algorithm, and design of finite impulse response and infinite impulse response digital filters. **Prerequisites:** Grade of C or better in ECEN 314; junior or senior classification.

ECEN 445 Applied Electromagnetic Theory

Credits 3. 3 Lecture Hours. Guided wave and wireless methods; applications of Maxwell's equations and electromagnetic wave phenomena to radiation, antennas and microwave circuit design; digital transmission line analysis and design. **Prerequisites:** Grade of C or better in ECEN 322; junior or senior classification.

ECEN 446 Information Theory, Inference and Learning Algorithms

Credits 3. 3 Lecture Hours. Basic concepts and techniques on data compression, error control codes, and information theoretic measures; basic concepts and techniques in statistical inference such as clustering, maximum likelihood, exact marginalization, Monte Carlo methods, importance sampling, and Markov chain Monte Carlo; introduction to neuron and neural networks; support vector machines. **Prerequisites:** Grade of C or better in MATH 311; grade of C or better in ECEN 303 or STAT 211; junior or senior classification.

ECEN 447 Digital Image Processing

Credits 4. 3 Lecture Hours. 3 Lab Hours. Improvement of pictorial information using spatial and frequency domain techniques; two-dimensional discrete Fourier transform; image filtering, enhancement, restoration, compression; image processing project. **Prerequisites:** Grade of C or better in ECEN 314; junior or senior classification.

ECEN 449 Microprocessor Systems Design

Credits 3. 2 Lecture Hours. 2 Lab Hours. Introduction to microprocessors; 16/32 bit single board computer hardware and software designs; chip select equations for memory board design, serial and parallel I/O interfacing; ROM, static and dynamic RAM circuits for no wait-state design; assembly language programming, stack models, subroutines and I/O processing. **Prerequisites:** Grade of C or better in ECEN 248; junior or senior classification.

ECEN 451 Antenna Engineering

Credits 3. 3 Lecture Hours. Antenna theory and design; including antenna performance parameters, analysis of radiation from sources using Maxwell's equations, theory and design of wire antennas, arrays and frequency independent antennas; computer methods for antenna design. **Prerequisite:** Grade of C or better in ECEN 322; junior or senior classification.

ECEN 453 Microwave Solid-State Circuits and Systems

Credits 4. 3 Lecture Hours. 3 Lab Hours. Microwave solid-state devices and circuits; theory and design of various types of active circuits; applications of these devices and circuits in radar, communication, and surveillance systems; hands-on lab activities covering basics of microwave measurements. **Prerequisites:** Grade of C or better in ECEN 322; junior or senior classification.

ECEN 454 Digital Integrated Circuit Design

Credits 3. 2 Lecture Hours. 2 Lab Hours. Analysis and design of digital devices and integrated circuits using MOS and bipolar technologies and computer aided simulation. **Prerequisites:** Grade of C or better in ECEN 214 and ECEN 248; junior or senior classification.

ECEN 455 Digital Communications

Credits 4. 3 Lecture Hours. 3 Lab Hours. Digital transmission of information through stochastic channels; analog-to-digital conversion, entropy and information, Huffman coding; signal detection, the matched filter receiver, probability of error; baseband and passband modulation, signal space representation of signals, PAM, QAM, PSK, FSK; block coding, convolutional coding; synchronization; communication through fading channels; spread-spectrum signaling; simulation of digital communication systems. **Prerequisites:** Grade of C or better in ECEN 314 and ECEN 303 or STAT 211; junior or senior classification.

ECEN 457 Operational Amplifiers

Credits 4. 3 Lecture Hours. 3 Lab Hours. Analysis of basic operational amplifier and operational transconductance amplifier (OTA) circuits; noise analysis in Op amp and OTA circuits; nonlinear OTA and Op amp circuits; instrumentation amplifiers; transducer circuits; function generators; oscillators and D/A converters and basics of switched-capacitor circuits. **Prerequisite:** Grade of C or better in ECEN 325; junior or senior classification.

ECEN 459 Power System Fault Analysis and Protection

Credits 4. 3 Lecture Hours. 2 Lab Hours. General considerations in transmission and distribution of electrical energy as related to power systems; calculation of electric transmission line constants; general theory of symmetrical components and application to analysis of power systems during fault conditions. **Prerequisites:** Grade of C or better in ECEN 340; junior or senior classification.

ECEN 460 Power System Operation and Control

Credits 4. 3 Lecture Hours. 2 Lab Hours. Load flow studies; power system transient stability studies; economic system loading and automatic load flow control. **Prerequisites:** Grade of C or better in ECEN 340; junior or senior classification.

ECEN 461 Electronic Noise

Credits 3. 3 Lecture Hours. Surveying the elements of electronic noise including concept, theory, measurements, analysis and design; focusing on creative pictures, examples and problems. **Prerequisites:** Grade of C or better in ECEN 325; grade of C or better in ECEN 303 or STAT 211; junior or senior classification.

ECEN 462 Optical Communication Systems

Credits 3. 3 Lecture Hours. Principles of optical communication systems; characteristics of optical fibers, lasers and photodetectors for use in communication systems; design of fiber-optic digital systems and other optical communication systems. **Prerequisites:** Grade of C or better in ECEN 322 and ECEN 370; junior or senior classification.

ECEN 463 Magnetic Resonance Engineering

Credits 3. 2 Lecture Hours. 3 Lab Hours. Design, construction and application of instrumentation for MR imaging; fundamentals of the architecture of an MR spectrometer and the gradient subsystem used for image localization; emphasis on the radiofrequency sensors and systems used for signal generation and reception. **Prerequisites:** Grade of C or better in ECEN 322 or BMEN 420; junior or senior classification.

ECEN 464 Optical Engineering

Credits 3. 3 Lecture Hours. Ray optics; wave optics; propagation, reflection, refraction and diffraction of light; passive optical components, polarization, optical modulators, interferometers and lasers.

Prerequisites: Grade of C or better in ECEN 322 and ECEN 370; junior or senior classification.

ECEN 465 Experimental Optics

Credits 4. 2 Lecture Hours. 7 Lab Hours. In-depth study of experimental optic techniques; opto-mechanical assemblies; passive optics; interferometers; opto-electronics; basic op-amp circuits; feedback and control of optics with electronics. **Prerequisite:** Grade of C or better in ECEN 370; junior or senior classification.

ECEN 466/CYBR 466 Unconditionally Secure Electronics

Credits 3. 3 Lecture Hours. Data security; cryptography; key exchange; conditional security; unconditional (information-theoretic) security; quantum key distribution; the Kirchhoff-law-Johnson-noise (KLJN) key exchange, electronic noise; advanced issues of KLJN; schemes, protocols, attacks, defense, privacy amplification, credit cards, PUF, autonomous vehicles and smart grids. **Prerequisites:** Grade of C or better in ECEN 214; grade of C or better in ECEN 303 or STAT 211; junior or senior classification. **Cross Listing:** CYBR 466/ECEN 466.

ECEN 467 Harnessing Solar Energy: Optics, Photovoltaics and Thermal Systems

Credits 4. 3 Lecture Hours. 3 Lab Hours. Solar radiation characteristics and measurement; optical coatings including reflection, transmission, absorption and emissivity; concentrating optics, tracking and etendue limit; photovoltaic cells, modules and systems overview; introduction to solar thermal systems. **Prerequisites:** Grade of C or better in ECEN 322 and ECEN 370; junior or senior classification.

ECEN 468 Advanced Digital System Design

Credits 4. 3 Lecture Hours. 3 Lab Hours. Design, modeling and verification of complex digital systems using hardware description language and electronic system level language. **Prerequisite:** Grade of C or better in ECEN 248; junior or senior classification.

ECEN 469/CSCE 469 Advanced Computer Architecture

Credits 3. 3 Lecture Hours. Advanced computer architectures including memory designs, pipeline techniques, and parallel structures such as vector computers and multiprocessors. **Prerequisite:** Grade of C or better in ECEN 350/CSCE 350 or CSCE 350/ECEN 350; junior or senior classification. **Cross Listing:** CSCE 469/ECEN 469.

ECEN 470 Laser Principles and Applications

Credits 3. 3 Lecture Hours. Working understanding of the basic principles of laser science, the major components of laser system and their function; examples of laser applications to science, engineering, medicine and industry. **Prerequisites:** Grade of C or better in ECEN 322 and ECEN 370; junior or senior classification.

ECEN 471 Power Management Circuits and Systems

Credits 4. 3 Lecture Hours. 3 Lab Hours. Overview of modern semiconductor power devices, DC-DC linear regulators, switching regulators and battery chargers; emphasis on mathematical foundations, feedback theory, stability and root locus, multi-stage amplifiers, analysis and design of power electronic circuits including DC-DC and AC-DC converters and power supplies; applications on power electronics and power management circuits. **Prerequisites:** Grade of C or better in ECEN 325; junior or senior classification.

ECEN 472 Microelectronic Circuit Fabrication

Credits 4. 3 Lecture Hours. 3 Lab Hours. Fundamentals of MOS and bipolar microelectronic circuit fabrication; theory and practice of diffusion, oxidation, ion implantation, photolithography, etch; yield and reliability considerations; statistical process control; integrated process design, simulation and characterization. **Prerequisites:** Grade of C or better in ECEN 325 and ECEN 370; junior or senior classification.

ECEN 473 Microelectronic Device Design

Credits 3. 3 Lecture Hours. General processes for the fabrication of microelectronic devices and integrated circuits; a review of the electronic properties of semiconductors and carrier transport and recombination; analysis and characterization of p-n junctions, bipolar transistors, and MOS capacitors and transistors; design considerations for achieving optimum performance and practical structures are discussed. **Prerequisites:** Grade of C or better in ECEN 325 and ECEN 370; junior or senior classification.

ECEN 474 VLSI Circuit Design

Credits 4. 3 Lecture Hours. 3 Lab Hours. Analysis and design of monolithic analog and digital integrated circuits using NMOS, CMOS and bipolar technologies; device modeling; CAD tools and computer-aided design; design methodologies for LSI and VLSI scale circuits; yield and economics; test and evaluation of integrated circuits. **Prerequisite:** ECEN 326.

ECEN 475 Introduction to VLSI Systems Design

Credits 4. 3 Lecture Hours. 3 Lab Hours. Introduction to design and fabrication of microelectronic circuits; emphasis on very large scale integration (VLSI) digital systems; use of state-of-the-art design methodologies and tools; design of small to medium scale integrated circuits for fabrication. **Prerequisites:** Grade of C or better in ECEN 454; junior or senior classification.

ECEN 477 Photonics: Fiber and Integrated Optics

Credits 4. 3 Lecture Hours. 3 Lab Hours. Photonics lab including optical power and spectral measurements of singlemode and multimode optical fibers, hands-on arc fusion splicing, lasers, amplifiers, interferometers, photodetectors, integrated optics, fiber-optic devices, optical modulators. **Prerequisite:** Grade of C or better in ECEN 322 and ECEN 370; junior or senior classification.

ECEN 478 Wireless Communications

Credits 3. 3 Lecture Hours. Overview of wireless applications, models for wireless communication channels, modulation formats for wireless communications, multiple access techniques, wireless standards.

Prerequisites: Grade of C or better in ECEN 314; junior or senior classification.

ECEN 480 RF and Microwave Wireless Systems

Credits 3. 3 Lecture Hours. Introduction to various RF and microwave system parameters, architectures and applications; theory, implementation, and design of RF and microwave systems for communications, radar, sensor, surveillance, navigation, medical and optical applications. **Prerequisite:** Grade of C or better in ECEN 322; junior or senior classification.

ECEN 484 Professional Internship

Credits 0-1. 0-1 Lecture Hours. Professional internship in a private company, government agency or laboratory, university or organization to provide work and/or research experience related to the student's major and career objectives. May be taken three times for credit.

Prerequisites: Grade of C or better in ECEN 214 or ECEN 248; junior or senior classification; approval of instructor and internship agency.

ECEN 485 Directed Studies

Credits 0 to 6. 0 to 6 Other Hours. Problems of limited scope approved on an individual basis intended to promote independent study. **Prerequisites:** Senior classification; approval of department head.

ECEN 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 7 Lab Hours. Selected topics in an identified area of electrical engineering. May be repeated for credit.

Prerequisite: Approval of instructor.

ECEN 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in electrical engineering. May be repeated 3 times for credit. **Prerequisites:** Junior or senior classification and approval of instructor.

ECFB - Early Chldhd Ed Fld Based (ECFB)

ECFB 321 Curriculum Design for Early Childhood Programs SEL and Literacy

Credits 3. 3 Lecture Hours. 1 Lab Hour. Focus on child development principles and accreditation standards for designing social emotional learning (SEL), language, and literacy curricula for early childhood programs and planning and evaluating learning activities and programs; supervised learning activities for individual children and groups; emphasis on planning, implementing, and evaluating activities; field trips may be required. **Prerequisites:** EDCI 353, INST 210, and EDCI 364.

ECFB 421 Curriculum Design for Early Childhood Programs II

Credits 3. 3 Lecture Hours. 1 Lab Hour. Focus on child development principles and accreditation standards for designing curricula for early childhood programs and planning and evaluating learning activities and programs; supervised learning activities for individual children and groups; emphasis on planning, implementing, and evaluating activities; concurrently taken with a lab component; field trips may be required.

Prerequisites: Grade of C or better in EDCI 353, INST 210, EDCI 364, and ECFB 321.

ECFB 422 Infant Development and Program Planning and Infant/Toddler Lab

Credits 3. 3 Lecture Hours. 1 Lab Hour. Typical and atypical infant and toddler development; sources of variation in learning and development; developmentally appropriate expectations; markers of quality child care for infants and toddlers; family systems and relationship dynamics; early intervention and support programs; issues in curriculum and environments of childcare; skills for applying knowledge through specific professional roles. **Prerequisites:** EDCI 353.

ECFB 424 Capstone Teaching in an Early Childhood Program

Credits 6. 6 Other Hours. Culmination of early childhood teaching track program; integration and application of knowledge and skills learned from program of study while observing and participating in early childhood settings with supervision. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** Grade of C or better in ECFB 421; ECFB 422.

ECHE - Early Chldhd Ed Fld Based (ECHE)

ECHE 291 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of faculty member in early childhood education. May be repeated 2 times for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

ECHE 491 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of faculty member in early childhood education. May be repeated 2 times for credit. **Prerequisites:** Junior or senior classification and approval of instructor.

ECMT - Econometrics (ECMT)

ECMT 461 Economic Data Analysis

Credits 3. 3 Lecture Hours. Concepts of statistical description, probability theory and statistical inference as they apply to economic analysis; data management, data handling and data analysis; focus on economic statistics with emphasis on regression analysis. **Prerequisites:** Grade of C or better in MATH 142, MATH 151, or MATH 171; junior or senior classification, or approval of instructor.

ECMT 463 Introduction to Econometrics

Credits 3. 3 Lecture Hours. Application of mathematics and statistics to interpret economic phenomena; elementary econometric models and estimation techniques useful for estimating economic relationships and theories. **Prerequisites:** Grade of C or better in ECON 323; grade of C or better in ECMT 461, STAT 211 or STAT 303.

ECMT 475 Economic Forecasting

Credits 3. 3 Lecture Hours. Econometric approach to prediction and forecasting; data mining and in-sample overfitting; exploratory data analysis; model selection; recursive techniques; structural change; nonlinear models; causality; forecast evaluation and combination; practical issues in real world prediction and forecasting. **Prerequisites:** ECMT 463 with a grade of C or better; junior or senior classification.

ECON - Economics (ECON)

ECON 202 Principles of Economics

Credits 3. 3 Lecture Hours. (ECON 2302) Principles of Economics. Elementary principles of economics; the economic problem and the price system; theory of demand, theory of production and the firm, theory of supply; the interaction of demand and supply; also taught at Galveston campus.

ECON 203 Principles of Economics

Credits 3. 3 Lecture Hours. (ECON 2301) Principles of Economics. Measurement and determination of national income, employment and price; introduction to monetary and fiscal policy analysis; the effects of government deficits and debt, exchange rates and trade balances. **Prerequisite:** ECON 202 or approval of undergraduate advisor; also taught at Galveston campus.

ECON 285 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Directed studies in specific problem areas of economics. May be repeated for credit. **Prerequisite:** Freshman or sophomore classification; approval of instructor.

ECON 289 Special Topics in...

Credits 3. 3 Lecture Hours. Selected topics in an identified area of economics. May be repeated for credit. **Prerequisite:** Approval of undergraduate advisor.

ECON 291 Research

Credits 0 to 3. 0 to 3 Other Hours. Research conducted under the direction of faculty member in economics. May be taken three times for credit. **Prerequisites:** Freshman or sophomore classification.

ECON 311 Money and Banking

Credits 3. 3 Lecture Hours. Fundamental principles of money, credit, and banking; arbitrage conditions in domestic and international capital markets; theoretical and institutional analysis of money markets. **Prerequisite:** ECON 203 with a grade of C or better; also taught at Galveston campus.

ECON 312 Poverty, Inequality and Social Policy

Credits 3. 3 Lecture Hours. Determinants of inequality in market earnings; philosophical and economic reasons for redistributing income; issues in measurement of inequality and poverty; examination of major social insurance and welfare programs and how they affect income distribution and performance of the economy. **Prerequisite:** ECON 323 with a grade of C or better.

ECON 315 Sports Economics

Credits 3. 3 Lecture Hours. Application of economic concepts to the business and practice of sports; taxpayer funding of stadiums; applications of game theory to sports; impact of imperfect information; pricing strategies; testing models of discrimination in sports markets.

Prerequisite: ECON 202 with a grade of C or better.

ECON 318/WGST 318 The Economics of Gender and Race

Credits 3. 3 Lecture Hours. Theories and evidence on gender and race differences in labor market outcomes; labor supply and the role of family formation; the effect of human capital and discrimination on earnings; analysis of government policies; international comparisons.

Prerequisites: ECON 323 with a grade of C or better; junior or senior classification. **Cross Listing:** WGST 318/ECON 318.

ECON 320 Economic Development of Europe

Credits 3. 3 Lecture Hours. Development of wage system expansion of markets, Industrial Revolution, relation of industrial development to political policy. **Prerequisites:** ECON 202 and ECON 203 with a grade of C or better.

ECON 323 Microeconomic Theory

Credits 3. 3 Lecture Hours. Determination of prices and their role in directing consumption, production and distribution under both competitive and non-competitive market situations. **Prerequisite:** Grade of C or better in ECON 202; grade of C or better in MATH 142, MATH 151, or MATH 171; also taught at Galveston campus.

ECON 328 Economics of Education

Credits 3. 3 Lecture Hours. Application of economic analysis to education policy; theoretical basis for private and public investment in education; returns to education; the importance of school resources, school financing, school choice, and accountability. **Prerequisites:** Grade of C or better in ECON 202; Grade of C or better in ECMT 461, STAT 211, or STAT 303.

ECON 330 Economic Development

Credits 3. 3 Lecture Hours. A study of the less developed world; economic problems and solutions. **Prerequisites:** Grade of C or better in ECON 202 and ECON 203.

ECON 410 Macroeconomic Theory

Credits 3. 3 Lecture Hours. Theory of the determination of aggregate levels of national income, employment and prices; monetary and fiscal policy analysis, effects of government debt and deficits. **Prerequisite:** ECON 203 with a grade of C or better.

ECON 412 Public Finance

Credits 3. 3 Lecture Hours. Economic role of governments; the choice of public sector output in a democracy and the effects of various taxes on resource allocation and income distribution. **Prerequisite:** ECON 323 with a grade of C or better.

ECON 414 Health Economics

Credits 3. 3 Lecture Hours. Economics of health care in the U.S.; role of third party payers; supply and demand for health care; structure and consequences of public and private insurance; role of competition in health care markets among hospitals, insurance plans, physicians and pharmaceutical manufacturers; role of completion and regulation in medical innovation. **Prerequisite:** ECON 323 with a grade of C or better.

ECON 416 Economics of Microfinance

Credits 3. 3 Lecture Hours. Analysis of recent research in the economics of microfinance; fundamental issues with microfinance and wealth creation; study of both theory and empirical work of recent research on microfinance; use of academic research to see how relevant it is to the practical aspects of microfinance. **Prerequisite:** Grade of C or better in ECON 323.

ECON 418 Economics of Labor

Credits 3. 3 Lecture Hours. Economics of the labor market including factors affecting the economy's demand for labor and the supply of labor; labor market problems such as unemployment and poverty; the economics of trade unions and collective bargaining. **Prerequisite:** ECON 323 with a grade of C or better.

ECON 419 Personnel Economics

Credits 3. 3 Lecture Hours. Exploration of the economics of the workplace using the insights of economic models and behavioral economics; focus on incentives and information, motivation of workers through incentive pay, promotion tournaments and threats, design of the hiring process to recruit a talented and diverse workforce, attraction and retention of employees, downsizing. **Prerequisites:** Grade of C or better in ECON 323.

ECON 420 Law and Economics

Credits 3. 3 Lecture Hours. Mutual interaction of the prevailing legal system and economic phenomena; development of a series of testable hypotheses concerning the effects of laws and regulations on incentives and economic behavior, the allocation of resources and the distribution of income. **Prerequisite:** ECON 323 with a grade of C or better.

ECON 421 Economics of Crime

Credits 3. 3 Lecture Hours. Study of crime and crime-control policies using standard economic techniques; focus on the incentives for individuals to commit crimes and how those incentives can be changed by public policy; topics may include costs of crime to society, drug control, gun control, nonviolent and violent crime, gang-related crimes, punishment, incarceration and deterrence. **Prerequisite:** Grade of C or better in ECON 323.

ECON 425 The Organization of Industry

Credits 3. 3 Lecture Hours. Relationships between structure, conduct and performance of industries in the American economy using both theoretical and empirical material; antitrust regulation, pricing, product characteristics, advertising, technical change and environmental effects; the American experience contrasted with that of other countries; growth of international industries. **Prerequisite:** ECON 323 with a grade of C or better.

ECON 426 Economics of Antitrust and Regulation

Credits 3. 3 Lecture Hours. Bureaucratic and judicial impact of antitrust laws and other regulatory means on the American economy; efficiency gains and losses associated with price discrimination, predation, cartelization, horizontal merger, vertical integration, resale price maintenance; Supreme Court opinions delivered in landmark antitrust cases. **Prerequisite:** ECON 323 with a grade of C or better.

ECON 433 Energy Markets and Policy

Credits 3. 3 Lecture Hours. Economics of energy markets and energy regulation with emphasis on implications for optimal energy policy; sectors include gasoline, oil, electricity, natural gas, renewables, nuclear; economic theory integrated with empirical applications from American and international experience; new energy markets, energy trading, and interaction with environmental policy. **Prerequisites:** ECON 323 with a grade of C or better; junior or senior classification or approval of instructor.

ECON 436 Environmental Economics

Credits 3. 3 Lecture Hours. Economic theory and public policy as applied to environmental problems; role of market failure in explaining the existence of pollution; alternative strategies for pollution control and environmental management; global environmental issues. **Prerequisites:** ECON 323 with a grade of C or better.

ECON 440 Experimental Economics

Credits 3. 3 Lecture Hours. Experimental techniques in economics and survey of literature in experimental economics; credibility of experimental data and criteria for determining reliability; application of statistical treatment to experimental data. **Prerequisite:** ECON 323 with a grade of C or better.

ECON 441 Policy Economics

Credits 3. 3 Lecture Hours. Advanced instruction on field experimental methods used in economics to understand how individuals and organizations respond to changes in incentives in natural settings; emphasis on policies and programs implemented by or in collaboration with firms, government and NGOs both in developed and developing countries. **Prerequisite:** Grade of C or better in ECON 202 and ECMT 461.

ECON 445 Financial Economics

Credits 3. 3 Lecture Hours. Economic analysis of money and financial markets; market structures, efficiency, institutional features; international markets; arbitrage; derivative securities; asset pricing in complete and incomplete markets; relation to rest of economy. **Prerequisites:** Grade of C or better in ECON 323; grade of C or better in ECMT 461, STAT 211, or STAT 303; junior or senior classification.

ECON 449 Economics of Decision-Making Strategy

Credits 3. 3 Lecture Hours. Introduction to principles of decision-making and analysis of strategic interaction; formal modeling of decision problems involving one or more agents, integrating preferences, risk, and uncertainty into analysis, and using principles of game theory to advise choices; applications include search, signaling, design of contracts, agendas and repeated interaction. **Prerequisites:** ECON 323 with a grade of C or better.

ECON 452 International Trade Theory and Policy

Credits 3. 3 Lecture Hours. Basis for trade; theory of comparative advantage; determination of product and factor prices; gains from international trade; commercial policy and its implications for income distribution; concept of effective protection; market distortions, policy generated distortions and the arguments for tariffs. **Prerequisite:** ECON 323 with a grade of C or better; also taught at Galveston campus.

ECON 459 Games and Economic Behavior

Credits 3. 3 Lecture Hours. Introduction to game theory for advanced undergraduates; definition and existence of an equilibrium point for strategic, repeated and extensive form games; strategic and evolutionary equilibrium refinements; equilibrium selection; applications include auctions, bargaining, oligopoly, strategic market games, team production, voting and behavioral game theory. **Prerequisites:** Grade of C or better in ECON 323; MATH 142, MATH 131, MATH 151, or MATH 171.

ECON 460 Introduction to Mathematical Economics

Credits 3. 3 Lecture Hours. Introduction to mathematical economics; application of mathematical tools in economic theory; fundamental results from differential and integral calculus; duality theory in consumer and producer theory; classical optimization techniques, elementary differential equations and stability analysis. **Prerequisites:** Grade of C or better in ECON 323 and ECON 410.

ECON 465 Contemporary Economic Issues

Credits 3. 3 Lecture Hours. Application of microeconomic and macroeconomic analyses to evaluate contemporary economic issues. May be taken two times for credit when topics vary. **Prerequisite:** Grade of C or better in ECON 323 and ECON 410.

ECON 470 Data Science for Economic and Social Issues

Credits 3. 3 Lecture Hours. Economic and quantitative methods used to evaluate decisions made by individuals, firms, governments and other policymakers; implementation of these methods and how these methods overcome problems that often plague correlational analyses; conduction of retrospective analyses of choices, creation of and implementation of policies so that their effects can be measured, and prediction of the effects of potential policies on social issues like crime, poverty, etc. based on evidence; topics vary. May be taken two times for credit. **Prerequisites:** Grade of C or better in ECMT 463 or approval of instructor.

ECON 471 Data Science for Future Decision Makers

Credits 3. 3 Lecture Hours. Integration of fundamental economic concepts, such as the study of how economic incentives impact decision making, with skills and tools from data science that are necessary to work with the vast amounts of data that economic agents generate daily; topics vary. May be taken two times for credit. **Prerequisites:** Grade of C or better in ECMT 463 or approval of instructor.

ECON 484 Internship

Credits 0 to 6. 0 to 6 Other Hours. Directed internship in an organization to provide on-the-job training and applied research experience with professionals in settings appropriate to economics and student professional interest. Maximum 6 hours can count toward major. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** Major in economics; 12 completed hours of economics including ECON 323 with a grade of C or better; 2.5 cumulative GPA; 3.0 GPA in economic courses; pre-approval of the director of economics internship programs.

ECON 485 Directed Studies

Credits 0 to 6. 0 to 6 Other Hours. Research and design of specific problem areas approved on an individual basis with the intention of promoting independent study and to supplement existing course offerings. Results of study presented in writing. **Prerequisites:** Major or minor in economics; approval of undergraduate advisor.

ECON 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of economics. May be repeated for credit. **Prerequisite:** Approval of undergraduate advisor.

ECON 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in economics. May be taken three times for credit. **Prerequisites:** Junior or senior classification; grade of C or better in ECON 323, ECON 410, and ECMT 463.

EDCI - Educ Curriculum & Dev (EDCI)

EDCI 285 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Research problems and readings in areas selected to supplement existing offerings; individual reports, oral and written, required. **Prerequisites:** Freshman or sophomore classification; approval of instructor.

EDCI 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of educational curriculum and instruction. May be repeated for credit. **Prerequisite:** Approval of department head.

EDCI 291 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of faculty members in the Department of Teaching, Learning and Culture. May be taken four times for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

EDCI 353 Early Childhood through Adolescent Education

Credits 3. 3 Lecture Hours. (TECA 1311) Early Childhood through Adolescent Education. Early childhood through adolescent approaches and instructional materials appropriate for EC through middle school programs; impact of research and theory on child development from gestation to early adolescence on instructional practices. **Prerequisites:** Junior or senior classification.

EDCI 354 Early Childhood and Adolescent Curriculum and Lesson Design

Credits 3. 3 Lecture Hours. Examination of curriculum models used in educational environments designed for young children through adolescents and the organization of the curriculum; investigation of state-adopted curriculum knowledge and skills standards and materials as well as their use and expansion. **Prerequisites:** EDCI 353; TEFB 371 or concurrent enrollment.

EDCI 358 Instructional Methods in Engineering and Technology Education

Credits 3. 3 Lecture Hours. Instructional methods of teaching and instruction in engineering and technology at the secondary level. **Prerequisites:** Concurrent enrollment in TEFB 322 or TEFB 324; junior or senior classification.

EDCI 364 Interaction Processes with Children in Groups

Credits 3. 3 Lecture Hours. Instruction in application and adaptation of principles of effective verbal and non-verbal communication to their interactions with children in early childhood settings; training in interpersonal communication skills and positive guidance techniques such as how to listen and talk to children, how to prevent problems before they occur, methods of achieving positive discipline in early childhood programs, and scaffolding children's understandings and learning in all areas via effective interactions. **Prerequisites:** EDUC majors; junior or senior classification; concurrent enrollment in TEFB 273.

EDCI 365 Using Technology Classrooms

Credits 3. 3 Lecture Hours. Overview of technology as it relates to the design of instruction and practices that support effective teaching and learning; how learning theories are reflected in and supported by technology; design and implementation of virtual learning experiences, including assessment of student learning; implementation of effective digital literacy practices. **Prerequisite:** Junior or senior classification.

EDCI 485 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Research problems and readings in areas selected to supplement existing offerings; individual reports, oral and written, required. **Prerequisites:** Junior or senior classification; approval of instructor.

EDCI 489 Special Topics in...

Credits 0 to 4. 0 to 4 Lecture Hours. Study of selected topics in an identified area of curriculum and instruction. May be repeated for credit. **Prerequisite:** Approval of department head.

EDCI 491 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of faculty members in the Department of Teaching, Learning and Culture. May be taken four times for credit. **Prerequisites:** Junior or senior classification and approval of instructor.

EHRD - Ed Human Res Develop (EHRD)

EHRD 101 Learning Community of Leadership Development in Human Resource Development and Technology Management

Credit 1. 1 Lecture Hour. Exploration of leadership identity, reflection on lessons learned during the first year of college. Must be taken on a satisfactory/unsatisfactory basis.

EHRD 111 Learning Community - Foundations of Student Success

Credit 1. 1 Lecture Hour. Introduction to personal, academic and leadership identities; overview of highly effective strategies that increase the likelihood for success in academics and extracurricular activities; challenges to reflect and assess oneself academically and personally. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisite:** EHRD 101 or approval of instructor.

EHRD 203 Foundations of Human Resource Development

Credits 3. 3 Lecture Hours. Overview of the discipline and field of human resource development; focus on how individuals and groups learn and interact with organizations including motivation, group dynamics, systems theory, organizational culture, learning and change. **Prerequisite:** Sophomore classification.

EHRD 210 Legal and Ethical Environment of Human Resource Development

Credits 3. 3 Lecture Hours. Development of knowledge towards legal and ethical work environment in a corporate and educational setting in human resource development. **Prerequisite:** Sophomore classification.

EHRD 285 Directed Studies

Credits 0 to 12. 0 to 12 Lecture Hours. Directed readings or research problems in industrial education. **Prerequisites:** Freshman or sophomore classification; approval or directed studies application.

EHRD 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of industrial educational. May be repeated for credit. **Prerequisite:** Approval of instructor.

EHRD 291 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in educational human resource development. May be repeated 2 times for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

EHRD 315 Applied Human Resource Development in the Workplace

Credits 3. 3 Lecture Hours. Training and development context and synthesis of general industry-standard human resource practices in workplace environments for human resource practitioners. **Prerequisites:** EHRD 203 and EHRD 210 with a grade of C or better; junior or senior classification.

EHRD 325 Human Capital Acquisition, Management, and Development

Credits 3. 3 Lecture Hours. Examination of the strategies and tools used to create organizational excellence by identifying and retaining high quality talent; the creation of strategies to recruit talent and systems of personal/professional development to grow the organization; exploration of systems and programs that will strengthen the organization as well as retention strategies to promote and reward high quality talent. **Prerequisites:** Grade of C or better in EHRD 315; junior or senior classification.

EHRD 371 Applied Learning Principles

Credits 3. 3 Lecture Hours. The overarching purpose of the course is to influence adult educators to make more intentional choices toward developmental growth in their work with adult learners; focus on adult learning theories and work strategies; meets writing intensive course requirement. **Prerequisites:** Junior or senior classification and approval of instructor.

EHRD 372 Learning and Development in HRD

Credits 3. 3 Lecture Hours. Concepts, knowledge and skills to access, design, develop, deliver and evaluate training programs; foundation of understanding roles of learning, training and development in organizations and systematic and evidence-based approach for designing and managing quality training programs in organizations. **Prerequisites:** Grade of C or better in EHRD 203 and EHRD 210; junior or senior classification; or approval of instructor.

EHRD 374 Organizational Development

Credits 3. 3 Lecture Hours. Introduction to major theories, concepts, skills and techniques for organization development in business and industry, education and the public sector. **Prerequisites:** Grade of C or better in EHRD 203 and EHRD 210; junior or senior classification; or approval of instructor.

EHRD 391 Measurement and Evaluation in Human Resource Development and Technology Management

Credits 3. 3 Lecture Hours. Measurement and evaluation techniques in the field of Human Resource Development and Technology Management; emphasis on understanding, calculation and application of basic testing, assessment and interpretation methods. **Prerequisites:** Junior or senior classification or approval of instructor; EHRD 203 with a grade of C or better; MATH 140 and MATH 142.

EHRD 402 Instructional Technology and Design

Credits 3. 3 Lecture Hours. Design principles; development of instruction; contemporary issues and trends; foundations in learning research; requirements for instruction, task and needs analysis; learning situations and instructional models; hardware and software innovations; assessing instructional outcomes; factors affecting utilization. **Prerequisites:** EHRD 371 with a grade of C or better; junior or senior classification or approval of instructor.

EHRD 405 Principles and Practices of Leadership in Human Resource Development and Technology Management

Credits 3. 3 Lecture Hours. Theories and concepts associated with learning in individuals and organizations; overview of leadership theories and learning theories within a context of developing leadership programs. **Prerequisites:** Junior or senior classification and approval of instructor.

EHRD 408 Globalization and Diversity in the Workplace

Credits 3. 3 Lecture Hours. Assist learners in the identification and understanding of globalization and diversity issues in learning, work and community; exploration of current issues, theories, trends and policy issues. **Prerequisites:** Junior or senior classification and approval of instructor.

EHRD 413 Conflict Management and Dialogue

Credits 3. 3 Lecture Hours. Conflict management principles and practices in the workplace; engagement in meaningful conflict from a training and development perspective. **Prerequisites:** Grade of C or better in EHRD 203 and EHRD 210; junior or senior classification; or approval of instructor.

EHRD 477 Project Management in Organizations

Credits 3. 3 Lecture Hours. Application of principles of project management in organizations; focus on the development of project proposals, project planning using project management software; management of project personnel and resources. **Prerequisite:** Junior or senior classification or approval of instructor.

EHRD 481 Seminar

Credits 3. 3 Other Hours. Seminar on significant issues of industry; transition from an academic environment to professional business environment; preparation of a multi-vector resume; salary negotiation; life skills and planning; steps in searching and securing an internship position. **Prerequisites:** Grade of C or better in EHRD 203; junior or senior classification, or approval of instructor.

EHRD 484 Professional Internship

Credits 6. 6 Other Hours. Directed internship in an organization to provide students with a learning experience supervised by professionals in organizational settings appropriate to the student's professional objectives. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** Senior classification and approval of instructor, admitted to professional phase, EHRD 481, EHRD 490.

EHRD 485 Directed Studies

Credits 0 to 12. 0 to 12 Other Hours. Directed readings or research problems in industrial education. Term report required. **Prerequisite:** Approval of department head.

EHRD 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 1 to 4 Lab Hours. Selected topics in an identified area of industrial education. May be repeated for credit. **Prerequisite:** Approval of instructor.

EHRD 490 Research in Human Resource Development/Technology Management

Credits 3. 3 Lecture Hours. Investigative techniques currently employed in human resource development (HRD) and technology management (TCM) including the context of HRD/TCM research, planning HRD/TCM research, styles of HRD/TCM research, and strategies for data collection and researching. **Prerequisites:** Junior or senior classification; admitted to professional phase; EHRD 391 with a grade of C or better.

EHRD 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in human resource development. May be repeated for credit. **Prerequisite:** Junior or senior classification.

ENDG - Engr Design Graphics (ENDG)

ENDG 485 Directed Studies

Credits 1 to 3. 1 to 3 Other Hours. Special problems in engineering design graphics to fit needs of individual students. **Prerequisite:** Approval of instructor.

ENDG 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified field of engineering design graphics. **Prerequisite:** Approval of instructor.

ENDS - Environmental Design (ENDS)

ENDS 101 Design Process

Credits 3. 3 Lecture Hours. (ARCH 1311) Design Process. Fundamental design processes, issues and theories relevant to design resolution and the creation of new ideas; creative thought processes from the formation of ideas through incubation to final product and future impact on the physical environment and society.

ENGL - English (ENGL)

ENGL 103 Introduction to Rhetoric and Composition

Credits 3. 3 Lecture Hours. (ENGL 1301) Introduction to Rhetoric and Composition. Intensive study of and practice in writing processes, from invention and researching to drafting, revising and editing, both individually and corroboratively; emphasis on effective rhetorical choices including audience, purpose, arrangement and style; focus on writing the academic essay as a vehicle for learning, communicating and critical analysis.

ENGL 104 Composition and Rhetoric

Credits 3. 3 Lecture Hours. (ENGL 1302) Composition and Rhetoric. Focus on referential and persuasive researched essays through the development of analytical reading ability, critical thinking and library research skills. **Prerequisite:** Freshman or sophomore classification; also taught at Galveston and Qatar campuses.

ENGL 107 Introduction to the Health Humanities

Credits 3. 3 Lecture Hours. Introduction to the methods and approaches of the health humanities; exposure to key scholarship in this field as well as major methods and approaches; application of such skills to the analysis of cultural case studies such as illness narratives or contemporary debates in scientific bioethics. **Cross Listing:** COMM 107, HHUM 107, and PHIL 107.

ENGL 202 Environmental Literature

Credits 3. 3 Lecture Hours. Texts from various periods and locations and in various genres and media that focus on the relationship of human beings to the rest of the natural world; topics vary from each section; also taught at Qatar campus.

ENGL 203 Writing about Literature

Credits 3. 3 Lecture Hours. Exploration of literature by genre and/or theme; literary analysis and interpretation; intensive writing about literature; also taught at Galveston campus.

ENGL 204/AFST 204 Introduction to African-American Literature

Credits 3. 3 Lecture Hours. Introduction to the writings of African Americans from the 18th century to the present, emphasizing the major themes and traditions; ENGL-204 also taught at Galveston campus. **Cross Listing:** AFST 204/ENGL 204.

ENGL 205/AFST 205 Introduction to Africana Literature

Credits 3. 3 Lecture Hours. Works, literary movements and genres of authors of African descent in the Americas, Europe and Africa. **Cross Listing:** AFST 205/ENGL 205.

ENGL 206 Twenty-first Century Literature and Culture

Credits 3. 3 Lecture Hours. Exploration of the literary and cultural forms of the twenty-first century, focusing on a variety of national and transnational origins; also taught at Qatar campus.

ENGL 207 Human Thinking and Digital Culture

Credits 3. 3 Lecture Hours. Introduction to methodology, scope and practice of digital humanities; overview of digital research culture; evaluation of digital media as tools for thinking.

ENGL 209/LING 209 Introduction to Linguistics

Credits 3. 3 Lecture Hours. Nature of human language and of linguistics; includes an introduction to phonology, syntax, semantics and morphology and the role of spoken and written discourse in sustaining societal arrangements. **Cross Listing:** LING 209/ENGL 209.

ENGL 210 Technical and Professional Writing

Credits 3. 3 Lecture Hours. (ENGL 2311) Technical and Professional Writing. Focus on writing for professional rhetorical situations; correspondence and researched reports fundamental to the workplace — memoranda, letters, electronic correspondence, research proposals and presentations; use of visual rhetoric and document design in print and electronic mediums; emphasis on audience awareness, clarity of communication and collaborative team-work; also taught at Galveston and Qatar campuses.

ENGL 211/GLST 211 Foundations in Cultural Studies

Credits 3. 3 Lecture Hours. Introduction to history, influence and major ideas of Cultural Studies; use of culture as a means to critique social problems and understand social forces; analysis of culture in its relationship to power; participation in project investigating contemporary U.S. youth subcultures. **Cross Listing:** GLST 211/ENGL 211.

ENGL 212 Shakespeare

Credits 3. 3 Lecture Hours. Exploration of selected works of Shakespeare; also taught at Galveston campus.

ENGL 219 Literature and the Other Arts

Credits 3. 3 Lecture Hours. Imaginative literature in conversation with aesthetic principles and such other arts as painting, sculpture, architecture, film and music; also taught at Qatar campus.

ENGL 220 Graphic Novel

Credits 3. 3 Lecture Hours. An exploration of origins and development of the graphic novel.

ENGL 221/MODL 221 World Literature

Credits 3. 3 Lecture Hours. (ENGL 2332) World Literature. Survey of world literature from the ancient world through the sixteenth century in relation to its historical and cultural contexts; texts selected from a diverse group of authors, traditions and genres; ENGL-221 also taught at Qatar campus. **Cross Listing:** MODL 221/ENGL 221.

ENGL 222/MODL 222 World Literature

Credits 3. 3 Lecture Hours. (ENGL 2333) World Literature. Survey of world literature from the seventeenth century to the present in relation to its historical and cultural contexts; texts selected from a diverse group of authors, traditions and genres; ENGL-222 also taught at Galveston and Qatar campuses. **Cross Listing:** MODL 222/ENGL 222.

ENGL 227 American Literature: The Beginnings to Civil War

Credits 3. 3 Lecture Hours. (ENGL 2327) American Literature: The Beginnings to Civil War. Representative writers, genres and movements of the period.

ENGL 228 American Literature: Civil War to Present

Credits 3. 3 Lecture Hours. (ENGL 2328) American Literature: Civil War to Present. Expressions of the American experience in realism, regionalism and naturalism; varieties of modernist and contemporary writing; the rise of ethnic literature and experimental literary forms.

ENGL 229/ASIA 229 Asian American Literature and Culture

Credits 3. 3 Lecture Hours. Introduction to the historical scope of Asian American literature and culture. **Cross Listing:** ASIA 229/ENGL 229.

ENGL 231 Survey of English Literature I

Credits 3. 3 Lecture Hours. (ENGL 2322) Survey of English Literature I. Literature of England from Anglo-Saxon times through the 18th century.

ENGL 232 Survey of English Literature II

Credits 3. 3 Lecture Hours. (ENGL 2323) Survey of English Literature II. Literary works from the late 18th century to the 21st century by authors in Great Britain and its colonies; also taught at Qatar campus.

ENGL 234 Introduction to Speculative and Marvelous Literatures

Credits 3. 3 Lecture Hours. Introduction to the speculative and marvelous genres of literature; survey of different genres, such as science fiction, fantasy, horror, magical realism, utopian, or fairy tale; examination of different methodological approaches and historical contexts.

ENGL 235 Elements of Creative Writing

Credits 3. 3 Lecture Hours. (ENGL 2307) Elements of Creative Writing. Initiation into the craft of creative writing in prose and poetry; extensive reading in the genres; peer workshops.

ENGL 241 Advanced Composition

Credits 3. 3 Lecture Hours. Focuses on the writing of advanced academic and professional prose by integrating computer technology in the analysis and production of that prose; also taught at Galveston campus.

ENGL 251/FILM 251 Introduction to Film Analysis

Credits 3. 3 Lecture Hours. Fundamental aspects of film analysis and criticism; ENGL-251 also taught at Galveston and Qatar campuses. **Cross Listing:** FILM 251/ENGL 251.

ENGL 253 Introduction to Cultural Studies and Popular Culture

Credits 3. 3 Lecture Hours. Introduction to Cultural Studies and Popular Cultural. An introduction to the history, theories and methods of contemporary cultural studies. The course will explore key concepts in cultural theory to examine specific aspects of popular culture as well as cultural sites and practices so as to expand upon the analytical and critical thinking skills learned in ENGL 104 and 203. **Prerequisite:** ENGL 104; Galveston campus.

ENGL 262/HISP 262 Introduction to Latinx Literary Studies

Credits 3. 3 Lecture Hours. Introduction to Latinx literature; emphasis on methods and approaches, historical breadth and context and the diverse literary traditions of people of Hispanic and Latinx descent in the United States. **Cross Listing:** HISP 262/ENGL 262.

ENGL 285 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Readings selected for specific need of major or minor in English.

ENGL 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of English. May be repeated for credit.

ENGL 291 Research

Credits 0 to 3. 0 to 3 Lecture Hours. Research conducted under the direction of faculty member in English. **Prerequisites:** 3 hours of 200-level literature; freshman or sophomore classification and approval of instructor.

ENGL 292 Introduction To Literature And Medicine

Credits 3. 3 Lecture Hours. Introduction to methodology, scope and practice of literature and medicine studies; analysis of autobiographies, novels and poetry dealing with health and illness; evaluation of sources from different disciplinary perspectives as a tool for critical thinking.

ENGL 303 Approaches to English Studies

Credits 3. 3 Lecture Hours. A writing intensive exploration of the methodologies and major topics of English studies. **Prerequisite:** ENGL 104 or registration therein; junior or senior classification or approval of instructor.

ENGL 304 Topics in Digital Research

Credits 3. 3 Lecture Hours. Topics in the studies of digital humanities; introduction to making/interpreting digital materials, the surrogates of books, paintings, etc., that form our cultural heritage, as well as digitally-born literature, art and culture; reflection on digital cultures/digital archives; theory and practice of creating and research digital resources. May be taken three times for credit. **Prerequisite:** Junior or senior classification or approval of instructor.

ENGL 305 Texas Literature

Credits 3. 3 Lecture Hours. Examination of Texas literature, culture and multi-media; exploration of the development of Texas identities and responses to the rich cultural diversity within the state; topics vary from each section. **Prerequisite:** Junior or senior classification.

ENGL 306 Transnational Literature and Culture

Credits 3. 3 Lecture Hours. Examination of texts written in English that de-center the nation-state as the central way to organize cultural comparison; includes colonialism, economics, empire, globalization, migration, race and refugees. **Prerequisites:** 3 credits of literature at 200-level or above; junior or senior classification or approval of instructor; also taught at Qatar campus.

ENGL 308 History of Literary Criticism

Credits 3. 3 Lecture Hours. History of literary thought from antiquity to the present, including writers such as Plato, Aristotle, "Longinus," Sidney, Shelley, and Dryden; analysis of genres such as tragedy, lyric, and film; critical approaches such as new criticism, structuralism, deconstruction, Marxism, feminism, new historicism, and film studies. **Prerequisite:** 3 credits of literature at 200-level or above.

ENGL 309/GLST 311 Cultural Politics

Credits 3. 3 Lecture Hours. Exploration of the concept of cultural politics across several academic disciplines in the humanities and social sciences; broad interrogation of relationships that mediate culture and power in national and international contexts; focus on how culture shapes and is shaped by society, political perspectives and actions.

Prerequisites: Junior or senior classification; or approval of the instructor.

Cross Listing: GLST 311/ENGL 309.

ENGL 310/LING 310 History of the English Language

Credits 3. 3 Lecture Hours. Phonological, grammatical and lexical history of the English language; brief discussion of some other Indo-European languages; principles of linguistic change, as reflected in English.

Prerequisite: Junior or senior classification. **Cross Listing:** LING 310/ENGL 310.

ENGL 313 Medieval English Literature

Credits 3. 3 Lecture Hours. Old and Middle English literature exclusive of Chaucer, including such authors and works as Beowulf, The Dream of the Rood, Sir Gawain and the Green Knight, Piers Plowman, Malory, Julian of Norwich, Kempe, the mystery plays and the lyrics. **Prerequisite:** 3 credits of literature at 200-level or above.

ENGL 314 The English Renaissance

Credits 3. 3 Lecture Hours. Period course in the poetry, prose and drama of England in the 16th century. **Prerequisite:** 3 credits of literature at 200-level or above.

ENGL 315 Seventeenth-Century Literature

Credits 3. 3 Lecture Hours. Period course in English poetry, prose and drama of the 17th century. **Prerequisite:** 3 credits of literature at 200-level or above.

ENGL 316 Eighteenth-Century Literature and Culture

Credits 3. 3 Lecture Hours. Period course in English poetry, prose and drama of the 18th century. **Prerequisite:** 3 credits of literature at 200-level or above.

ENGL 317 Early British Drama

Credits 3. 3 Lecture Hours. Period course in early British, non-Shakespearean drama to 1642. **Prerequisite:** 3 credits of literature at the 200-level or above.

ENGL 318 Utopian Literature in the English Tradition

Credits 3. 3 Lecture Hours. Exploration of the theories and practices of historical and contemporary utopian literature through representative writers and texts. **Prerequisites:** 3 credits of literature at 200-level or above.

ENGL 320 Technical and Professional Editing

Credits 3. 3 Lecture Hours. Principles and techniques of technical editing for print and electronic media, including standards, style, copy-editing, comprehensive editing and project management. **Prerequisite:** ENGL 210.

ENGL 321 Nineteenth-Century Literature (Romantic)

Credits 3. 3 Lecture Hours. Representative texts in English generated throughout the British empire in the late-18th and early-19th centuries.

Prerequisite: 3 credits of literature at 200-level or above.

ENGL 322 Nineteenth-Century Literature (Victorian)

Credits 3. 3 Lecture Hours. Period course in English poetry and prose of major Victorian authors. **Prerequisite:** 3 credits of literature at 200-level or above.

ENGL 323 The American Renaissance

Credits 3. 3 Lecture Hours. Period course in the American Renaissance, covering such writers as Emerson, Hawthorne, Thoreau, Alcott, Fuller, Douglass, Melville, Poe, Stowe and Whitman. **Prerequisite:** 3 credits of literature at 200-level or above.

ENGL 324/FILM 324 Science Fiction and Film

Credits 3. 3 Lecture Hours. History and trajectory of science fiction film into the 21st century by filmmakers such as Kubrick, Jenkins, Cameron, Coogler and others. **Prerequisites:** 3 credits of literature at 200-level or above. **Cross Listing:** FILM 324/ENGL 324.

ENGL 329/AFST 329 African-American Literature Pre-1930

Credits 3. 3 Lecture Hours. Major works of the African-American literary tradition from the 18th century to 1930 studied within cultural and historical context. **Prerequisites:** 3 credits of literature at 200-level or above. **Cross Listing:** AFST 329/ENGL 329.

ENGL 330 Arthurian Literature

Credits 3. 3 Lecture Hours. Legend of King Arthur in English and American literature from its Medieval origins to the present. **Prerequisite:** Junior or senior classification; also taught at Galveston campus.

ENGL 331 Fantasy Literature

Credits 3. 3 Lecture Hours. An exploration of origins and development of fantasy literature, including representative writers, genres and texts. **Prerequisite:** Junior or senior classification.

ENGL 333/WGST 333 Lesbian, Gay, Bisexual, Transgender and Queer Literatures

Credits 3. 3 Lecture Hours. Representations of sexuality and gender from classical times to the present, studied in their historical and cultural contexts. **Prerequisites:** Junior or senior classification. **Cross Listing:** WGST 333/ENGL 333.

ENGL 334 Science Fiction Present and Past

Credits 3. 3 Lecture Hours. Origins and development of the science fiction genre. **Prerequisite:** Junior or senior classification; also taught at Galveston campus.

ENGL 335 Literature of the Sea

Credits 3. 3 Lecture Hours. Significance of the sea in fictional and factual accounts, such as novels, short stories, poems and narratives of sailors and seafaring life. **Prerequisites:** Three credits of literature at 200 level or above; junior or senior classification or approval of instructor; Galveston campus; also taught at College Station campus.

ENGL 336 Life and Literature of the Southwest

Credits 3. 3 Lecture Hours. Exploration of Southwestern literature, including such authors as Abbey, Anaya, Cabeza de Vaca, Cather, Krutch, McCarty, Momaday, Paz, Paredes and Porter. **Prerequisite:** Junior or senior classification.

ENGL 337 Life and Literature of the American South

Credits 3. 3 Lecture Hours. Study of writing and culture of the American South based on reading and analysis of key texts by representative authors. **Prerequisite:** Junior or senior classification.

ENGL 338 American Ethnic Literature

Credits 3. 3 Lecture Hours. Multi-ethnic study of American Literature, the writings of Black Americans, American Indians, Latinos/Latinas, Jewish Americans, as well as other ethnic groups. **Prerequisite:** Junior or senior classification; also taught at Galveston campus.

ENGL 339/AFST 339 African-American Literature Post-1930

Credits 3. 3 Lecture Hours. Major works of the African-American literary tradition from the 1930s to the present studied in their cultural and historical context. **Prerequisites:** 3 credits of literature at 200-level or above. **Cross Listing:** AFST 339/ENGL 339.

ENGL 340 Modern and Contemporary Drama

Credits 3. 3 Lecture Hours. Representative plays and performances from the late nineteenth century to the present. **Prerequisite:** 3 credits of literature at 200-level or above.

ENGL 342 The Rhetoric of Gender and Health

Credits 3. 3 Lecture Hours. Study of field of rhetoric of health and medicine with specific attention to the study of gender, including issues in reproduction, expertise and illness; range of methods and methodological approaches within the field. **Prerequisite:** Junior or senior classification. **Cross Listing:** COMM 342 and WGST 342.

ENGL 343 Fairy Tales in the English Tradition

Credits 3. 3 Lecture Hours. An exploration of the history, development, theory, and practice of fairy tales, including representative writers, sub-genres and texts. **Prerequisite:** 3 credits of literature at 200-level or above.

ENGL 345 Writers' Studies: Prose or Poetry

Credits 3. 3 Lecture Hours. A different topic for fiction writers or poets each term; may include historical development of genres; connection between biography and artistic production; study of writers' theories of the art of fiction or poetry. **Prerequisites:** ENGL 235; junior or senior classification.

ENGL 347 Writers' Workshop: Prose

Credits 3. 3 Lecture Hours. Production of advanced, complete stories; peer workshops; extensive reading. May be repeated 1 time for credit. **Prerequisite:** ENGL 235; junior or senior classification or approval of instructor.

ENGL 348 Writers' Workshop: Poetry

Credits 3. 3 Lecture Hours. Production of advanced, complete poems; peer workshops; extensive reading. May be repeated 1 time for credit. **Prerequisite:** ENGL 235; junior or senior classification or approval of instructor.

ENGL 350 Twentieth-Century Literature to World War II

Credits 3. 3 Lecture Hours. Novelists, poets and dramatists writing in English from the late nineteenth to mid-twentieth century. **Prerequisite:** Junior or senior classification.

ENGL 351/FILM 351 Advanced Film

Credits 3. 3 Lecture Hours. A different film topic each term; sample topics include major directors, historical periods, fiction into film, film genres. May be repeated for credit. **Prerequisite:** ENGL 251/FILM 251 or FILM 251/ENGL 251 or FILM 301 or approval of instructor; junior or senior classification. **Cross Listing:** FILM 351/ENGL 351.

ENGL 352 Literature, World War II to Present.

Credits 3. 3 Lecture Hours. Novelists, poets and dramatists from the World War II era to the present. **Prerequisite:** Junior or senior classification.

ENGL 353 History of Rhetoric

Credits 3. 3 Lecture Hours. Exploration of the major approaches to the theory and practice of oral and written rhetoric and discourse up to the end of the 19th century. **Prerequisites:** Junior or senior classification; also taught at Galveston campus.

ENGL 354 Modern Rhetorical Theory

Credits 3. 3 Lecture Hours. Study of 20th and 21st century rhetorical theories and theorists; focus on relationships among rhetoric and culture, such as rhetoric in oral and textual communities, rhetoric as a method of literary interpretation, rhetoric and linguistics, rhetoric as theorized and taught across academic communities. **Prerequisite:** Junior or senior classification.

ENGL 355 The Rhetoric of Style

Credits 3. 3 Lecture Hours. Fosters an appreciation for and better understanding of English prose style; the history of English prose; representative prose models for analysis and imitation; the impact of computer analysis. **Prerequisite:** Junior or senior classification.

ENGL 356/FILM 356 Literature and Film

Credits 3. 3 Lecture Hours. Novels and films based on them; writers and filmmakers such as Virginia Woolf, John Steinbeck, John Ford, Sally Potter, John Huston, Charlotte Bronte and Peter Bogdonovich. **Prerequisites:** Junior or senior classification or approval of instructor. **Cross Listing:** FILM 356/ENGL 356.

ENGL 357 Native American Rhetorics and Literatures

Credits 3. 3 Lecture Hours. Examination of Native American rhetorics and literatures with a focus on the relationship between composed, performed, and material rhetorics; covering Native American rhetors and writers from pre-colonization to the present and contextualizing them within contemporary Native issues. **Prerequisite:** Junior or senior classification or approval of instructor.

ENGL 358/FILM 358 Screenwriting

Credits 3. 3 Lecture Hours. Analysis of screenplay structure coupled with writing assignments illustrating principles of form. **Prerequisite:** Junior or senior classification. **Cross Listing:** FILM 358/ENGL 358.

ENGL 359 Forms of Creative Writing

Credits 3. 3 Lecture Hours. Major forms of writing in prose or poetry, depending on instructor; analysis of structure coupled with writing assignments illustrating principles of form in narrative and/or lyrical modes. May be taken three times for credit. **Prerequisites:** ENGL 235; junior or senior classification.

ENGL 360 Literature for Children

Credits 3. 3 Lecture Hours. Representative writers, genres, texts and movements. **Prerequisite:** Junior or senior classification.

ENGL 361 Young Adult Literature

Credits 3. 3 Lecture Hours. Survey of historical and contemporary literature for adolescents, including such forms as fantasy, domestic fiction, and the problem novel. **Prerequisite:** Junior or senior classification.

ENGL 362/HISP 362 Latino/a Literature

Credits 3. 3 Lecture Hours. Literature by U.S.-based Latino/a authors writing mostly in English; examination of historical and social contexts of cultural production; may include novels, poetry, short stories, plays, and films to gain understanding of aesthetic expression of diverse Latino/a authors, including but not limited to Mexican Americans, Puerto Ricans, Cuban Americans, and Dominican Americans. **Prerequisite:** Junior or senior classification. **Cross Listing:** HISP 362/ENGL 362.

ENGL 365/RELS 360 The Bible as Literature

Credits 3. 3 Lecture Hours. Narrative, structural, and thematic study of the Hebrew and Christian Scriptures in English translation. **Prerequisite:** Junior or senior classification. **Cross Listing:** RELS 360/ENGL 365.

ENGL 366/FILM 366 Horror Studies

Credits 3. 3 Lecture Hours. History, theories and major subgenre developments of contemporary horror studies in film and literature. **Prerequisites:** Junior or senior classification. **Cross Listing:** FILM 366/ENGL 366.

ENGL 369/WGST 369 Lesbian, Gay, Bisexual, Transgender, and Queer Authorship

Credits 3. 3 Lecture Hours. Exploration of LGBTQ+ authorship through film and literary criticism and theories of performing the self in the act of authoring. **Prerequisites:** Junior or senior classification. **Cross Listing:** WGST 369/ENGL 369.

ENGL 372 American Poetry

Credits 3. 3 Lecture Hours. Exploration of the development of American poetic traditions, with an emphasis on the major poetry of 19th and 20th centuries. **Prerequisite:** 3 credits of literature at 200-level or above.

ENGL 373 American Realism and Naturalism

Credits 3. 3 Lecture Hours. Exploration of the literature produced in the United States between the Civil War and World War I, such as works by Twain, James, Freeman, Jewett, Chesnutt, Crane, Dreiser, Wharton. **Prerequisites:** 3 credits of literature at 200-level or above.

ENGL 374/WGST 374 Women Writers

Credits 3. 3 Lecture Hours. History of literature by women in English; emphasis on continuity of ideas and on literary contributions; study of a variety of genres with particular attention to the significance of gender in the racial, social, sexual and cultural contexts of women writing in English. **Prerequisite:** Junior or senior classification; ENGL-374 also taught at Galveston campus. **Cross Listing:** WGST 374/ENGL 374.

ENGL 375 Nineteenth-Century American Novel

Credits 3. 3 Lecture Hours. An exploration of the development of the American novel; study of representative novels from the early national period, the American Renaissance, and realism and naturalism. **Prerequisite:** 3 credits of literature at 200-level or above.

ENGL 376 The American Novel Since 1900

Credits 3. 3 Lecture Hours. Representative novels of 20th and 21st century American writers; emphasis on varied literary movements and on thematic and formal innovations as reflections of/responses to social transformations in American society since 1900. **Prerequisite:** Junior or senior classification.

ENGL 377 The British Novel to 1870.

Credits 3. 3 Lecture Hours. Representative works illustrating the development of the novel, by writers resident in Great Britain and its colonies, from its beginnings to the late nineteenth century. **Prerequisite:** 3 credits of literature at 200-level or above.

ENGL 378 The British Novel, 1870 to Present.

Credits 3. 3 Lecture Hours. Representative works illustrating development of the novel by writers resident in Great Britain and its colonies from the late nineteenth century forward. **Prerequisite:** Junior or senior classification.

ENGL 379/AFST 379 Postcolonial Literatures

Credits 3. 3 Lecture Hours. Exploration of key terms, themes and debates within global literature written by colonized, occupied and diasporic peoples. **Prerequisites:** 3 credits of literature at the 200-level or above. **Cross Listing:** AFST 379/ENGL 379.

ENGL 385 Playwriting

Credits 3. 3 Lecture Hours. The craft of writing plays and practical experience in writing plays of various lengths; structure, building of ideas into dramatic situations, use of dialogue and movement. **Prerequisite:** ENGL 235; junior or senior classification or approval of instructor.

ENGL 386 Creative Nonfiction

Credits 3. 3 Lecture Hours. Practical study and application of literary nonfiction, the general audience essay, the memoir, and related nonfiction forms; with extensive workshop time and attention given to student writing, expert and peer review as well as readings from authors in the genre. **Prerequisites:** ENGL 235; junior or senior classification.

ENGL 390 Studies in British Literature

Credits 3. 3 Lecture Hours. Exploration of a significant topic or period in British literature; features current faculty research on such topics as Victorian fantasy literature, social identity in medieval Britain and Ireland and children in film. May be repeated 1 time for credit. **Prerequisites:** 3 credits of literature at 200-level or above; junior or senior classification.

ENGL 391 Folklore, Literature, and World Cultures

Credits 3. 3 Lecture Hours. Theories of folklore and vernacular culture; exploration of the relationship between oral literature and the forms of vernacular culture, including film, festival and dance. **Prerequisites:** Junior or senior classification.

ENGL 392/RELS 392 Studies in Literature, Religion and Culture

Credits 3. 3 Lecture Hours. Exploration of literature treating significant religious topics in the context of cultural setting; features current faculty research on such topics as Tolkien and the making of myth, C.S. Lewis, texts and cultures of the Middle East and Victorian women writers and religion. May be repeated one time for credit. **Prerequisites:** 3 credits of literature at 200-level or above; junior or senior classification. **Cross Listing:** RELS 392/ENGL 392.

ENGL 393/AFST 393 Studies in Africana Literature and Culture

Credits 3. 3 Lecture Hours. Literary movements, genres, groups of authors, topics or issues in the literature and culture of people of African descent. **Prerequisites:** 3 credits of literature at 200-level or above; junior or senior classification or approval of instructor. **Cross Listing:** AFST 393/ENGL 393.

ENGL 394 Studies in Genre

Credits 3. 3 Lecture Hours. Theory and practice of a single genre including analysis of its history and development; features current faculty research on such topics as women standup comics, British short stories and Irish history on stage and screen. May be repeated once for credit. **Prerequisites:** 3 credits of literature at 200-level or above; junior or senior classification.

ENGL 395 Topics in Literature and Medicine

Credits 3. 3 Lecture Hours. Examination of a particular period or genre within literature and medicine studies; analysis of autobiographies, novels and poetry dealing with health and illness; evaluation of sources from different disciplinary perspectives as a tool for critical thinking; topics will vary. **Prerequisite:** 3 credits of literature at the 200-level or above; junior or senior classification.

ENGL 396 Studies in American Literature

Credits 3. 3 Lecture Hours. Exploration of a significant topic or period in American literature; features current faculty research on such topics as Asian-American women writers, American music and literature and American Gothic. **Prerequisites:** 3 credits of literature at 200-level or above; junior or senior classification.

ENGL 401 Contemporary Literary Theory

Credits 3. 3 Lecture Hours. Exposure to the discourses of contemporary theory in engagement with other academic disciplines; study of major theoretical schools, debates, and critiques. **Prerequisites:** 3 credits of literature at the 300-level; junior or senior classification.

ENGL 403 Language and Gender

Credits 3. 3 Lecture Hours. Language and gender from a sociolinguistic perspective; gender in the words and structures of language; gender representation and gendered language use in the media, and a variety of sociocultural contexts; language use in intimate relationships; computer-mediated discourse; language, sexuality, and sexual orientation. **Prerequisite:** Junior or senior classification. **Cross Listing:** LING 403 and WGST 403.

ENGL 412 Studies in Shakespeare

Credits 3. 3 Lecture Hours. Advanced study of a significant topic in Shakespeare. **Prerequisites:** 3 credits of literature at the 300-level; junior or senior classification.

ENGL 414 Milton

Credits 3. 3 Lecture Hours. In-depth study of poetry and selected prose works of John Milton. **Prerequisite:** 3 credits of literature at the 300-level; junior or senior classification.

ENGL 415 Studies in a Major Author

Credits 3. 3 Lecture Hours. Exploration of a major author as a vehicle for emphasizing intensive analysis, scholarship and literary criticism. **Prerequisite:** 3 credits of literature at 300-level; junior or senior classification; also taught at Galveston campus.

ENGL 431 Chaucer

Credits 3. 3 Lecture Hours. Intensive analysis of Chaucer's works in Middle English, including engagement with published criticism and scholarship. **Prerequisite:** 3 credits of literature at 300-level; junior or senior classification; also taught at Galveston campus.

ENGL 433 Digital Humanities Theory and Practice

Credits 3. 3 Lecture Hours. The use of digital tools for conducting humanities research; theoretical ideas that inform the field; application of theory to the critical assessment of online digital projects in the field. **Prerequisite:** Junior or senior classification. **Cross Listing:** DHUM 433 and HIST 433.

ENGL 434 Advanced Studies in Science Fiction and Fantasy

Credits 3. 3 Lecture Hours. Exploration of significant topics, authors, movements, genres, and media in science fiction and fantasy. May be repeated one time for credit. **Prerequisite:** 3 credits of literature at the 300-level or above.

ENGL 435 Advanced Studies in Creative Writing

Credits 3. 3 Lecture Hours. Advanced study of specified topics in a creative writing genre or genres. May be repeated two times for credit. **Prerequisites:** 3 credits of creative writing at the 300-level; junior or senior classification.

ENGL 460 Digital Authoring Practices

Credits 3. 3 Lecture Hours. Analysis and practice of authoring in digital environments, including individual and collaborative approaches, audience concerns, theoretical, ethical and stylistic issues; environments and topics may include web design, content management system (CMS), text encoding, project management, usability, version tracking, content authoring and accessibility. **Prerequisites:** ENGL 210; junior or senior classification.

ENGL 461 Advanced Syntax and Rhetoric

Credits 3. 3 Lecture Hours. Points of view toward language study; traditional syntax; points of view toward rhetoric; Christensen's rhetoric of the paragraph; analysis of written discourse. **Prerequisite:** Senior classification or approval of instructor.

ENGL 462 Rhetoric in Cultural Context

Credits 3. 3 Lecture Hours. Theories concerning the influence of socio-cultural context on expressive forms and how such forms are used to achieve social and communicative aims; analysis of examples of written, verbal, and visual rhetorics from various cultures illustrating the impact that expressive forms have on social life. **Prerequisites:** Junior or senior classification.

ENGL 463 Science Writing

Credits 3. 3 Lecture Hours. Analysis and practice of writing about science in multiple genres for a variety of audiences; includes grant writing, scientific editing, medical writing, data visualization, environmental writing, information ethics and plagiarism, authorship and attribution, and ghostwriting. **Prerequisites:** Junior or senior classification or approval of instructor.

ENGL 467/GLST 467 Cultural Texts as Data

Credits 3. 3 Lecture Hours. Exploration of concepts, tools, methods, and approaches to computationally manipulating cultural texts and large text corpora such as academic databases and newspaper, periodical, and social media archives; identification of connections between cultural phenomena through analysis of patterns of meaning, linguistic etymologies, and cultural biases. **Prerequisites:** Junior or senior classification, or approval of instructor. **Cross Listing:** GLST 467/ENGL 467.

ENGL 474/WGST 474 Studies in Women Writers

Credits 3. 3 Lecture Hours. A different topic each term examining women's writing through historical period, genre, cross-cultural study and/or feminist literary theory. May be repeated for credit. **Prerequisites:** 3 credits of literature at the 300-level; junior or senior classification. **Cross Listing:** WGST 474/ENGL 474.

ENGL 481 Senior Seminar

Credits 3. 3 Lecture Hours. Capstone seminar on significant figures, movements or issues with special attention to methods and materials of scholarship. **Prerequisites:** ENGL 303; senior classification.

ENGL 482/HHUM 482 Advanced Studies in Health Humanities

Credits 3. 3 Lecture Hours. Capstone course; application of skills and knowledge acquired during health humanities concentration coursework; exposure to specialized methods of inquiry; development and execution of an individualized final project. **Prerequisites:** ENGL 107, COMM 107, HHUM 107, ENGL 292, ENGL 342, COMM 342, WGST 342, or ENGL 395; junior or senior classification. **Cross Listing:** HHUM 482/ENGL 482.

ENGL 484 Internship

Credits 0 to 3. 0 to 3 Lecture Hours. Directed internship in a public or private organization to provide students with on-the-job training and applied research experience appropriate to career objectives. May be taken three times for credit. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** Approval of department head; junior or senior classification; also taught at Galveston campus.

ENGL 485 Directed Studies

Credits 0 to 3. 0 to 3 Other Hours. Readings selected for specific need of major or minor in English; also taught at Galveston campus.

ENGL 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of English language and literature; also taught at Galveston campus. May be repeated for credit.

ENGL 491 Research

Credits 0 to 3. 0 to 3 Lecture Hours. Research conducted under the direction of faculty member in English. May be taken three times for credit. **Prerequisites:** 12 credits of English, including 3 at 300-level; junior or senior classification and approval of instructor; also taught at Qatar campus.

ENGL 497 Independent Honors Studies

Credits 0 to 3. 0 to 3 Other Hours. Directed independent studies in the English language and English or American literature. **Prerequisites:** Junior or senior classification either as Honors student or with overall GPR of 3.5 and letter of approval from head of student's major department. May be repeated for credit.

ENGR - Engineering (ENGR)

ENGR 101 Energy: Resources, Utilization and Importance to Society

Credits 4. 3 Lecture Hours. 2 Lab Hours. Introductory course about current and potential energy sources, the link between energy and wealth, and the consequences of action or inaction concerning energy and the environment.

ENGR 102 Engineering Lab I - Computation

Credits 2. 1 Lecture Hour. 3 Lab Hours. Introduction to the design and development of computer applications for engineers; computation to enhance problem solving abilities; basic concepts of software design through the implementation and debugging of student-written programs; introduction to engineering majors, career exploration, engineering practice within realistic constraints, e.g. economic, environmental, ethical, health and safety, and sustainability; pathways to success in engineering. **Prerequisite:** Grade of C or better in MATH 151 or MATH 150, or concurrent enrollment; admission to the college of engineering.

ENGR 112 Foundations of Engineering II

Credits 2. 1 Lecture Hour. 3 Lab Hours. Continuation of ENGR 111. Topics include, depending on the major, emphasis on computer applications and programming and solids modeling using CAD tools or other software; fundamentals of engineering science; advanced graphic skills. **Prerequisite:** ENGR 111; MATH 151 or concurrent enrollment; admission to the College of Engineering; also taught at Galveston campus.

ENGR 181 Engineering Honors Seminar I

Credit 1. 1 Lecture Hour. Co-curricular experiences related to academic success, undergraduate research and service in preparation for careers in research and technology leadership. **Prerequisites:** Admitted to engineering honors; freshman or sophomore classification.

ENGR 216/PHYS 216 Experimental Physics and Engineering Lab II - Mechanics

Credits 2. 1 Lecture Hour. 3 Lab Hours. Description and application of laws of physical motion to the solution of science and engineering problems; using sensing, control and actuation for experimental verification of physics concepts while solving engineering problems. **Prerequisites:** Grade of C or better in MATH 151 or MATH 171 or equivalent; grade of C or better in ENGR 102; grade of C or better and concurrent enrollment in PHYS 206; also taught at Galveston campus. **Cross Listing:** PHYS 216/ENGR 216.

ENGR 217/PHYS 217 Experimental Physics and Engineering Lab III - Electricity and Magnetism

Credits 2. 1 Lecture Hour. 3 Lab Hours. Electromagnetism and electromechanical systems; use of sensing, control and actuation to demonstrate key physical relationships through the transducer relationships linking pressure, temperature and other physical stimuli to changes in electric and magnetic fields. **Prerequisites:** Grade of C or better in MATH 152 or MATH 172, or equivalent; grade of C or better in PHYS 206 or equivalent; grade of C or better in PHYS 216/ENGR 216 or ENGR 216/PHYS 216; grade of C or better and concurrent enrollment in PHYS 207; also taught at Galveston campus. **Cross Listing:** PHYS 217/ENGR 217.

ENGR 251 Creating a Self-Aware Leader

Credits 3. 2 Lecture Hours. 2 Lab Hours. Fundamentals of engineering leadership and business; organizational dynamics; self-awareness. **Prerequisites:** Grade of C or better in ENGR 102, and ENGR 216/PHYS 216 or PHYS 216/ENGR 216; acceptance into the Zachry Leadership Program.

ENGR 270 Engineering Projects in Community Service

Credit 1. 1 Lecture Hour. Project course using team approach to engage students in open-ended community service projects involving non-profit agencies; includes project management, understanding the complete design process, awareness of the customer in engineering design, and the ability to communicate effectively. May be taken six times for credit. **Prerequisites:** ENGR 102 or approval of instructor; freshman or sophomore classification in an engineering major.

ENGR 281 Engineering Honors Mentoring and Team Building Seminar

Credits 0-1. 0-1 Other Hours. Selected topics related to peer mentoring and team building while participating in co-curricular activities; emphasis on building supportive relationships on campus; provides practical experience in being a member of a project involving campus or community-based engagement; for those serving as a Coach (i.e., student leader providing light mentoring to the residents) in the Engineering Honors Living Learning Community (Engineering Honors Community of Scholars or ECOS). **Prerequisites:** Appointment to be a Coach in ECOS; approval of instructor.

ENGR 285 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Special problems in any area of engineering. **Prerequisites:** Freshman or sophomore classification; approval of department head.

ENGR 289 Special Topics in...

Credits 0 to 4. 0 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of engineering. May be repeated for credit. **Prerequisite:** Approval of instructor.

ENGR 291 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in the college of engineering. May be repeated three times for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

ENGR 301 College of Engineering Study Abroad

Credits 0 to 18. 0 to 18 Other Hours. For students in approved programs abroad. May be repeated for credit. **Prerequisites:** Admission to approved program; approval of study abroad coordinator.

ENGR 302

Credits 0.

ENGR 350 Leading for Impact in Engineering, Business and Society

Credits 3. 2 Lecture Hours. 2 Lab Hours. Fundamental leadership and business topics relevant to engineering and technical careers; business model development; business strategy; leadership theory; empathy.

Prerequisites: Grade of C or better in ENGR 251; acceptance into the Zachry Leadership Program; junior or senior classification or approval by instructor.

ENGR 351 The Role of Engineering and Business in Society

Credits 3. 2 Lecture Hours. 2 Lab Hours. Exploration of engineering and business contributions to society; political, cultural, societal and economic forces' impact on engineering; using creativity and imagination to solve engineering and societal challenges. **Prerequisites:** Acceptance into the Zachry Leadership Program; ENGR 350; junior or senior classification or approval by instructor.

ENGR 381 Engineering Honors Community of Scholars Leadership Seminar

Credits 0-1. 0-1 Other Hours. Selected topics related to leadership and management theory and practice in the context of co-curricular activities, involving multidisciplinary teams; provides practical experience in leading projects involving community-based engagement and residence-based programming; for those serving as Fellows, student leaders in the Engineering Honors Living Learning Community (Engineering Honors Community of Scholars or ECOS). **Prerequisite:** Appointment to be a Fellow in ECOS; approval of instructor.

ENGR 385 Problems for Co-Op Students

Credits 1 to 3. 1 to 3 Other Hours. Special problems in engineering for cooperative education students; problems related to student's work assignment culminating in a research paper; three hours may be used as technical elective, and one additional hour may be used as free elective; a total of 4 hours may be used toward graduation. **Prerequisite:** Approval of department head.

ENGR 399 Engineering Honors Community of Scholars - Engineering Honors Residential Community

Credits 0. 0 Other Hours. Participation in an approved high-impact learning practice within the Engineering Honors (EH) program which includes the EH Living Learning Community (ECOS); reflection on professional outcomes; documentation and self-assessment of learning experience.

ENGR 401 Interdisciplinary Design

Credits 3. 2 Lecture Hours. 3 Lab Hours. Instruction and practice in the design process applied to an interdisciplinary design project including establish the customer need; determine requirements in terms of function (what) and performance (how well); develop alternative design concepts; perform trade-off studies among performance, cost and schedule; embodiment and detail design; iterate the above steps; major interdisciplinary design project. **Prerequisites:** Senior classification and approval of instructor.

ENGR 402 Interdisciplinary Design II

Credits 3. 2 Lecture Hours. 3 Lab Hours. Product detail and design development process including case studies; may include project management, marketing considerations, manufacturing detailed design specifications; failure modes, applications of codes and standards, selection of design margins; product (component) development guidelines; intellectual property, product liability and ethical responsibility. **Prerequisites:** ENGR 401; junior or senior classification.

ENGR 410 Global Engineering Design

Credits 3. 3 Lecture Hours. Intercultural models and their application to engineering design in diverse, multinational and multidisciplinary settings; engineering design project working in international teams of students, faculty and industry experts; applying engineering skills to the project; includes the study and application of intercultural models, global enterprise fundamentals and remote collaboration technologies; required for the International Engineering Certificate. **Prerequisite:** Junior or senior classification or approval of instructor.

ENGR 450 Finding Your Leadership Qualities

Credits 3. 2 Lecture Hours. 2 Lab Hours. Exploration of personal leadership qualities and perspective; case studies in leadership in engineering enterprises; business etiquette and personal marketing. **Prerequisites:** Grade of C or better in ENGR 351; acceptance into the Zachry Leadership Program; junior or senior classification or approval by instructor.

ENGR 451 Leading for a Lifetime: Continual Learning and Influence

Credits 3. 2 Lecture Hours. 2 Lab Hours. Intersection of engineering, business, citizenship and leadership. **Prerequisites:** Grade of C or better in ENGR 450; acceptance into the Zachry Leadership Program; junior or senior classification or approval by instructor.

ENGR 462 Engineering Entrepreneurship Hour

Credit 1. 1 Lecture Hour. Designed to engage with successful technology entrepreneurs from across the nation; learn about the characteristics of successful entrepreneurs and their strategies in launching and sustaining businesses on technology innovation; network with highly successful entrepreneurs and develop relations valuable to professional careers. **Prerequisites:** Junior or senior classification or approval of instructor.

ENGR 484 International Engineering Internship

Credits 0 to 6. 0 to 6 Other Hours. International Engineering Internship. May be taken for credit up to six hours. **Prerequisite:** Junior or senior classification.

ENGR 485 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Directed individual study of problems in any area of engineering. May be taken 3 times for credit. **Prerequisites:** Junior or senior classification; approval of the college.

ENGR 489 Special Topics in...

Credits 0 to 4. 0 to 4 Lecture Hours. 0 to 6 Lab Hours. Selected topics in an identified field of engineering. May be repeated for credit.

ENGR 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in the College of Engineering. May be repeated 3 times for credit. Registration in multiple sections of this course is possible within a given semester provided that the per semester credit hour limit is not exceeded. **Prerequisites:** Junior or senior classification and approval of instructor.

ENGR 499 Grand Challenge Scholars Program

Credits 0. 0 Other Hours. Participation in an approved high-impact learning practice within the Grand Challenge Scholars program (GCSP); reflection on professional outcomes; documentation and self-assessment of learning experience.

ENST-Environmental Studies (ENST)

ENST 291 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of faculty member in environmental studies. May be repeated 2 times for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

ENST 491 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of faculty member in environmental studies. May be repeated 3 times for credit. Registration in multiple sections of this course are possible within a given semester provided that the per semester credit hour limit is not exceeded. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

ENTC - Engineering Technology (ENTC)

ENTC 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of engineering technology. May be repeated for credit. **Prerequisite:** Approval of instructor.

ENTC 399 High Impact Experience

Credits 0. 0 Other Hours. Participation in an approved high-impact learning practice; reflection on professional outcomes; documentation and self-assessment of learning experience at mid-curriculum point. **Prerequisites:** Grade of C or better in ESET 350, IDIS 343 or MMET 376; approval of instructor.

ENTC 481 Seminar

Credit 1. 1 Lecture Hour. Presentation of selected topics from current literature and related industrial operations in various technical areas; films showing practical application of manufacturing and industrial processes; lectures from industrial representatives. **Prerequisite:** Senior classification.

ENTC 484 Professional Internship

Credit 1. 1 Lecture Hour. Directed internship in a private firm, government agency/laboratory, or non-governmental organization to provide work and/or research experience related to the student's program and career objectives. May be taken two times for credit. **Prerequisites:** Junior and senior classification and approval of internship agency and instructor.

ENTC 485 Directed Studies

Credits 1 to 6. 1 to 6 Other Hours. Permits work in a special problem area on an individual basis with the intent of promoting independent reading, research and study; to supplement existing course offerings or subjects not presently covered. **Prerequisites:** Senior classification and approval of instructor.

ENTC 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of engineering technology. **Prerequisite:** Approval of instructor.

ENTC 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in the college of engineering. May be taken four times for credit. **Prerequisites:** Junior or senior classification and approval of instructor.

ENTO - Entomology (ENTO)

ENTO 101 Introduction to Academic Success in Entomology

Credit 1. 1 Lecture Hour. Orientation to academic success within higher education and specifically the Bachelor of Science degree in entomology; awareness of academic and campus support services available for student success; development of goals for academic and career planning, including creation and utilization of degree planner; awareness of personal self-management strategies, including learning styles, time management, goal setting, stress management and development of personal strategies for implementation of personal self-management into practice.

ENTO 102 Continuing Academic Success in Entomology

Credit 1. 1 Lecture Hour. Continued exploration to academic success within higher education and specifically the Bachelor of Science degree in Entomology; increase awareness of academic and campus support services available for student success; development of goals for academic and career planning, including creation and utilization of degree planner; awareness of personal self-management strategies, including learning styles, time management, goal setting, stress management, and development of personal strategies for implementation of personal self-management into practice. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisite:** ENTO 101.

ENTO 201 General Entomology

Credits 3. 2 Lecture Hours. 2 Lab Hours. Survey of the major classes of arthropods with special emphasis on species of economic or biological importance; general insect anatomy, physiology, metamorphosis and classification; survey of the biologies of insect orders and major families using common injurious and beneficial species to relate material to production agriculture and the urban environment.

ENTO 208 Veterinary Entomology

Credits 2. 2 Lecture Hours. Insects and their relatives causation of economic loss, impacts to well-being and transmission of disease pathogens to domestic and companion animals and wildlife as well as health and well-being of humans through occupational or recreational exposure; insect biology, economic importance and principles and methods of prevention and control. **Prerequisite:** Co-enrollment in ENTO 209.

ENTO 209 Veterinary Entomology Laboratory

Credit 1. 2 Lab Hours. Insects and their relatives causation of economic loss, impacts to well-being and transmission of disease pathogens to domestic and companion animals and wildlife, as well as health and well-being of humans through occupational or recreational exposure; laboratory emphasizes identification of major arthropod pests, use of microscopy and dissection equipment. **Prerequisite:** Concurrent enrollment with ENTO 208.

ENTO 210 Global Public Health Entomology

Credits 3. 3 Lecture Hours. Impacts of insects and insect-borne diseases on public health and well-being around the globe; insect biology, bloodfeeding, and transmission of human diseases; role of insect borne diseases on human history, socio-economic development, and public health infrastructure. **Prerequisite:** Freshman or sophomore classification or approval of instructor.

ENTO 285 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Directed individual study in entomology. **Prerequisites:** Freshman or sophomore classification; approval of instructor and department head.

ENTO 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of entomology. May be repeated for credit. **Prerequisite:** Approval of instructor.

ENTO 291 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in entomology. May be repeated for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

ENTO 300/ECCB 300 Field Studies

Credits 3. 3 Other Hours. Integration of principles of animal and plant ecology with environmental factors to characterize wildlife populations; intensive analysis of specific areas will emphasize either the development of a wildlife management plan or a general vertebrate natural history survey. **Prerequisite:** Prior approval of instructor and concurrent enrollment in ECCB 450/ENTO 450 and ECCB 451/ENTO 451. **Cross Listing:** ECCB 300/ENTO 300.

ENTO 301 Biodiversity and Biology of Insects

Credits 4. 3 Lecture Hours. 3 Lab Hours. Introduction to orders and most important families of insects; order-level morphology and family-level natural history; collection of insects identified to family level provides introduction to collection methods and specimen preparation. **Prerequisites:** ENTO 201, or ENTO 208 and ENTO 209; BIOL 111 and BIOL 112; junior or senior classification or approval of instructor.

ENTO 305 Evolution of Insect Structure

Credits 3. 2 Lecture Hours. 3 Lab Hours. External morphology of insects; evolution of form and function. **Prerequisite:** ENTO 201, or ENTO 208 and ENTO 209; BIOL 111.

ENTO 306 Insect Structure and Function

Credits 4. 3 Lecture Hours. 3 Lab Hours. Physiology and morphology of insects; structure and function of internal organ systems and their role in insect success. **Prerequisite:** ENTO 201, or ENTO 208 and ENTO 209; BIOL 111 and BIOL 112; CHEM 101, CHEM 111, CHEM 102 and CHEM 112, or CHEM 119 and CHEM 120.

ENTO 320 Honey Bee Biology

Credits 3. 3 Lecture Hours. Introduction of honey bee biology and beekeeping practices to science and non-science majors; honey bees as the model insect to introduce general principles of biology and entomology. **Prerequisite:** Junior or senior classification or approval of instructor.

ENTO 321 Beekeeping

Credit 1. 3 Lab Hours. Basic Knowledge and techniques used in apiculture; tools and knowledge needed to keep bees responsibly and productively. **Prerequisites:** ENTO 320 or concurrent enrollment, junior or senior classification or approval of instructor.

ENTO 322 Insects and Human Society

Credits 3. 3 Lecture Hours. Emphasis on the role insects have played in the development of human cultures; aspects include health, food production and storage, art, music and architecture; overview of historic, present day, and future roles insects will have on environmental movements (green societies), and in underdeveloped, developing and developed societies. **Prerequisite:** Junior or senior classification.

ENTO 401 Principles of Integrated Pest Management

Credits 3. 2 Lecture Hours. 3 Lab Hours. Integrated pest management (IPM) concepts, principles, development and application; IPM constitutes a series of pest control tactics and strategies toward more sustainable agriculture, natural resources, and urban and rural health and well-being. **Prerequisite:** ENTO 201, or ENTO 208 and ENTO 209.

ENTO 402 Insects In Agriculture

Credits 3. 2 Lecture Hours. 3 Lab Hours. Examination of the biology and ecology of insect agricultural pests and the science underlying their management; exploration of the biology, taxonomy and management of insects as both pests and beneficial species in a range of agricultural systems. **Prerequisites:** Grade of C or better in ENTO 201 or approval of instructor.

ENTO 403 Urban Entomology

Credits 3. 2 Lecture Hours. 3 Lab Hours. Biology, economic importance and control strategies for arthropod pests commonly invading households and commercial structures in urban environments; laboratory consists of urban pest identification and special presentations and demonstrations covering topics related to urban pest problems and their control. Offered in 2011-2012 academic year and alternating years thereafter. **Prerequisites:** ENTO 201, or ENTO 208 and ENTO 209, or approval of instructor.

ENTO 423 Medical Entomology

Credits 2. 2 Lecture Hours. Biologies, disease relationships, and control of insects and other arthropods parasitic on or in humans; aspect of the fields of clinical and preventative medicine. **Prerequisites:** BIOL 111; ENTO 427 or concurrent enrollment; junior or senior classification.

ENTO 424 Insect Ecology

Credits 3. 2 Lecture Hours. 3 Lab Hours. Provides basic ecological background with an applied interpretation, emphasizing influences of insect populations and communities on ecosystem processes that influence landscape structure, function and change. **Prerequisites:** ENTO 201, or ENTO 208 and ENTO 209; BIOL 111; junior or senior classification or approval of instructor.

ENTO 425 Disease Ecology

Credits 3. 3 Lecture Hours. Ecological interactions that influence the distribution and abundance of pathogens, vectors, and hosts ultimately determine the spread of disease; impacts of urbanization, climate change, and other human influenced environmental changes on disease dynamics; integration of disease ecology into pathogen and vector monitoring and comprehensive strategies to reduce disease occurrence. **Prerequisite:** ENTO 208, ENTO 209 and ENTO 423; junior or senior classification, or approval of instructor.

ENTO 426/VIBS 426 Methods in Vector-Borne Disease Ecology

Credits 3. 1 Lecture Hour. 5 Lab Hours. Methodological understanding of how vector-borne diseases are studied in the field and laboratory; hands-on exploration of the ecology disease systems in a one health framework; concepts of design, execution and presentation of research projects; outdoor field work and bio-safety level 2 laboratory. **Prerequisites:** Junior or senior classification and approval of instructor. **Cross Listing:** VIBS 426/ENTO 426.

ENTO 427 Medical Entomology Laboratory

Credit 1. 2 Lab Hours. Morphological features of adults and immature stages of parasitic arthropods of medical importance; molecular techniques to determine infectious status of arthropod vectors. **Prerequisites:** BIOL 111; ENTO 423 or concurrent enrollment; junior or senior classification.

ENTO 428 Insect Biotechnology

Credits 3. 3 Lecture Hours. Applications of genetic engineering and biotechnology; specific problems dealing with insects and control of insect pests. **Prerequisites:** ENTO 429 or concurrent enrollment; GENE 301, GENE 315, GENE 320/BIMS 320, or FIVS 308; junior or senior classification or approval of instructor.

ENTO 429 Insect Biotechnology Laboratory

Credit 1. 3 Lab Hours. Basic technical experience in insect molecular biology and biotechnology, including genomic DNA isolation, PCR, cloning, sequencing and gene manipulation techniques; focus on insect applications for improvement of human health and agriculture. **Prerequisites:** ENTO 428 or concurrent enrollment; junior or senior classification or approval of instructor.

ENTO 431/FIVS 431 The Science of Forensic Entomology

Credits 3. 3 Lecture Hours. Explores the science, methodology and technology employed to gather, preserve and present information about insects and other arthropods in such a manner that this information can be used in courts of law as evidence and testimony to help resolve issues of a criminal or civil nature. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** FIVS 431/ENTO 431.

ENTO 432/FIVS 432 Applied Forensic Entomology

Credit 1. 3 Lab Hours. Laboratory-based offering practical experience using scientific information, methodology, technology, and legal procedures inherent to the field of forensic entomology; emphasis on collecting, preserving, and identifying information as evidence and expert witness testimony in courts of law. **Prerequisites:** Junior or senior classification or approval of instructor. **Cross Listing:** FIVS 432/ENTO 432.

ENTO 435 Case Studies in Problem Solving

Credits 3. 3 Lecture Hours. Development of reasoning strategies by examining a variety of case studies, science and scientific methods; solving real-world problems as part of an investigative team. **Prerequisite:** ENTO 201, or ENTO 208 and ENTO 209; ENTO 482; senior classification or approval of instructor.

ENTO 441 Engineering Vector Populations

Credits 3. 3 Lecture Hours. Genetic strategies developed and deployed to control vector-borne diseases; vector population replacement, reduction or elimination; CRISPR and Cas9, gene drive and sterile insect technique; social, regulatory, political and ecological factors concerning genetic technologies.

ENTO 442 Mosquito - A History of Humankind's Struggle for Survival with the Deadliest Animal on the Planet

Credits 3. 3 Lecture Hours. Mosquito-borne pathogens, human diseases; transmission cycles alternating replication susceptible vertebrate host, blood-feeding vector mosquito; biology of mosquitoes, historical approaches controlling mosquito-borne diseases, elimination of vectors; new approaches to disease control. **Prerequisites:** Grade of C or better in BIOL 111 and BIOL 112; junior or senior classification.

ENTO 450/ECCB 450 Caribbean Conservation

Credits 2. 6 Lab Hours. Provide experience in and appreciation for diverse tropical habitats and the problems associated with conserving these habitats; design and conduct individual research projects on topics of their choice with approval from the instructors on project design and feasibility. **Prerequisites:** Concurrent enrollment in ENTO 300/ECCB 300 and ENTO 451/ECCB 451; junior or senior classification. **Cross Listing:** ECCB 450/ENTO 450.

ENTO 451/ECCB 451 Caribbean Research Seminar

Credit 1. 1 Other Hour. Document research activities; keep a journal of activities and research methods during study abroad trips. **Prerequisites:** Concurrent enrollment in ENTO 300/ECCB 300 and ENTO 450/ECCB 450; junior or senior classification. **Cross Listing:** ECCB 451/ENTO 451.

ENTO 455 Field Entomology in the Tropics

Credits 3. 9 Other Hours. Intensive hands-on, field-based experiences in Costa Rica at the Texas A&M Soltis Center for Research and Education; study of insect diversity, behavior and natural history and insight into the challenges in conserving biodiversity; two-week course designed to provide authentic research experiences in a tropical rainforest; involvement in physically demanding fieldwork, extensive collecting and sampling, specimen sorting and preparation, as well as field observation of insect natural history and behavioral experiments; learn how to keep field notes, work in teams to solve research questions and communicate research through various media. **Prerequisites:** Grade of C or better in BIOL 111 and BIOL 112; or approval of instructor; any course in entomology recommended.

ENTO 481 Seminar

Credit 1. 1 Lecture Hour. Report of original investigations, current literature and special features of entomology. **Prerequisites:** ENTO 201, or ENTO 208 and ENTO 209; junior or senior classification.

ENTO 482 Occupational and Professional Development

Credits 2. 2 Lecture Hours. Organized instruction in written and oral communication; acquaint students with private and public-sector companies and agencies as well as leading professionals from these firms to reinforce academic instruction and prepare students for the transition to employment, graduate and professional schools. **Prerequisite:** ENTO 201, or ENTO 208 and ENTO 209; or approval of instructor.

ENTO 484 Professional Internship

Credits 0 to 4. 0 to 4 Other Hours. Independent study and supervised field experience related to a professional area of interest in entomology. May be taken two times for credit. **Prerequisite:** ENTO 201, or ENTO 208 and ENTO 209; junior or senior classification or approval of instructor.

ENTO 485 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Individual problems. **Prerequisites:** Approval of instructor and department head.

ENTO 489 Special Topics in...

Credits 1 to 4. 0 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of entomology. May be repeated for credit. **Prerequisite:** Approval of instructor.

ENTO 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in entomology. May be repeated for credit. **Prerequisites:** Junior or senior classification or approval of instructor.

EPFB - Educ Psyc Field Based (EPFB)

EPFB 210 Family Engagement and Empowerment

Credits 3. 2 Lecture Hours. 3 Lab Hours. Provision of information and skills necessary to work with diverse families; study of the need for positive school-family collaboration and characteristics of families throughout the life cycle, the collaboration of educators with families through the special education process, and the provision of family services through community agencies.

EPFB 301 Teaching Skills I

Credits 3. 1 Lecture Hour. 6 Lab Hours. Study and development of skills focusing on collaboration, instruction, classroom management and professionalism in P-12 schools; field experience in general education settings. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisite:** Admission to professional phase of program.

EPFB 401 Teaching Skills II

Credits 3. 1 Lecture Hour. 6 Lab Hours. Study and development of skills focusing on individual P-12 students' needs with emphasis on delivering complete lessons from a written plan to include Texas Essential Knowledge and Skills (TEKS) and Individualized Educational Program (IEP) objectives, incorporating modifications appropriately, setting behavioral expectations, and using questioning strategies for high level thinking; field experience in two special education settings. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisite:** Admission to professional phase of program.

EPSY - Educational Psychology (EPSY)

EPSY 284 Internship

Credits 0 to 7. 0 to 7 Other Hours. Directed internship in a community, public or private organization to provide on-the-job training and/or applied research experience appropriate to career objectives. May be repeated seven times for credit. Must be taken on a satisfactory/unsatisfactory basis.

EPSY 285 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Direct readings or research problems not covered by any other lower-division course in the curriculum. **Prerequisites:** Freshman and sophomore classification.

EPSY 289 Special Topics In...

Credits 1 to 4. 1 to 4 Other Hours. Selected topics in an identified area of educational psychology. May be repeated for credit.

EPSY 291 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in educational psychology. May be repeated 2 times for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

EPSY 320 Child Development

Credits 3. 3 Lecture Hours. Growth and development of the normal child from infancy to adolescence; implications of children's cognitive, language and psychosocial development for success in academic and social interactions. **Prerequisite:** Junior or senior classification.

EPSY 321 Adolescent Development

Credits 3. 3 Lecture Hours. Characteristics of adolescent growth and development emphasizing behavior within secondary school setting; influences of prior development; home, family and community; peer group, as these affect school adjustment and success. **Prerequisite:** Junior or senior classification.

EPSY 322 Adult Development and Aging

Credits 3. 3 Lecture Hours. Examination of the physical, cognitive, social, and emotional domains of development from adulthood through death through a biopsychosocial lens; overview of the cultural, societal, interpersonal, biological, and cognitive processes that dynamically shape individuals as they progress through adulthood and navigate the inevitability of aging and death. **Prerequisites:** Junior or senior classification.

EPSY 430 Creativity Theories and Research

Credits 3. 3 Lecture Hours. Theoretical base of creativity and the research methodologies used to study creativity. **Prerequisite:** Junior or senior classification.

EPSY 431 Personal Creativity and Giftedness

Credits 3. 3 Lecture Hours. Study of personal creativity and giftedness and how it interrelates with development, relationships, and learning. **Prerequisites:** Junior or senior classification.

EPSY 432 Creativity and Creative Problem Solving

Credits 3. 3 Lecture Hours. Creativity research; historical background and application of the framework and tools of the Parnes/Osborn Creative Problem Solving Process. **Prerequisite:** Junior or senior classification.

EPSY 433 Lateral Thinking

Credits 3. 3 Lecture Hours. Edward deBono's theories and approach to creativity known as lateral thinking which is used throughout the world to increase creative thinking in individuals. **Prerequisite:** Junior or senior classification.

EPSY 435 Educational Statistics

Credits 3. 3 Lecture Hours. Statistical concepts and techniques and their application in behavioral sciences. **Prerequisite:** Junior or senior classification.

EPSY 441 Family Development and Relationships

Credits 3. 3 Lecture Hours. Exploration of the dynamic nature of family development and relationships; examination of the evolution of family structures, the impact of culture and society on family dynamics, and strategies for promoting healthy relationships within the family unit; combination of lectures, readings, discussions, and experiential activities to provide a comprehensive understanding of the complexities and challenges faced by families in today's world. **Prerequisites:** Junior or senior classification.

EPSY 442 Parenting and Family Caregiving

Credits 3. 3 Lecture Hours. Major theories and concepts in parenting and family caregiving; parenting and family caregiving in diverse family forms and cultures across the infancy, early childhood, middle childhood, and adolescent years; caregiving for elderly parents. **Prerequisites:** Junior or senior classification.

EPSY 443 Techniques of Coaching and Counseling

Credits 3. 3 Lecture Hours. Overview of family strengths and weaknesses and how family members relate to and interact with each other; overview of counseling and coaching techniques to support interpersonal relationships as well as display an analysis of personality and communication styles and the impact on relationships and families. **Prerequisites:** Junior or senior classification.

EPSY 444 Professional Ethics in Decision-Making

Credits 3. 3 Lecture Hours. Overview of the character and quality of human social conduct and the ability to critically examine ethical questions and issues as they relate to professional practice; research and theories related to the formation of social attitudes and values; recognition and respect of the diversity of values and the complexity of value choice in a pluralistic society; examination of value systems and ideologies systematically and objectively; social consequences of value choices; recognition of the ethical implications of social and technological changes; ethics of professional practice. **Prerequisites:** Junior or senior classification.

EPSY 459 Practicum in Educating the Gifted and Talented

Credits 3. 1 Lecture Hour. 6 Lab Hours. Theory and strategies for instruction and guidance of the gifted and talented through a supervised experience in a laboratory setting with gifted and talented children and/or adolescents. May be taken two times for credit. **Prerequisites:** Approval of department head and instructor; junior or senior classification.

EPSY 484 Field Experiences

Credits 0 to 6. 0 to 6 Other Hours. University-supervised experience in a professional employment setting related to specializations in guidance and special education. May be repeated to 6 hours total. **Prerequisites:** Approval of student's advisor and department head.

EPSY 485 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Research problems and readings in areas selected to supplement existing offerings; individual reports, oral and written, required. **Prerequisites:** Junior or senior classification; approval of instructor.

EPSY 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of educational psychology. May be repeated for credit. **Prerequisite:** Approval of instructor.

EPSY 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in educational psychology. May be repeated 2 times for credit. **Prerequisites:** Junior or senior classification and approval of instructor.

ESET - Electronic Sys Eng Tech (ESET)

ESET 210 Circuit Analysis

Credits 4. 3 Lecture Hours. 3 Lab Hours. Electric and magnetic principles of components used in DC and AC circuits; transient analysis; phasor analysis; Ohm's and Kirchhoff's laws, Thevenin's and Norton's theorems, mesh and nodal equations; measurement of current, voltage and waveforms with meters and oscilloscopes. **Prerequisite:** Grade of C or better in MATH 151.

ESET 211 Power Systems and Circuit Applications

Credits 3. 2 Lecture Hours. 3 Lab Hours. Fundamentals of energy systems; power generation/distribution; motors/generators; AC power analysis; power factor correction; application of Thevenin's and Norton's Theorems, Superposition Theorem, and Mesh and Nodal analysis; resonant circuits; passive filters; nonsinusoidal circuits; pulse waveforms; measurements of AC circuits; circuit analysis using Multisim. **Prerequisites:** Grade of C or better in ESET 210 and MATH 152; electronic systems engineering technology major.

ESET 219 Digital Electronics

Credits 4. 3 Lecture Hours. 3 Lab Hours. Survey of digital applications, number systems, digital logic devices and circuits, sequential logic.

ESET 269 Embedded Systems Development in C

Credits 3. 2 Lecture Hours. 3 Lab Hours. Introduction to programming using the C programming language and embedded microcontroller systems; fundamental language syntax and semantics, concentration of the application to embedded systems. **Prerequisites:** Grade of C or better in ESET 219 or concurrent enrollment; electronic systems engineering technology or multidisciplinary engineering technology majors.

ESET 300 Industrial Electricity

Credits 4. 3 Lecture Hours. 2 Lab Hours. Industrial applications of electrical theory, codes, circuitry, wiring devices, motors and controllers, switch gear and solid state controls. **Prerequisite:** Grade of C or better in PHYS 207; grade of C or better in ENGR 217/PHYS 217 or PHYS 217/ENGR 217; junior or senior classification in Industrial Distribution (IDIS) or Manufacturing and Mechanical Engineering Technology (MMET).

ESET 315 Local-and-Metropolitan-Area Networks

Credits 4. 3 Lecture Hours. 3 Lab Hours. Design, operation, application and management of LANs and MANs; topologies, cabling systems, protocols, bridges, routers, hubs, switches, security; media and transport systems; Internet and TCP/IP topics including the protocol stack, router operation and addressing issues. **Prerequisites:** Grade of C or better in ESET 219; electronic systems engineering technology major.

ESET 319 Engineering Leadership

Credits 3. 2 Lecture Hours. 3 Lab Hours. Exploration of and development of competency in multiple areas related to the practice of leadership in engineering, including emotional intelligence, communication, time management, personal mastery and effectiveness, team dynamics, team membership, motivation, servant leadership, application of systems thinking in an organization, understanding organizational function and culture and career management. **Prerequisite:** Grade of C or better in ENGL 103 or ENGL 104; electronic systems engineering technology major.

ESET 329 Six Sigma and Applied Statistics

Credits 3. 2 Lecture Hours. 3 Lab Hours. Concepts of probability and statistics, mean, variance, Gaussian/uniform/Student/Weibull distributions, and their applications in electronics design, analysis, and troubleshooting; Six Sigma process and tools including Gauge R&R, test of hypotheses, analysis of variance, linear regression, response surface method, control chart, and design of experiments. **Prerequisites:** Grade of C or better in ESET 210 and MATH 152; electronic systems engineering technology major.

ESET 333 Product Development

Credits 3. 2 Lecture Hours. 3 Lab Hours. Process of product development to create an idea; development of a business plan; market research; voice of customer; managing resources; project management; identifying product partners; creating a unique product and/or company. **Prerequisite:** Grade of C or better in ENGR 112, ENGR 217/PHYS 217, or PHYS 217/ENGR 217, or concurrent enrollment; electronic systems engineering technology major or embedded systems integration minor.

ESET 349 Microcontroller Architecture

Credits 4. 3 Lecture Hours. 3 Lab Hours. Microcontrollers including type of circuits and how they function; architecture of microcontrollers; instruction sets and how they are programmed. **Prerequisites:** Grade of C or better in ESET 219 and ESET 269; electronic systems engineering technology major.

ESET 350 Analog Electronics

Credits 4. 3 Lecture Hours. 3 Lab Hours. Study of semiconductor devices including diodes, field effect transistors, bipolar junction transistors, and operational amplifiers; applications include signal conditioning, power supplies, active filters, discrete transistor amplifiers, and transistor switching/driver circuits. **Prerequisites:** Grade of C or better in ESET 210; grade of C or better in CHEM 107 and CHEM 117, or CHEM 120; grade of C or better in ENGL 103 or ENGL 104, PHYS 218 or ENGR 216/PHYS 216 or PHYS 216/ENGR 216, and MATH 152, and PHYS 206 or PHYS 218; junior or senior classification in electronic systems engineering technology.

ESET 352 Electronics Testing I

Credits 4. 3 Lecture Hours. 3 Lab Hours. Testing of electronic devices and systems; including test planning, test reporting, test specifications, parametric testing, measurement accuracy, test hardware, sampling theory, digital signal processing based testing, and calibrations; both circuit analysis (2/3) and circuit design (1/3) with several analog and mixed-signal systems. **Prerequisites:** Grade of C or better in ENTC 329 and ESET 350; junior or senior classification in electronic systems engineering technology.

ESET 355 Electromagnetics and High Frequency Systems

Credits 4. 3 Lecture Hours. 3 Lab Hours. High frequency concepts including topics in basic electromagnetics, transmission lines, antennas, and RF circuit design; applications including wireless communication systems, fiber optic systems, and high frequency PCB layout. **Prerequisites:** Grade of C or better in ESET 211, PHYS 207, and ENGR 217/PHYS 217 or PHYS 217/ENGR 217; junior or senior classification in electronic systems engineering technology.

ESET 359 Electronic Instrumentation

Credits 4. 3 Lecture Hours. 3 Lab Hours. Fundamentals of controls, measurement systems, sensors, sampling theorem, analog to digital and digital to analog conversions; signal conditioning; bio-potentials and biomedical transducer characteristics; digital signal processing; computer-based data acquisition using graphical development environment; and digital communication protocols. **Prerequisites:** Grade of C or better in ESET 349 and ESET 350; grade of C or better in ENGL 103 or ENGL 104; junior or senior classification in electronic systems engineering technology.

ESET 369 Embedded Systems Software

Credits 4. 3 Lecture Hours. 3 Lab Hours. A study of the technical aspects of embedded computer software systems, with emphasis on embedded real-time systems, programming techniques and development methodologies. **Prerequisites:** Grade of C or better in ESET 349; junior or senior classification in electronic systems engineering technology.

ESET 400 Industrial Automation

Credits 4. 3 Lecture Hours. 2 Lab Hours. Industrial applications of electronic devices; instrumentation; AC and DC drives; local area networks; cell and area controllers and advanced applications of programmable controllers. **Prerequisites:** Grade of C or better in ESET 300; junior or senior classification in industrial distribution.

ESET 415 Advanced Network Systems and Security

Credits 3. 2 Lecture Hours. 3 Lab Hours. Advanced topics of the network systems and security including network design and protocol (BGP, IP Routing, IPv6, NAT, DNS); network security (ACLs, TCP/IP security, and VPN); socket programming and cryptographic protocols. **Prerequisites:** Grade of C or better in ESET 315; junior or senior classification in electronic systems engineering technology or approval of instructor.

ESET 419 Engineering Technology Capstone I

Credits 3. 2 Lecture Hours. 3 Lab Hours. Project management tools for a formal technical proposal; addresses scope, schedule, risk, cost, milestones and deliverables; planning and initial design of prototype implemented in ESET 420; teams must have sponsor and technical advisor. **Prerequisites:** Grade of C or better in ESET 319 or MXET 300, ESET 333 or MMET 361, ESET 350 and ESET 369; must be taken the fall or spring semester immediately prior to ESET 420; senior classification.

ESET 420 Engineering Technology Capstone II

Credits 2. 6 Lab Hours. Second semester course in capstone design sequence; focus on design implementation, testing, documentation, demonstration, and presentation of a fully functional prototype; professional design tools for schematic capture, printed circuit board layout and software development, integration and validation. **Prerequisite:** Grade of C or better in ESET 419; grade of C or better in ESET 352, ESET 415, ESET 455 and ESET 462, or concurrent enrollment; ENTC 399 or concurrent enrollment; senior classification in electronic systems engineering technology.

ESET 444 Building Energy Management Systems

Credits 3. 2 Lecture Hours. 3 Lab Hours. Essential elements of energy management from understanding energy production to consumption; identification of the major components of energy management of buildings, energy audit to business (strategy), Heating Ventilating Air Conditioning (HVAC), control systems, economics (ROI) and engineering system integration. **Prerequisites:** Senior classification.

ESET 452 Electronics Testing II

Credits 3. 2 Lecture Hours. 3 Lab Hours. Advanced testing techniques of electronic devices and systems; study of advanced electronics test methodologies; emphasis on circuits containing analog to digital converters (ADCs) and digital to analog converters (DACs); device interface board design and data analysis; both circuit analysis (2/3) and circuit design (1/3) using industry grade state-of-the-art equipment. **Prerequisites:** Grade of C or better in ESET 349 and ESET 352; junior or senior classification in electronic systems engineering technology.

ESET 453 Validation and Verification

Credits 3. 2 Lecture Hours. 3 Lab Hours. Validation of semiconductor devices; differences between validation and production testing; extensive use of Altium for simulation and layout of circuits; use of Spotfire to analyze data acquired as part of validation process; focus on acquisition of valid data and clear and concise presentation of data to stakeholders. **Prerequisites:** Grade of C or better in ESET 352; junior or senior classification in electronic systems engineering technology.

ESET 455 Wireless Transmission Systems

Credits 4. 3 Lecture Hours. 3 Lab Hours. System engineering aspects of microwave, satellite and cellular communication systems; power budget calculations, propagation analysis, systems descriptions; CNR, CIR; review of modulations practical engineering considerations. **Prerequisites:** Grade of C or better in ESET 315 and ESET 355; junior or senior classification in electronic systems engineering technology.

ESET 456 Embedded Sensors and Internet of Things (IoT) Systems

Credits 3. 2 Lecture Hours. 3 Lab Hours. Integration of off-the-shelf sensors and embedded intelligence components to form data acquisition, monitoring and control of remote equipment and systems through wired and wireless networks; algorithm development and implementation in interrupt-driven and RTOS-based firmware environments; collection, reduction, analysis and information extraction of data from multiple edge devices using industry-standard cloud-based software environments.

Prerequisites: Grade of C or better in ESET 355, ESET 359, and ESET 369; junior or senior classification in electronic systems engineering technology.

ESET 462 Control Systems

Credits 4. 3 Lecture Hours. 3 Lab Hours. Components, principles and techniques fundamental to automated control systems; study of transfer functions, network analysis using Laplace transforms, Z transforms, feedback control systems theory, digital computer simulation and computer-based controls systems. **Prerequisites:** Grade of C or better in ESET 359 and ESET 369; junior or senior classification in electronic systems engineering technology.

ESET 469 Embedded Real Time Software Development

Credits 3. 3 Lecture Hours. Survey of the operation and use of Real Time Kernels as the basis for embedded system firmware development; includes task operation, inter-task communications, synchronization, dynamic memory, multitask system design and defensive programming techniques; embedded RTOS applications. **Prerequisites:** Grade of C or better in ESET 369; junior or senior classification in electronic systems engineering technology.

ESET 485 Directed Studies

Credits 1 to 6. 1 to 6 Other Hours. Directed study of special problems in an in an area of electrical systems engineering technology not covered in other courses. May be repeated for credit. **Prerequisites:** Senior classification and approval of instructor.

ESET 491 Research

Credits 0 to 4. 0 Lecture Hours. 0 Lab Hours. 0 to 4 Other Hours. Research conducted under the direction of faculty member in the college of engineering. May be repeated three times for credit. **Prerequisites:** Junior or senior classification and approval of instructor.

EURO - European Studies (EURO)

EURO 285 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Individual supervision of readings or assigned projects in European studies selected for each student individually. **Prerequisites:** Approval of instructor and department head.

EURO 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of European studies. May be repeated for credit. **Prerequisite:** Approval of instructor.

EURO 291 Research

Credits 0 to 3. 0 to 3 Other Hours. Research conducted under the direction of faculty member in European languages and cultures. May be taken three times for credit. **Prerequisites:** Freshman or sophomore classification and approval of department head.

EURO 405/FILM 405 European Cinema

Credits 3. 3 Lecture Hours. Exploration of key movements in European cinema from 1895 to the present, including both national cinematic traditions, such as Italian Neorealism or French New Wave, and international trends such as Formalism, Expressionism, or Auteurism. **Prerequisite:** FILM 251/ENGL 251, FILM 299, or approval of instructor. **Cross Listing:** FILM 405/EURO 405.

EURO 441/RUSS 441 The Russian Novel I - Tolstoy and Dostoevsky

Credits 3. 3 Lecture Hours. Study of the major works of Tolstoy and Dostoevsky; discussion of the literary nature and purpose of novels, especially in the context of Russian culture; taught in English. **Prerequisites:** RUSS 201 or concurrent enrollment; junior or senior classification, or approval of instructor. **Cross Listing:** RUSS 441/EURO 441.

EURO 442/RUSS 442 The Russian Novel II - The Twentieth Century

Credits 3. 3 Lecture Hours. Study of major Russian novels from ca. 1900 to the end of Stalinism; exploration of topics relevant to Russia's experience in the 20th century; taught in English. **Prerequisites:** RUSS 201 or concurrent enrollment; junior or senior classification, or approval of instructor. **Cross Listing:** RUSS 442/EURO 442.

EURO 443/RUSS 443 Contemporary Russian Prose

Credits 3. 3 Lecture Hours. Study of Russian and Soviet 20th century prose literature, with emphasis on post-Stalinist and post-glasnost writers; taught in English. **Prerequisite:** Junior or senior classification, or approval of instructor. **Cross Listing:** RUSS 443/EURO 443.

EURO 444/RUSS 444 Russian Drama

Credits 3. 3 Lecture Hours. Introduction to the masterpieces of Russian drama from the 19th century to the present; includes such authors as Pushkin, Chekhov, Gorky, Arbuzov, Rozov and Petrushevskaya; taught in English. **Prerequisite:** Junior or senior classification, or approval of instructor. **Cross Listing:** RUSS 444/EURO 444.

EURO 446/RUSS 446 Russian Artistic Culture I - Beginnings to 1900

Credits 3. 3 Lecture Hours. Masterpieces of Russian art, including architecture, dance, theater, music, and literature, from its beginnings until ca. 1900; taught in English. **Prerequisites:** Junior or senior classification, or approval of instructor. **Cross Listing:** RUSS 446/EURO 446.

EURO 447/RUSS 447 Russian Artistic Culture II - 1890 to Present

Credits 3. 3 Lecture Hours. Masterpieces of Russian art, including architecture, dance, theater, music, film, and literature, from ca. 1890 to the present; taught in English. **Prerequisites:** Junior or senior classification, or approval of instructor. **Cross Listing:** RUSS 447/EURO 447.

EURO 484 Internship

Credits 1 to 3. 1 to 3 Other Hours. Directed Internship in a private firm or public agency to provide experience and learning appropriate to the student's degree program and career objectives. Must be taken on a satisfactory/unsatisfactory basis. May be taken two times for credit. **Prerequisite:** Junior or senior classification.

EURO 485 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Individual supervision of readings or assigned projects in European studies, selected for each student individually. **Prerequisite:** Approval of instructor and department head.

EURO 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of European studies. May be repeated for credit. **Prerequisite:** Approval of instructor.

EURO 491 Research

Credits 1 to 3. 1 to 3 Other Hours. Research conducted under the direction of faculty member in European languages and cultures. May be taken three times for credit. **Prerequisites:** Junior or senior classification and approval of department head.

EVEN - Environmental Engr (EVEN)

EVEN 201 Introduction to the Environmental Engineering Profession

Credit 1. 1 Lecture Hour. Introduction to the study and practice of environmental engineering; professionalism and professional registration; engineering ethics; exercises in technical communication. **Prerequisites:** Grade of C or better in ENGL 103 or ENGL 104; or approval of instructor.

EVEN 291 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in environmental engineering. May be taken four times for credit. **Prerequisites:** Freshman or sophomore classification or approval of instructor.

EVEN 301/CVEN 301 Environmental Engineering

Credits 3. 3 Lecture Hours. Water quality; material balances; chemical, physical and biological processes; water quality modeling; water and wastewater treatment; air quality; solid and hazardous waste management. **Prerequisites:** Grade of C or better in CHEM 107; Grade of C or better in CVEN 302 and MATH 308, or concurrent enrollment. **Cross Listing:** CVEN 301/EVEN 301.

EVEN 304/CVEN 304 Environmental Engineering Lab

Credit 1. 3 Lab Hours. Environmental measurements on physical, chemical, biological and biotechnological parameters of water. **Prerequisites:** CVEN 301/EVEN 301 or EVEN 301/CVEN 301, or concurrent enrollment; CVEN 311/EVEN 311 or concurrent enrollment; or approval of instructor. **Cross Listing:** CVEN 304/EVEN 304.

EVEN 311/CVEN 311 Fluid Dynamics

Credits 3. 3 Lecture Hours. Fluid properties; statics; kinematics; basic conservation principles of continuity, energy and momentum; similitude and hydraulic models; incompressible flow in pipes; fluid dynamic drag. **Prerequisites:** Grade of C or better in MATH 251 or MATH 253; grade of C or better in CVEN 221; grade of C or better in CVEN 302, or concurrent enrollment; also taught at Galveston campus. **Cross Listing:** CVEN 311/EVEN 311.

EVEN 320 Principles of Environmental Engineering Chemistry

Credits 3. 3 Lecture Hours. Fundamental chemical principles needed for the study of natural and engineered environmental systems including thermodynamics and kinetics of acid and base reactions, the carbonate system, reactivity of organic compounds and atmospheric systems. **Prerequisites:** Grade of C or better in CHEM 107; grade of C or better in EVEN 301/CVEN 301 or CVEN 301/EVEN 301 or concurrent enrollment; admitted to major degree sequence in civil engineering or environmental engineering, or approval of instructor.

EVEN 339/CVEN 339 Water Resources Engineering

Credits 3. 3 Lecture Hours. Quantitative hydrology, precipitation, hydrograph analysis, reservoir and stream routing; groundwater, Darcy equation, well equation, well design; probability concepts in design; water law; dams; reservoirs; spillways; open channel and pipe network hydraulics; pumps; urban stormwater drainage; flood damage mitigation. **Prerequisite:** Grade of C or better in CVEN 311/EVEN 311 or EVEN 311/CVEN 311. **Cross Listing:** CVEN 339/EVEN 339.

EVEN 399 Mid-Curriculum Professional Development

Credits 0. 0 Lecture Hours. Participation in an approved high-impact learning practice; reflection on professional outcomes from environmental engineering body of knowledge; documentation of experience appropriate to eventual professional licensure; self-assessment of learning at mid-curriculum point. **Prerequisites:** EVEN 301/CVEN 301 or CVEN 301/EVEN 301; EVEN 304/CVEN 304; EVEN 311/CVEN 311 or CVEN 311/EVEN 311; CVEN 302; CVEN 221; or approval of instructor.

EVEN 400 Design Problems in Environmental Engineering I

Credits 2. 1 Lecture Hour. 3 Lab Hours. . Capstone design project of an interdisciplinary or specialized nature involving both technical and non-technical aspects of an environmental engineering problem; managing a project through the evaluation, selection and preparation of an appropriate design solution for an open-ended problem; project to be completed in EVEN 401. **Prerequisite:** Grade of C or better in EVEN 301/CVEN 301 and EVEN 320; grade of C or better in EVEN 402 or CVEN 402/EVEN 402, and EVEN 413 or CVEN 413/EVEN 413, or concurrent enrollment; senior classification; environmental engineering major; or approval of instructor.

EVEN 401 Design Problems in Environmental Engineering II

Credits 2. 0 Lecture Hours. 6 Lab Hours. Continuation and completion of capstone environmental engineering project developed in EVEN 400; critical evaluation, revision, preparation and communication of final design solution. **Prerequisites:** Grade of C or better in EVEN 400; senior classification; environmental engineering major; or approval of instructor.

EVEN 402/CVEN 402 Engineered Environmental Systems

Credits 3. 3 Lecture Hours. Unit operations and processes in environmental engineering; physical, chemical and biological treatment of water and wastewater; treatment system analysis and design. **Prerequisites:** Grade of C or better in CVEN 301/EVEN 301 or EVEN 301/CVEN 301. **Cross Listing:** CVEN 402/EVEN 402.

EVEN 404 Environmental Unit Operations Laboratory

Credit 1. 3 Lab Hours. Applications of laboratory methods to measure fundamental aspects of behavior of environmental engineering processes; examination of critical chemical, physical and biological processes that control behavior of materials in multiple media (air, water, land) in natural and engineered systems; evaluation of effects of important process variables. **Prerequisites:** Grade of C or better in EVEN 304/CVEN 304 and EVEN 320; grade of C or better in EVEN 301 or CVEN 301/EVEN 301; grade of C or better in EVEN 402 or CVEN 402/EVEN 402 or concurrent enrollment; environmental engineering major; or approval of instructor.

EVEN 406 Environmental Protection and Public Health

Credits 3. 3 Lecture Hours. Communicable and noncommunicable diseases; environmental risk assessment; environmental assessments; comprehensive environmental planning; small water and wastewater systems; solid waste management; hazardous spills and waste management; vector control; environmental administration. **Prerequisites:** Grade of C or better in CVEN 301/EVEN 301 or EVEN 301/CVEN 301; or approval of instructor. **Cross Listing:** CVEN 402/EVEN 402.

EVEN 413/CVEN 413 Natural Environmental Systems

Credits 3. 3 Lecture Hours. Water quality assessment of natural environmental systems; development and calibration of models to describe fate and transport of contaminants in aquatic systems; application of models to design of water quality control facilities. **Prerequisite:** Grade of C or better in EVEN 301/CVEN 301 or CVEN 301/EVEN 301. **Cross Listing:** CVEN 413/EVEN 413.

EVEN 458/CVEN 458 Hydraulic Engineering of Water Distribution Systems

Credits 3. 3 Lecture Hours. Pressure conduit hydraulics; design, modeling, and analysis of water conveyance and distribution systems including pipelines, pipe networks, and pumps. **Prerequisite:** Grade of C or better in CVEN 339/EVEN 339 or EVEN 339/CVEN 339 or approval of instructor. **Cross Listing:** CVEN 458/EVEN 458.

EVEN 462/CVEN 462 Engineering Hydrogeology

Credits 3. 3 Lecture Hours. Groundwater in the hydrologic cycle; aquifer properties; well hydraulics, testing, and design; groundwater quality; and groundwater management and sustainability. **Prerequisites:** Grade of C or better in CVEN 311/EVEN 311 or EVEN 311/CVEN 311; Grade of C or better in CVEN 301/EVEN 301, EVEN 301/CVEN 301, CVEN 339/EVEN 339, or EVEN 339/CVEN 339; junior or senior classification; or approval of instructor. **Cross Listing:** CVEN 462/EVEN 462.

EVEN 463/CVEN 463 Engineering Hydrology

Credits 3. 3 Lecture Hours. Occurrence, distribution and properties of natural waters of the earth; measurement and engineering analysis of hydrologic phenomena including precipitation, streamflow and groundwater, hydrologic design of water resources development and management projects. **Prerequisite:** Grade of C or better in CVEN 339/EVEN 339 or EVEN 339/CVEN 339. **Cross Listing:** CVEN 463/EVEN 463.

EVEN 466 Sustainability and Life Cycle Analysis

Credits 3. 3 Lecture Hours. Definitions of sustainability and sustainable development from social, economic, political, and technical perspectives; life-cycle analysis and quantitative assessment of sustainability; industrial ecology; valuation of environmental goods and externalities; sustainable infrastructure design and management. **Prerequisites:** Junior or senior classification or approval of instructor.

EVEN 485 Directed Studies

Credits 0 to 3. 0 to 3 Other Hours. Research and design problems of limited scope approved on an individual basis intended to promote independent study; results of study presented in writing. May be taken for credit up to three hours. **Prerequisites:** Approval of department head.

EVEN 491 Research

Credits 0 to 3. 0 to 3 Other Hours. Research conducted under the direction of faculty members in environmental engineering. May be taken for credit up to three hours. **Prerequisites:** Junior or senior classification and approval of instructor.

FILM - Film Studies (FILM)

FILM 101/VIST 101 Introduction to Visual Studies

Credits 3. 3 Lecture Hours. Survey of topics in the interdisciplinary field of visual studies, including forms of art, media, and architecture, and visual culture in global and intercultural contexts; application of visual studies methods and techniques to art, media, and architecture; analysis of the visual in contemporary culture; in-class visual studies exercises and discussions. **Cross Listing:** VIST 101/FILM 101.

FILM 215/GLST 215 Global Cinema

Credits 3. 3 Lecture Hours. History and theory of global cinema; historical, socio-political, national and international contexts of film production and reception; transnational film; FILM-215 also taught at Galveston campus. **Cross Listing:** GLST 215/FILM 215.

FILM 245/RUSS 245 Contemporary Russia in Its Own Films

Credits 3. 3 Lecture Hours. Exploration of contemporary Russian and late Soviet films; focus on present-day cultural conditions in the Russian Federation and in the diaspora; taught in English. **Cross Listing:** RUSS 245/FILM 245.

FILM 251/ENGL 251 Introduction to Film Analysis

Credits 3. 3 Lecture Hours. Fundamental aspects of film analysis and criticism; ENGL-251 also taught at Galveston and Qatar campuses. **Cross Listing:** ENGL 251/FILM 251.

FILM 285 Directed Studies

Credits 0 to 3. 0 to 3 Other Hours. Selected fields of film studies not covered in depth by other courses. Reports and extensive reading required. May be repeated for credit. **Prerequisite:** Concurrent enrollment in FILM 251/ENGL 251 or FILM 299, and approval of instructor.

FILM 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Special topics in an identified area of film studies.

FILM 291 Research

Credits 0 to 3. 0 to 3 Other Hours. Research conducted under the direction of faculty member in film. **Prerequisites:** FILM 251/ENGL 251 or FILM 299 and freshman or sophomore classification and approval of instructor.

FILM 299 History of Film

Credits 3. 3 Lecture Hours. Historical development of major periods, movements and styles, including several different national cinemas.

FILM 302 Diversity and the Moving Image

Credits 3. 3 Lecture Hours. Survey of both positive and negative representations of human diversity in motion picture artifacts, broadly understood; forms of diversity addressed include race, gender, sexuality, ability, and class. **Prerequisites:** Grade of C or better in FILM 251/ENGL 251 or FILM 299.

FILM 315/JWST 315 Cinema in Israel

Credits 3. 3 Lecture Hours. Consideration and analysis of major works of film in Israel; interpretation of diverse cultures in Israel through film; relationship of film to Israeli history; taught in English. **Prerequisites:** Junior or senior classification or approval of instructor. **Cross Listing:** JWST 315/FILM 315.

FILM 324/ENGL 324 Science Fiction and Film

Credits 3. 3 Lecture Hours. History and trajectory of science fiction film into the 21st century by filmmakers such as Kubrick, Jenkins, Cameron, Coogler and others. **Prerequisites:** 3 credits of literature at 200-level or above. **Cross Listing:** ENGL 324/FILM 324.

FILM 333/VIST 333 Story for the Screen

Credits 3. 3 Lecture Hours. Exploration of the internal structure of stories; exploration of stories through emotion and action beats; narrative scripts in the visually kinetic language through which live-action and animated films and narratively-driven video games perform stories. **Prerequisites:** Junior or senior classification. **Cross Listing:** VIST 333/FILM 333.

FILM 343/WGST 343 Sex, Gender and Cinema

Credits 3. 3 Lecture Hours. Exploration of a significant topic at the intersection of women's/gender studies and film, such as cinema and sexuality studies, cinema and women, and cinema and masculinity; may include discussion of production, film content, and/or reception. **Prerequisites:** Junior or senior classification or approval of instructor. **Cross Listing:** WGST 343/FILM 343.

FILM 345 Media Industries

Credits 3. 3 Lecture Hours. Survey of the business organization, economic structures and processes, and regulations of the media industry. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** COMM 345 and JOUR 345.

FILM 349 Documentary Cinema

Credits 3. 3 Lecture Hours. History and theory of documentary cinema; examination of documentary film's ability to both reflect and shape the history of its time. May be taken two times for credit. **Prerequisite:** Junior or senior classification, or approval of instructor.

FILM 351/ENGL 351 Advanced Film

Credits 3. 3 Lecture Hours. A different film topic each term; sample topics include major directors, historical periods, fiction into film, film genres. May be repeated for credit. **Prerequisite:** ENGL 251/FILM 251 or FILM 251/ENGL 251 or FILM 301 or approval of instructor; junior or senior classification. **Cross Listing:** ENGL 351/FILM 351.

FILM 352/HISP 352 Hispanic Literature and Film

Credits 3. 3 Lecture Hours. Exploration of inter-media relationships between film and literature; investigation of the language of film, especially films as expressions of cultural realities through the adaptation of Hispanic literary works; taught in English. **Prerequisites:** Junior or senior classification, or approval of instructor. **Cross Listing:** HISP 352/FILM 352.

FILM 356/ENGL 356 Literature and Film

Credits 3. 3 Lecture Hours. Novels and films based on them; writers and filmmakers such as Virginia Woolf, John Steinbeck, John Ford, Sally Potter, John Huston, Charlotte Bronte and Peter Bogdanovich. **Prerequisites:** Junior or senior classification or approval of instructor. **Cross Listing:** ENGL 356/FILM 356.

FILM 358/ENGL 358 Screenwriting

Credits 3. 3 Lecture Hours. Analysis of screenplay structure coupled with writing assignments illustrating principles of form. **Prerequisite:** Junior or senior classification. **Cross Listing:** ENGL 358/FILM 358.

FILM 366/ENGL 366 Horror Studies

Credits 3. 3 Lecture Hours. History, theories and major subgenre developments of contemporary horror studies in film and literature. **Prerequisites:** Junior or senior classification. **Cross Listing:** ENGL 366/FILM 366.

FILM 376/PHIL 376 Philosophy, Film and Evil

Credits 3. 3 Lecture Hours. Application of philosophical methods and analyses to the medium of film; survey of various depictions and treatments of evil within the genre of science fiction; investigation of depictions and treatments of evil arising from consideration of human encounters with alien others. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** PHIL 376/FILM 376.

FILM 394 Studies in Film Genre

Credits 3. 3 Lecture Hours. Study of a specific film genre, such as Western, Gangster, Mystery, Science Fiction; genre varies each time course is taught; movies are screened and analyzed along with assigned readings that explore characteristics of the genre and its cultural importance. May be repeated for credit. **Prerequisite:** ENGL 251/FILM 251, FILM 251/ENGL 251, or FILM 299, or approval of instructor.

FILM 398/AFST 398 Africana Cinema

Credits 3. 3 Lecture Hours. Overview of African cinema; historical survey of cinema from Africa and the African Diaspora; introducing films produced in several geographical regions and reflecting different filmmaking traditions. May be taken two times for credit. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** AFST 398/FILM 398.

FILM 399/PERF 399 Star Studies

Credits 3. 3 Lecture Hours. Examination of stardom as a cultural, economic, creative, and performative force; may focus on national or global star industries; topics include examination of film, theater, television, sports, or social media stardom depending on the term. **Prerequisites:** Grade of C or better in FILM 251/ENGL 251 or FILM 299. **Cross Listing:** PERF 399/FILM 399.

FILM 401 National Cinema History

Credits 3. 3 Lecture Hours. Cinema History of a given film-producing nation other than the United States, such as Japanese Film, Swedish Film, South African Film. May be taken three times for credit. **Prerequisites:** ENGL 251/FILM 251, FILM 251/ENGL 251, or FILM 299, or approval of instructor.

FILM 405/EURO 405 European Cinema

Credits 3. 3 Lecture Hours. Exploration of key movements in European cinema from 1895 to the present, including both national cinematic traditions, such as Italian Neorealism or French New Wave, and international trends such as Formalism, Expressionism, or Auteurism. **Prerequisite:** FILM 251/ENGL 251, FILM 299, or approval of instructor. **Cross Listing:** EURO 405/FILM 405.

FILM 406 Propaganda and Dissidence

Credits 3. 3 Lecture Hours. Use of film as a medium to promote political ideology, government propaganda, political dissidence, and subversion, with focus on Europe. **Prerequisite:** Junior or senior classification or approval of instructor.

FILM 415/CLAS 415 The Ancient World in Film

Credits 3. 3 Lecture Hours. Study of modern films as they relate to ancient literary texts that inspired them or with which they share common themes; relationship between Greek epic, tragedy, and comedy and their cinematic adaptations; treatment of Rome as an idea or ideal in the work of both ancient Romans and modern filmmakers. **Prerequisite:** Junior or senior classification, or approval of instructor. **Cross Listing:** CLAS 415/FILM 415.

FILM 417 Film Authorship

Credits 3. 3 Lecture Hours. Exploration of a major film author (director, screenwriter or writer/director) as a vehicle for emphasizing intensive analysis, scholarship, film criticism and the question of individual authorship with the collective enterprise of filmmaking. **Prerequisites:** ENGL 251/FILM 251, FILM 251/ENGL 251, or FILM 299, or approval of instructor.

FILM 425/FREN 425 French Film

Credits 3. 3 Lecture Hours. Overview of French cinema from its origins to the present; interpretation of French cultural history and politics through film; taught in English. **Prerequisite:** Junior or senior classification, or approval of instructor. **Cross Listing:** FREN 425/FILM 425.

FILM 434/HIST 434 History and Film

Credits 3. 3 Lecture Hours. Relationship between film, historical events, and public memory; cinematic representation of political, social, and economic change in various contexts; analysis of movies as historical texts; topics covered will vary according to an individual instructor's discretion. **Prerequisites:** Junior or senior classification. **Cross Listing:** HIST 434/FILM 434.

FILM 435/GERM 435 German Film

Credits 3. 3 Lecture Hours. Consideration and analysis of major works and directors of German Film; interpretation of culture through film; relationship of film to history, literature, and other arts; taught in English. May be repeated for credit. **Prerequisite:** Junior or senior classification, or approval of instructor. **Cross Listing:** GERM 435/FILM 435.

FILM 445/COMM 435 Rhetoric of Television and Film

Credits 3. 3 Lecture Hours. Critical analysis of television and film; close readings of such mediated texts; special attention to writing television and film criticism. **Prerequisite:** Junior or senior classification. **Cross Listing:** COMM 435/FILM 445.

FILM 455/ITAL 455 Italian Cinema

Credits 3. 3 Lecture Hours. Consideration and analyses of major works and directors of Italian cinema, from its origin through Neorealism to the present; analysis of how its visual language relates to Italian history, culture and to other arts; taught in English. May be repeated two times for credit. **Prerequisite:** Junior or senior classification, or approval of instructor. **Cross Listing:** ITAL 455/FILM 455.

FILM 465/CHIN 465 Chinese Film

Credits 3. 3 Lecture Hours. Consideration and analysis of major works and directors of Chinese film; interpretation of culture through film; relationship of film to history, literature and other arts; taught in English. May be taken two times for credit. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** CHIN 465/FILM 465.

FILM 469 Cult Cinema

Credits 3. 3 Lecture Hours. Analysis of the concept of cult status; textual characteristics, historical context and audience reception practices that result in certain films receiving a cult status. **Prerequisites:** Junior or senior classification or approval of instructor.

FILM 470 Lesbian, Gay, Bisexual, Transgender, and Queer Cinemas

Credits 3. 3 Lecture Hours. Examination of cinema by and about LGBTQ individuals or communities; discussion of production, film content and reception. **Prerequisites:** Grade of C or better in WGST 200, FILM 215/GLST 215, FILM 251/ENGL 251, ENGL 251/FILM 251, or FILM 299, and junior or senior classification; or approval of instructor.

FILM 475/GLST 475 Film, Propaganda, and Dissidence

Credits 3. 3 Lecture Hours. Examination of films promoting well-defined political aims in various countries and historical periods; focus on dissident works produced under repressive regimes. **Prerequisites:** Junior or senior classification or approval of instructor. **Cross Listing:** GLST 475/FILM 475.

FILM 481 Seminar in Film Studies

Credits 3. 3 Lecture Hours. Seminar on a figure, theme, style, movement or theory in film studies, with practice in the methods of research in film studies, culminating in a substantial research paper. Open to seniors enrolled in the interdisciplinary minor in film studies and to others with approval of the Coordinator of Film Studies. May be taken two times for credit. **Prerequisite:** FILM 251/ENGL 251 or FILM 299, or approval of instructor; junior or senior classification.

FILM 484 Internship in Film Studies

Credits 0 to 4. 0 to 4 Other Hours. Directed internship in a public or private organization to provide students with applied experience in Film Studies; internship will be supervised by selected agency personnel and appropriate faculty; experiences and requirements will vary slightly according to placement and student interests. **Prerequisite:** FILM 251/ENGL 251 or FILM 299; approval of instructor.

FILM 485 Directed Studies

Credits 0 to 3. 0 to 3 Other Hours. Selected fields of film studies not covered in depth by other courses. Reports and extensive reading required. May be repeated for credit. **Prerequisite:** FILM 251/ENGL 251 or FILM 299, and approval of instructor.

FILM 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Special topics in an identified area of film studies. **Prerequisite:** Junior or senior classification or approval of instructor.

FILM 491 Research

Credits 0 to 3. 0 to 3 Other Hours. Research conducted under the direction of faculty member in film. **Prerequisites:** FILM 251/ENGL 251 or FILM 299; approval of instructor.

FINC - Finance (FINC)

FINC 210 Opportunities in Finance I

Credit 1. 1 Lecture Hour. Introduction to major career paths in finance and assessment of students' aptitudes and interests with respect to these career paths. **Prerequisite:** Freshman or sophomore classification in Mays Business School.

FINC 211 Opportunities in Finance II

Credit 1. 1 Lecture Hour. Exploration of specific career competencies in various financial workplaces via lectures, practitioner presentations, and field experiences. **Prerequisites:** FINC 210 and approval of instructor.

FINC 267 Introduction to Securities and Commodities Trading

Credit 1. 1 Lecture Hour. Introduction to financial markets and the instruments that trade in them; describes how financial markets operate; compare and contrast a wide variety of common financial instruments, including debt, equity, derivatives and commodities; basic functions of real-world data sources (especially Bloomberg and the Wall Street Journal); and career paths in the field of finance. **Prerequisite:** Freshman or sophomore classification in business.

FINC 285 Directed Studies

Credits 0 to 6. 0 to 6 Other Hours. Directed study of selected problems in the area of finance not covered in other courses. May be taken five times. **Prerequisites:** FINC 341 or concurrent enrollment and approval of department head.

FINC 341 Business Finance

Credits 3. 3 Lecture Hours. Financial practices and financial management of modern business corporations; cash flow, planning, procurement of funds, management of long-term funds and working capital. Only one of the following will satisfy the requirements for a degree: FINC 341 or FINC 342. **Prerequisites:** ACCT 229 and enrollment in upper division in Mays Business School, Agribusiness, or Maritime Business Administration; also taught at Galveston campus.

FINC 342 Introductory Finance for the Petroleum Ventures Program

Credits 3. 3 Lecture Hours. Basic principles of corporate finance, investments, financial institutions, and international finance; the Federal Reserve System; interest rates; time value of money; characteristics and valuation of stocks and bonds; securities markets; business organization; capital budgeting analysis. Only one of the following will satisfy the requirements for a degree: FINC 341 or FINC 342. **Prerequisites:** Admission to Petroleum Ventures Program and approval of instructor.

FINC 345 Success Factors in Corporate Finance

Credit 1. 1 Lecture Hour. Overview of tools and analytical techniques used in corporate finance functions, including analysis and presentation of financial information; one-week immersive experience. **Prerequisites:** Grade of C or better in FINC 341; admission to corporate finance certificate program or approval of instructor.

FINC 350 Ethics in Financial Decision-Making

Credit 1. 1 Lecture Hour. Recognition and avoidance of breaches of fiduciary duty in the financial workplace; integration of classical ethical codes of conduct into professional decision-making; analysis and application of practitioner standards of conduct. **Prerequisites:** Admission to upper division in Mays Business School; FINC majors only.

FINC 351 Investment Analysis

Credits 3. 3 Lecture Hours. Operation and functions of the organized security exchanges, fundamental security analysis and technical market analysis. **Prerequisites:** ACCT 327 or concurrent enrollment; FINC 210 or concurrent enrollment; FINC 341 with a grade of C or better; BUSN 203 or concurrent enrollment, or AP STAT 301 or AP STAT 302 or AP STAT 303.

FINC 361 Managerial Finance I

Credits 3. 3 Lecture Hours. Managerial problems of financial managers; financial analysis, current asset management, capital budgeting and capital structure. **Prerequisites:** ACCT 327 or concurrent enrollment; FINC 210 or concurrent enrollment; FINC 341 with a grade of C or better; BUSN 203 or concurrent enrollment, or AP STAT 301 or AP STAT 302 or AP STAT 303.

FINC 368 Trade Floor Dynamics

Credits 3. 3 Lecture Hours. Analysis of trade floor activities and behaviors; organizational and process structure of trade floors; characteristics of trade floors that vary by type of asset traded, trading objectives and contract structure; analysis of operational issues including credit constraints, trade strategies, and regulatory compliance. **Prerequisites:** FINC 341 or concurrent enrollment; admission to Trading, Risk and Investment Program (TRIP).

FINC 371 Real Estate Decision-Making

Credits 3. 3 Lecture Hours. Legal, physical and economic characteristics of real estate; overview of real estate market analysis, real estate valuation procedures and real estate production, marketing and financing methods. **Prerequisite:** FINC 341 or concurrent enrollment.

FINC 381 Money and Capital Markets

Credits 3. 3 Lecture Hours. Role of finance and financial institutions in the money and capital markets in the U.S. including supply of and demand for funds, interest rates and flow of funds analysis. **Prerequisite:** FINC 341 with a grade of C or better.

FINC 409 Survey of Finance Principles

Credits 3. 3 Lecture Hours. Finance survey for non-business majors; financial markets, the investment banking process, interest rates, financial intermediaries and the banking system, financial instruments, time value of money concepts, security valuation and selection, and international finance. May not be used to satisfy degree requirements for majors in business or agribusiness. **Prerequisites:** Junior or senior classification; for students other than business and agribusiness.

FINC 422 Applied Investment Analysis

Credits 3. 3 Lecture Hours. Theoretical and analytical developments in security selection and portfolio management; includes macroeconomic analysis, portfolio theory, and portfolio performance evaluation; concepts applied to the allocation of investments in a student-managed equity portfolio. May be taken three times for credit. **Prerequisites:** Approval of instructor; FINC 351 and FINC 361; ACCT 328 or concurrent enrollment.

FINC 423 Options and Financial Futures

Credits 3. 3 Lecture Hours. Valuation of options and financial futures; risk management and hedging applications using options and financial futures; primary focus on stock options, index options, stock index futures, interest rate futures, foreign exchange futures and futures options. **Prerequisites:** FINC 351 and FINC 361; ACCT 328 or concurrent enrollment.

FINC 424 Trading Risk Management

Credits 3. 3 Lecture Hours. Mid-office risk management strategies using the energy markets as a focus; develops understanding of commodity market behavior, use of forwards and options for risk management, risk management reporting, Greeks and simulation-based VaR analysis. **Prerequisites:** FINC 351 and FINC 361; ACCT 328 or concurrent enrollment.

FINC 425 Active Portfolio Management

Credits 3. 3 Lecture Hours. Analysis of investment tactics designed to earn abnormal returns; identification and evaluation of active strategies that exploit capital market anomalies and market inefficiencies; portfolio structuring, stock and sector selection, performance measurement, attribution analysis and benchmarks in inefficient markets. **Prerequisites:** FINC 351 and FINC 361; ACCT 328 or concurrent enrollment.

FINC 426 Trading Markets

Credits 3. 3 Lecture Hours. Issues related to securities trading and securities markets; why and how people trade; the operation, structure and regulation of securities markets; focus on equity markets; comparisons to the markets for derivatives and other securities. **Prerequisites:** FINC 351 and FINC 361; ACCT 328 or concurrent enrollment.

FINC 427 Titans of Investing

Credits 3. 3 Lecture Hours. Readings from the most influential theorists and practitioners of 20th and 21st century investing; case studies and portfolio sector exercises in an institutional context, based on detailed assessment of global investment risks. **Prerequisites:** FINC 341 or FINC 409, or concurrent enrollment in either course; approval of instructor.

FINC 428 Fixed Income Analysis

Credits 3. 3 Lecture Hours. Characteristics of fixed income securities including Treasury issues, federal agency issues, corporate and municipal bonds, mortgage-backed and asset-backed securities; institutional features fixed income markets; risks of bond investing; fixed income valuation; term structure; trade strategies; modeling and assessing credit risks; hedging with fixed income derivatives. **Prerequisites:** FINC 351 and FINC 361; ACCT 328 or concurrent enrollment.

FINC 430 Venture Capital Investing

Credits 3. 3 Lecture Hours. Identification of a venture fund; development of an investment portfolio; development and analysis of venture investments; presentation of investment findings; negotiation and closing of investment deals. **Prerequisites:** Admission to upper division in Mays Business School and approval of instructor.

FINC 435 Managerial Finance II

Credits 3. 3 Lecture Hours. Case studies in the administration of the financial affairs of business enterprises; working capital management, capital budgeting, capital structure, and mergers and acquisitions.

Prerequisites: FINC 351 and FINC 361; ACCT 328 or concurrent enrollment.

FINC 436 Corporate Finance Capstone

Credits 3. 3 Lecture Hours. Application of interdisciplinary techniques to identify and solve multi-faceted corporate finance problems through use of case studies. **Prerequisites:** FINC 351 and FINC 361; ACCT 328 or concurrent enrollment; admission to corporate finance certificate program or approval of instructor.

FINC 437 Systematic Trading Strategies

Credits 3. 3 Lecture Hours. Overview of quantitative investing using algorithmic trading for investment management; topics include exploration of collecting and preparing financial trading data, time series analysis, trend systems, momentum and mean reversal, arbitrage, backtesting, order execution, and reporting of risk and performance measures; tools, methods, and trading techniques are taught using the R programming language and using R Studio. **Prerequisites:** FINC 351 and FINC 361; ACCT 328 or concurrent enrollment.

FINC 440 Macro Finance

Credits 3. 3 Lecture Hours. Recent developments in the nature and causes of financial crises; the role of money; financial liquidity; financial leverage; financial stability regulation; unconventional monetary policy and macroprudential policy. **Prerequisites:** FINC 351 and FINC 361; FINC 381 or concurrent enrollment.

FINC 441 Private Equity - Insights, Industry Dynamics and Deal Making

Credits 3. 3 Lecture Hours. Roles of and interactions between private equity's main participants, the limited partners (LPs) and the general partners (GPs); history and growth of the private equity (PE) industry; business models of PE firms; performance metrics used by PE professionals; investment strategies of PE firms; study of deal-making, with special focus on leveraged buyout and venture capital funds. **Prerequisites:** FINC 351 and FINC 361; ACCT 328 or concurrent enrollment.

FINC 443 Valuation

Credits 3. 3 Lecture Hours. Theory and application of various approaches to corporate valuation; measuring and managing the value of companies; principles of value creation; fundamental valuation methodology; application of value creation principles to managerial problems; special cases and complex valuation issues. **Prerequisites:** FINC 351 and FINC 361; ACCT 328 or concurrent enrollment.

FINC 445/IBUS 446 International Finance

Credits 3. 3 Lecture Hours. International business transactions, balance of payments and exchange rate systems, exchange rate risk and hedging techniques, sources of funding, relation to international financial institutions and capital instruments; foreign direct investment; international asset and liability management. **Prerequisites:** FINC 351 and FINC 361; ACCT 328 or concurrent enrollment. **Cross Listing:** IBUS 446/FINC 445.

FINC 446 Technical Analysis of Financial Markets

Credits 3. 3 Lecture Hours. Use of price, volume and other non-fundamental, market and behavioral data to analyze and predict security prices; emphasis on pattern recognition and correlation analysis over theory and casual analysis; application of technical analysis as an investment discipline for institutional portfolio management; principles, terminology, techniques and emerging theories of technical analysis. **Prerequisites:** FINC 351 and FINC 361.

FINC 447/ACCT 447 Financial Statement Analysis

Credits 3. 3 Lecture Hours. Development of an analytical approach to financial statements, integrating relevant finance and accounting concepts and principles; current topics in financial analysis.

Prerequisites: Grade of C or better in ACCT 327 and FINC 341. **Cross Listing:** ACCT 447/FINC 447.

FINC 448 Advanced Investments

Credits 3. 3 Lecture Hours. Application of finance theory to complex investment problems; implementation of asset pricing models, portfolio theory and arbitrage strategies; implication of principles of market efficiency and behavioral finance for selection of individual securities and portfolios. **Prerequisites:** FINC 351 and FINC 361.

FINC 449 Financial Modeling

Credits 3. 3 Lecture Hours. Application of fundamental finance concepts to practical valuation problems and investment decisions; construction of Excel-based financial models in the context of specific situations such as company valuations, leveraged buyout (LBO) investments and mergers and acquisitions (M&As). **Prerequisite:** FINC 351 and FINC 361; ACCT 328 or concurrent enrollment.

FINC 462 Commercial Bank Management

Credits 3. 3 Lecture Hours. Problems confronting commercial banks such as development and application of credit standards, decisions on loan applications, liquidity management and profit sensitivity to varying levels of interest rates. **Prerequisite:** FINC 381 or concurrent enrollment.

FINC 463 Seminar in Commercial Banking

Credits 3. 3 Lecture Hours. Cases and problems on contemporary management challenges and problem-solving techniques in commercial banks. **Prerequisite:** Junior or senior classification and approval of instructor.

FINC 464 Commercial Credit Analysis

Credits 3. 3 Lecture Hours. Recognized techniques for assessing the ability and willingness of business firms to service debts as originally agreed; regulatory and ethical requirements for structuring and documenting commercial bank loans to protect interests of shareholders, depositors, and deposit insurers. **Prerequisites:** Junior or senior classification and approval of instructor.

FINC 465 Seminar in Investment Banking

Credits 3. 3 Lecture Hours. Cases and problems on fundamentals of valuing publicly and privately held firms, underwriting public and private offerings of debt and equity securities, managing capital market risks, complying with SEC and NASD regulations and managing other financial services commonly offered by investment banks. **Prerequisite:** Junior or senior classification and approval of instructor.

FINC 466 Wall Street, Investment Banking and the Financial Markets

Credits 3. 3 Lecture Hours. Experience, first-hand, the major financial markets of the United States; visits to major Wall Street firms, security and commodity exchanges, and other financial institutions. **Prerequisites:** FINC 351 and FINC 361 and approval of instructor.

FINC 468 Entrepreneurial Finance

Credits 3. 3 Lecture Hours. Analysis of financing for start-up or high-growth businesses; funding sources for early operations, including angel capital, private venture capital, corporate venture capital, strategic alliances and crowdfunding; exit strategies, including initial public offerings (IPO) and mergers and acquisition (M&A). **Prerequisites:** FINC 351 and FINC 361; ACCT 328 or concurrent enrollment.

FINC 472 Real Estate Finance

Credits 3. 3 Lecture Hours. Real estate financing instruments, institutions and techniques; trust deed financing, mortgage underwriting and risk analysis, primary and secondary mortgage markets and institutions. **Prerequisites:** FINC 351 and FINC 361; ACCT 328 or concurrent enrollment.

FINC 475 Real Estate Investment Analysis

Credits 3. 3 Lecture Hours. Real estate market analysis, equity investor decision criteria, institutional investment constraints and investment valuation; case analysis of specific real estate investment decisions. **Prerequisite:** FINC 351 and FINC 361; ACCT 328 or concurrent enrollment.

FINC 484 Professional Internship

Credits 1 to 6. 1 to 6 Other Hours. Professional internship with practicing professionals under the direction of a faculty member. Available for free elective only and must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** Finance major and approval of instructor and department head.

FINC 485 Directed Studies

Credits 0 to 6. 0 to 6 Other Hours. Directed study on selected problems in the area of finance not covered in other courses. **Prerequisites:** Approval of department head; FINC 351 and FINC 361; ACCT 328 or concurrent enrollment.

FINC 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected area in finance. May include attention to aspects of real estate finance, corporate financial management, investments, or financial institutions and markets. **Prerequisites:** Admission to upper division in Mays Business School and approval of instructor.

FINP - Financial Planning (FINP)

FINP 101 Introduction to Personal Finance

Credits 3. 3 Lecture Hours. Introduction to the Personal Financial Planning profession; overview of the process of financial planning; focus on using tools such as the financial calculator and Excel in the study of time value of money and household financial planning issues; overview of terminology and broad understanding of the practice of financial planning.

FINP 201 Professional Development in Financial Planning

Credit 1. 1 Lecture Hour. Introduction to the professional aspects of working in the financial planning industry to prepare for a successful internship and professional career.

FINP 235 Foundations of Money Education

Credits 3. 3 Lecture Hours. Preparation for a financially challenging world and introduction to concepts and methods of personal financial planning; financial planning process, time value of money, taxation, credit, housing, insurance, employee benefits, family economics and building a personal financial plan.

FINP 335 Financial Readiness

Credits 3. 3 Lecture Hours. Personal financial planning for those planning on joining the military; preparation for a financially challenging world and introduction to the concepts and methods of personal financial literacy, budgeting, cash management, debt, credit, deployment finances, insurance, retirement planning, investing, estate planning and taxation. **Prerequisites:** Junior or senior classification.

FINP 435 Financial Planning for Professionals

Credits 3. 3 Lecture Hours. Financial planning from a professional perspective; applying basic financial, economic and institutional concepts to advise individuals, families and small businesses in achieving their financial goals; tools and topics include financial analysis, budgeting, credit management, time value of money, investment strategies, income taxes, risk management, and retirement and estate planning. **Prerequisites:** AGEC 330, FINC 409 or FINC 341; junior or senior classification.

FINP 436 Insurance Planning

Credits 3. 3 Lecture Hours. Insurance planning for individuals, families and small businesses; applies risk management principles to evaluate various insurance products, including life, disability, long-term care, health, homeowners, auto and liability. **Prerequisites:** Grade of C or better in FINP 435; junior or senior classification.

FINP 437 Tax Planning

Credits 3. 3 Lecture Hours. Applies the principles of income, gift and estate tax planning to enhance household income after taxes; understanding tax laws, reporting requirements and opportunities for planning; identify and implement useful tax planning strategies; focus on practical application for financial planning. **Prerequisites:** Grade of C or better in FINP 435; junior or senior classification.

FINP 438 Investment Planning

Credits 3. 3 Lecture Hours. Applying investment principles considering families' goals, time horizons, risk tolerance and tax implications to build investment portfolios; attributes of various asset classes; asset allocation, selecting securities and portfolio management; developing successful investment programs for personal investors and financial planners. **Prerequisites:** Grade of C or better in FINP 435 or concurrent enrollment; junior or senior classification.

FINP 439 Retirement Planning

Credits 3. 3 Lecture Hours. Retirement planning basics, qualified and nonqualified retirement plans, Social Security provisions and government healthcare plans along with the basics of employee benefits; focus on both quantitative (i.e., calculating retirement needs and plan limits) and qualitative (i.e., retirement age decisions, retirement income management) aspects of retirement. **Prerequisites:** Grade of C or better in FINP 435, AGE 330, FINC 409, or FINC 341; junior or senior classification.

FINP 441 Financial Planning Capstone

Credits 3. 3 Lecture Hours. Financial planning process, data gathering, approaches to financial planning, analysis of financial statements and client presentation; case analysis, ethics and professional conduct, use of financial planning software, advanced financial calculator usage, and Microsoft Excel applications. **Prerequisites:** Grade of C or better in FINP 435, FINP 436, FINP 437, FINP 438, and FINP 439; junior or senior classification.

FINP 442 Estate Planning

Credits 3. 3 Lecture Hours. Application and creation of complex estate planning methodologies and policies within financial planning; emphasis on both development of estate strategy and coordination of estate management with legal professionals required of a financial planner in advising clients. **Prerequisites:** Grade of C or better in FINP 435.

FINP 443 Technology Applications in Financial Planning

Credits 3. 3 Lecture Hours. Preparation of students for the financial planning capstone course through development of proficiency in professional software packages and completion of mini financial planning cases. **Prerequisites:** Grade of C or better in FINP 435 or FINP 438.

FINP 489 Special Topics in...

Credits 1 to 4. 1 to 4 Other Hours. Selected topics in an identified area of financial planning. May be repeated for credit. **Prerequisites:** Junior or senior classification.

FIVS - Forensic & Inv Science (FIVS)

FIVS 101 Introduction to Academic Success in Forensic and Investigative Sciences

Credit 1. 1 Lecture Hour. Orientation to academic success within higher education and specifically the Bachelor of Science degree in forensic and investigative sciences; awareness of academic and campus support services available for student success; development of goals for academic and career planning, including creation and utilization of degree planner; awareness of personal self-management strategies, including learning styles, time management, goal setting, stress management and development of personal strategies for implementation of personal self-management into practice.

FIVS 102 Continuing Academic Success in Forensic and Investigative Sciences

Credit 1. 1 Lecture Hour. 0 Lab Hours. 0 Other Hours. Continued exploration to academic success within higher education and specifically the Bachelor of Science degree in Forensic and Investigative Sciences; increase awareness of academic and campus support services available for student success; develop goals for academic and career planning, including creation and utilization of degree planner; awareness of personal self-management strategies, including learning styles, time management, goal setting, stress management, and development of personal strategies for implementation of personal self-management into practice. Must be taken on a satisfactory/unsatisfactory basis.

Prerequisite: Grade of C or better in FIVS 101.

FIVS 123 Forensic Investigations

Credits 3. 3 Lecture Hours. Overview of forensics from incident scene to court room verdict; principles, concepts, tools and methodologies used in the science and practice of forensics; examination of various forensic fields; evidence recognition, analysis, interpretation and presentation to diverse audiences.

FIVS 205 Introduction to Forensic and Investigative Sciences

Credits 3. 3 Lecture Hours. Overview of principles, procedures, and concepts of forensic and investigative sciences; instruction in the definitions, scope, and use of tools, techniques and protocols in forensic applications used to resolve social, regulatory, and legal disputes. **Prerequisite:** Freshman or sophomore classification or approval of instructor.

FIVS 210 Forensic Photography

Credits 3. 2 Lecture Hours. 2 Lab Hours. Identification and application of techniques of the practice of photography as applied to forensics. **Prerequisite:** Grade of C or better in FIVS 205; FIVL or FIVS major.

FIVS 215 Forensic Microscopy

Credits 3. 2 Lecture Hours. 2 Lab Hours. Identification and application of techniques of the practice of microscopy as applied to forensics. **Prerequisite:** Grade of C or better in FIVS 205; FIVL or FIVS major.

FIVS 220 Impression Evidence

Credits 3. 2 Lecture Hours. 2 Lab Hours. Individual and class characteristics of footwear, tire track, impression evidence documentation, collection, test impression techniques, shoe and tire tread designs, sizing, manufacturing, wear characteristics, comparison techniques, courtroom preparation and testimony. **Prerequisites:** Grade of C or better in FIVS 210 or concurrent enrollment; FIVL or FIVS majors.

FIVS 282 Occupational and Professional Development

Credits 2. 2 Lecture Hours. Organized instruction in written and oral communication; acquaint students with private and public-sector companies and agencies as well as leading professionals from these firms to reinforce academic instruction and prepare students for the transition to employment, graduate and professional schools. **Prerequisites:** Grade of C or better in FIVS 205; FIVS majors only.

FIVS 285 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Directed individual study in forensic and investigative sciences. May be repeated for credit. **Prerequisites:** Freshman or sophomore classification; approval of instructor and department head.

FIVS 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of forensic and investigative sciences. May be repeated for credit.

FIVS 291 Research

Credits 0 to 4. 0 to 12 Lab Hours. Research conducted under the direction of a faculty member in forensic and investigative sciences. May be repeated for credit. **Prerequisite:** Freshman or sophomore classification.

FIVS 308 Forensic Implications of Inheritance

Credits 4. 3 Lecture Hours. 3 Lab Hours. Forensic genetics with an emphasis on human molecular genetics, population genetics, and genetic application in the forensic sciences. **Prerequisites:** Grade of C or better in BIOL 112; FIVS-SCE and FIVS-LWE majors; junior or senior classification.

FIVS 316 Biotechnology and Forensics

Credits 4. 3 Lecture Hours. 3 Lab Hours. Illustration of the use of a variety of biotechnology methods for forensic applications; appreciation and understanding of the underlying molecular biology techniques that are used in a diverse array of settings including blood analysis, blood typing, DNA fingerprinting and genetic testing; potential future use of advanced sequencing technologies for forensic applications; consideration of social, ethical and legal implications of these procedures and applications. **Prerequisites:** Grade of C or better in FIVS 308; FIVS-LWE or FIVS-SCE majors.

FIVS 401/SCSC 401 Forensic Soil Science

Credits 3. 2 Lecture Hours. 2 Lab Hours. Examination of soils biology, chemistry and physical attributes to solve crimes; soil and geologic characteristics associated with crime scene examination; physical, biological and chemical characteristics and use of trace evidence. **Prerequisite:** Grade of C or better in FIVS 282. **Cross Listing:** SCSC 401/ FIVS 401.

FIVS 405/CYBR 405 Applied Digital Forensics and Incident Response

Credits 3. 3 Lecture Hours. Collection of digital evidence; digital evidence analytics; analysis of log data; malware triage; recover damaged digital evidence; write technical reports on malware and incidents; legal and ethical components of digital forensic science. **Prerequisites:** Junior or senior classification. **Cross Listing:** CYBR 405.

FIVS 415 Practice and Principles of Science and Law

Credits 3. 3 Lecture Hours. Introduction to series of practitioners of forensic science and the justice system; receive instruction on principles, procedures, and practices used in solving legal and societal issues; examine scientific method and scientific knowledge as applied through expert testimony; enhance critical thinking and reasoning skills in studying and debating different positions of current issues of science and law. **Prerequisites:** Grade of C or better in FIVS 205 and FIVS 481; grade of C or better in FIVS 316 and FIVS 435, or concurrent enrollment; FIVS-LWE and FIVS-SCE majors.

FIVS 420 Controlled Substances

Credits 2. 2 Lecture Hours. Classification of effects of controlled substances in impaired individuals, sampling procedures and presumptive testing; history of the controlled substances act of 1970, federal drug scheduling, penalty groups in Texas, legislative complexity and challenges with new psychoactive substances, physiological, sociological, legal and societal aspects of controlled substance abuse. **Prerequisites:** Grade of C or better in FIVS 308; FIVS-LWE and FIVS-SCE majors.

FIVS 422 Crime Scene Investigation

Credits 3. 2 Lecture Hours. 3 Lab Hours. Principles, procedures, processes and hands-on experience for conducting investigations ranging from general crime scene to death investigations. **Prerequisites:** Grade of C or better in FIVS 205 or concurrent enrollment; FIVS-LWE and FIVS-SCE majors.

FIVS 431/ENTO 431 The Science of Forensic Entomology

Credits 3. 3 Lecture Hours. Explores the science, methodology and technology employed to gather, preserve and present information about insects and other arthropods in such a manner that this information can be used in courts of law as evidence and testimony to help resolve issues of a criminal or civil nature. **Prerequisites:** Junior or senior classification or approval of instructor. **Cross Listing:** ENTO 431/FIVS 431.

FIVS 432/ENTO 432 Applied Forensic Entomology

Credit 1. 3 Lab Hours. Laboratory-based offering practical experience using scientific information, methodology, technology, and legal procedures inherent to the field of forensic entomology; emphasis on collecting, preserving, and identifying information as evidence and expert witness testimony in courts of law. **Prerequisites:** Junior or senior classification or approval of instructor. **Cross Listing:** ENTO 432/ FIVS 432.

FIVS 435 Case Studies in Problem Solving

Credits 3. 3 Lecture Hours. Development of reasoning strategies by examining a variety of case studies; science and scientific method solving real-world problems as part of an investigative team.

Prerequisites: Grade of C or better in FIVS 316 and FIVS 481; grade of C or better in FIVS 415 or concurrent enrollment; FIVS-LWE and FIVS-SCE majors or approval of instructor.

FIVS 440 Forensic Communications

Credit 1. 1 Lecture Hour. Scientific writing and communication, critical thinking, reading, research, writing and oral skills. **Prerequisite:** Grade of C or better in FIVS 308.

FIVS 481 Seminar

Credit 1. 1 Other Hour. Analysis of research topics related to the fields of forensic science and law. May be taken 4 times for credit. **Prerequisites:** Grade of C or better in FIVS 282; FIVS-LWE and FIVS-SCE majors.

FIVS 484 Internship

Credits 0 to 4. 0 to 4 Other Hours. Independent study and supervised field experience related to a professional area or interest in forensic science. May be repeated for credit. **Prerequisite:** Junior or senior classification and approval of instructor.

FIVS 485 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Directed individual study in forensic and investigative sciences. May be repeated for credit. **Prerequisites:** Junior or senior classification; upper-division FIVS only; approval of instructor and department head.

FIVS 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of forensic and investigative sciences. May be repeated for credit.

FIVS 491 Research

Credits 0 to 4. 0 to 12 Lab Hours. Research conducted under the direction of a faculty member in forensic and investigative sciences. May be repeated for credit. **Prerequisite:** Junior or senior classification and approval of instructor.

FREN - French (FREN)

FREN 101 Beginning French I

Credits 4. 3 Lecture Hours. 2 Lab Hours. (FREN 1411) Beginning French I. Elementary language study with oral, written, and reading practice. Preparation for conversation. Part of class preparation will be done in language laboratory.

FREN 102 Beginning French II

Credits 4. 3 Lecture Hours. 2 Lab Hours. (FREN 1412) Beginning French II. Continuation of FREN 101. Part of class preparation will be done in language laboratory. **Prerequisite:** FREN 101.

FREN 201 Intermediate French I

Credits 3. 3 Lecture Hours. (FREN 2311) Intermediate French I. Readings of average difficulty. Review of grammar; practice in conversation and composition. **Prerequisite:** FREN 102.

FREN 202 Intermediate French II

Credits 3. 3 Lecture Hours. (FREN 2312) Intermediate French II. Continuation of FREN 201 with more advanced material. **Prerequisite:** FREN 201.

FREN 221 Field Studies I

Credits 3. 3 Other Hours. French language and culture taught in France; supervised travel of cultural interest; living with local families; participation in the activities and courses of a French university or institute; written and oral reports, exams. **Prerequisite:** FREN 102 with a grade of B or higher or approval of instructor; concurrent enrollment in FREN 222.

FREN 222 Field Studies II

Credits 3. 3 Other Hours. French language and literature taught in France in cooperation with a French university or institute; exams, written reports. **Prerequisite:** FREN 102 with a grade of B or higher or approval of instructor; concurrent enrollment in FREN 221.

FREN 285 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Individual supervision of readings or assigned projects in French, selected for each student individually. **Prerequisite:** Approval of instructor and department head.

FREN 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of French. May be repeated for credit. **Prerequisite:** Approval of instructor.

FREN 300 Written Communication in the French-Speaking World

Credits 3. 3 Lecture Hours. Strategies for effective communication in the written language; active production of a variety of narrative, expository, analytical, persuasive and epistolary texts with special attention to language appropriate to various social, professional and cultural contexts both in French and in the Francophone world; conducted in French. **Prerequisite:** FREN 202 or FREN 222.

FREN 301 French Society and Culture in Evolution

Credits 3. 3 Lecture Hours. Events, figures, monuments, laws and cultural productions, texts and events participating in the evolution of French institutions, religion, socio-economic structures, marriage, sexuality and identities from the Gallo-Roman period through May 1968; conducted in French. **Prerequisite:** FREN 202 or FREN 222.

FREN 306 Technical and Business French

Credits 3. 3 Lecture Hours. Advanced-intermediate course to provide cross-cultural communication skills crucial to succeeding in a francophone business or technical environment, including topics on business and technical jargon, correspondence, résumés, interviewing, the European Union, telecommunications, technology and the French-speaking community. **Prerequisite:** FREN 202 or FREN 222 or approval of instructor.

FREN 311 Oral Communication in the French-Speaking World

Credits 3. 3 Lecture Hours. Strategies for effective communication in the spoken language; case studies in economic, political, cultural, social and environmental issues as presented through the press and audio-visual media of France and the Francophone world; conducted in French. **Prerequisite:** FREN 202 or FREN 222.

FREN 321 French Literature I

Credits 3. 3 Lecture Hours. Representative works of French poetry, theater, essays and novels in the historical, cultural and political context of French society from the Middle Ages through the 18th century; conducted in French. **Prerequisite:** FREN 202 or FREN 222.

FREN 322 French Literature II

Credits 3. 3 Lecture Hours. Representative works of French and Francophone novels, plays, poetry and essays reflecting the societies and cultural experience of French-speaking people in the 19th, 20th and 21st centuries; conducted in French. **Prerequisite:** FREN 202 or FREN 222.

FREN 336 Politics, Culture and Society in Contemporary France

Credits 3. 3 Lecture Hours. Contemporary France. Salient aspects of present-day French society and culture, including government, demographics, immigration, education, families, gender roles, entertainment and leisure, social classes and cross-cultural tensions; conducted in French. **Prerequisite:** FREN 202 or FREN 222.

FREN 375 The Francophone World

Credits 3. 3 Lecture Hours. The peoples, cultures and societies of French-speaking communities outside of France, with special attention to their colonial origins and current issues of politics, identities and migrations as represented in the press and media as well as in works of film and literature; conducted in French. **Prerequisite:** FREN 202 or equivalent; junior or senior classification.

FREN 418 Seminar in French Civilization

Credits 3. 3 Lecture Hours. Discussions and observation of particular events and institutions crucial to the development of French society and culture; analysis of literary, artistic and cinematic representations of events and phenomena such as the French revolution, May 1968, and church and state relations; conducted in French. May be repeated for credit. **Prerequisites:** FREN 300 and FREN 301, FREN 306, FREN 311, FREN 321, FREN 322, FREN 336, or FREN 375.

FREN 422 Studies in Gender and French Literature

Credits 3. 3 Lecture Hours. The role of gender in the production, dissemination, reception and interpretation of literary texts in the French tradition, including continental France as well as the Francophone literatures of West Africa, Canada, and elsewhere; taught in English. **Prerequisite:** Junior or senior classification or approval of instructor.

FREN 425/FILM 425 French Film

Credits 3. 3 Lecture Hours. Overview of French cinema from its origins to the present; interpretation of French cultural history and politics through film; taught in English. **Prerequisites:** Junior or senior classification, or approval of instructor. **Cross Listing:** FILM 425/FREN 425.

FREN 481 Seminar in French and Francophone Studies

Credits 3. 3 Lecture Hours. In-depth exploration of topics in French and Francophone literature, culture, and/or film, involving individual student research projects. May be taken two times for credit as topics change. **Prerequisite:** Junior or senior classification or approval of instructor.

FREN 485 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Individual supervision of readings or assigned projects, selected for each student individually; written and oral reports. **Prerequisite:** Approval of instructor and department head.

FREN 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of French. May be repeated for credit. **Prerequisite:** Approval of instructor.

FREN 491 Research

Credits 1 to 3. 1 to 3 Other Hours. Research conducted under the direction of faculty member in French. May be taken three times for credit. **Prerequisites:** Junior or senior classification and approval of department head.

FSCI - Foundational Sciences (FSCI)

FSCI 281 Oceans and One Health Sophomore Seminar

Credit 1. 1 Lecture Hour. Science communications; including compilation and discussion of current topics related to human, animal or environmental health issues associated with coastal communities through weekly literature searches and readings; emphasis on scientific communication with peers in both oral and written forms. **Prerequisite:** Sophomore classification or approval of instructor.

FSCI 285 Directed Studies

Credits 1 to 6. 1 to 6 Other Hours. Directed studies and problems suited to analysis by individuals or small groups concerning special aspects of the coastal environment and human health. **Prerequisite:** Approval of instructor.

FSCI 289 Special Topics in...

Credits 1 to 4. 1 to 4 Other Hours. Study of selected topics in an identified area of foundational sciences. May be taken for credit up to eight hours. **Prerequisite:** Approval of instructor.

FSCI 334 One Health in Coastal Regions

Credits 3. 3 Lecture Hours. Exploration of One Health issues and the human-animal-ecosystem interface affecting populations in coastal regions; study of how these topics can be applied to address regional and global health and environmental challenges. **Prerequisite:** BIOL 111.

FSCI 360 Biochemistry

Credits 4. 4 Lecture Hours. Structure, function and reactivity of proteins, carbohydrates, lipids and nucleic acids; role of pH in biochemical reactions; enzyme kinetics and regulation; membrane structure and function; overview of the metabolic pathways; carbohydrate metabolism; lipid metabolism; metabolism of nitrogen containing compounds; nucleic acid synthesis. **Prerequisites:** BIOL 112 or MARB 215, and CHEM 228; junior or senior classification.

FSCI 428 Coastal Development and Human Health

Credits 3. 2 Lecture Hours. 2 Lab Hours. Exploration of public environmental health issues associated with urbanization in coastal areas; topics address population pressures on coasts, infectious and chronic disease, the natural and built environment, toxicology, sanitation, forms and media of pollution, and the application of environmental health science to coastal zone management. **Prerequisites:** CHEM 120 or equivalent; BIOL 112; junior or senior classification or approval of instructor.

FSCI 485 Directed Studies

Credits 1 to 6. 1 to 6 Other Hours. Directed studies and problems suited to analysis by individuals or small groups concerning special aspects of the coastal environment and human health. **Prerequisite:** Approval of instructor.

FSCI 489 Special Topics in...

Credits 1 to 4. 1 to 4 Other Hours. Study of selected topics in an identified area of foundational sciences. May be taken for credit up to eight hours. **Prerequisite:** Junior or senior classification or approval of instructor.

FSCI 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in Foundational Sciences. Registration in multiple sections of this course is possible within a given semester provided that the per semester credit hour limit is not exceeded. May be taken for credit up to four hours. **Prerequisite:** Junior or senior classification or approval of instructor.

FSTC - Food Science & Tech (FSTC)

FSTC 201 Food Science

Credits 3. 3 Lecture Hours. (AGRI 1329) Food Science. The fundamental biological, chemical and physical scientific principles associated with the study of foods; topics include food composition and nutrition, food additives and regulations, food safety and toxicology, food processing, food engineering, food biotechnology, product development and sensory evaluation.

FSTC 210/NUTR 210 Horizons in Nutrition and Food Science

Credit 1. 1 Lecture Hour. Introduction to nutrition and food science career opportunities through presentations by nutrition and food science researchers and industry professionals; addresses issues of professionalism including portfolio development, teamwork, and critical thinking skills. **Cross Listing:** NUTR 210/FSTC 210.

FSTC 281 Introduction to Fermentation and Brewing Sciences

Credits 3. 3 Lecture Hours. Master fermentation and brewing science, from microbial selection to bio-separation, ensuring food safety and quality compliance.

FSTC 285 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Directed study of selected problems in the area of food science. **Prerequisites:** Approval of instructor; 2.0 GPR in major and overall.

FSTC 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of food science and technology. May be repeated for credit. **Prerequisite:** Approval of instructor.

FSTC 291 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in food science and technology. May be repeated 2 times for credit. **Prerequisites:** Freshman or sophomore classification and approval of department head.

FSTC 300/NUTR 300 Religious and Ethnic Foods

Credits 3. 3 Lecture Hours. Understanding religious and ethnic foods with application to product development, production, and nutritional practices; emphasis on different food rules and priorities with attention given to different religious and ethnic groups within the US and around the world. **Prerequisites:** Junior or senior classification or approval of instructor; basic knowledge of food science and nutrition helpful. **Cross Listing:** NUTR 300/FSTC 300.

FSTC 305 Fundamental Baking

Credits 3. 2 Lecture Hours. 3 Lab Hours. Fundamentals of baking; chemical and physical properties of ingredients, methods of baking all products, fundamental reactions of dough, fermentation and oven baking. **Prerequisite:** CHEM 222 or CHEM 227 or approval of department head.

FSTC 311 Principles of Food Processing

Credits 3. 2 Lecture Hours. 3 Lab Hours. Principles and practices of canning, freezing, dehydration, pickling and specialty food manufacture; fundamental concepts of various techniques of preparation, processing, packaging and use of additives; processing plants visited. **Prerequisite:** FSTC 201; junior or senior classification or approval of department head or instructor.

FSTC 312 Food Chemistry

Credits 3. 3 Lecture Hours. The fundamental and relevant chemistry and functionality of the major food constituents (water, carbohydrates, lipids, proteins, phytochemical nutraceuticals) and study of food emulsion systems, acids, enzymes, gels, colors, flavors and toxins. **Prerequisite:** FSTC 201; CHEM 227; CHEM 237 or approval of department head or instructor.

FSTC 313 Food Chemistry Laboratory

Credit 1. 3 Lab Hours. Laboratory exercises investigating specific molecules, such as food acids, enzymes, pigments and flavors, and chemical interactions in foods, such as oxidation reactions, emulsion systems, and functional properties from a fundamental chemistry rather than an analytical perspective. **Prerequisite:** FSTC 201; CHEM 227; CHEM 237 or approval of department head or instructor.

FSTC 314 Food Analysis

Credits 3. 1 Lecture Hour. 4 Lab Hours. Selected standard methods for assay of food components; principles and methodology of both classical and instrumental techniques for food analysis. **Prerequisite:** FSTC 201; FSTC 311; CHEM 227; CHEM 237 or approval of department head or instructor.

FSTC 315/AGSM 315 Food Process Engineering Technology

Credits 3. 2 Lecture Hours. 2 Lab Hours. Elementary mechanics, physical and thermal properties of food and processing materials, heat transfer, mass and energy balances, psychrometrics (properties of air), insulation. **Prerequisites:** Grade of C or better in PHYS 201 or PHYS 206, or approval of instructor. **Cross Listing:** AGSM 315/FSTC 315.

FSTC 316 Food Biomanufacturing and Cellular Agriculture

Credits 3. 3 Lecture Hours. Exploration of fermentation science, cellular agriculture, alternative proteins, and lab techniques for bioprocessing, microbial communities, and food safety. **Prerequisites:** Junior or senior classification.

FSTC 319 Molecular Methods for Microbial Detection and Characterization

Credits 3. 2 Lecture Hours. 2 Lab Hours. Exploration of vital molecular methods crucial for identifying and characterizing microbial communities across industries such as fermentation and brewing. **Prerequisites:** BIOL 111, BIOL 112 or BIOL 206; junior or senior classification.

FSTC 320/NUTR 320 Understanding Obesity - A Social and Scientific Challenge

Credits 3. 3 Lecture Hours. Perspectives of obesity in food science, nutrition, health and psychology; study of obesity factors in relation to genetics, exercise physiology and sociology with emphasis on food and nutrition. **Prerequisites:** Junior or senior classification or approval of instructor. **Cross Listing:** NUTR 320/FSTC 320.

FSTC 324 Food Safety and Preventive Controls for Human Food

Credits 3. 3 Lecture Hours. Microbiological food spoilage, fermentation and safety; U.S. Food and Drug Administration (FDA) recognized curriculum for "preventive controls qualified individual" within the FDA Hazard Analysis and Risk-based Preventive Controls for Human Food regulation. **Prerequisites:** Junior or senior classification or approval of instructor.

FSTC 326/ANSC 326 Food Bacteriology

Credits 3. 3 Lecture Hours. Microbiology of human foods and accessory substances; raw and processed foods; physical, chemical and biological phases of spoilage; standard industry techniques of inspection and control. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** ANSC 326/FSTC 326.

FSTC 327/ANSC 327 Food Bacteriology Lab

Credit 1. 3 Lab Hours. Laboratory to accompany ANSC 326/FSTC 326 or FSTC 326/ANSC 326. **Cross Listing:** ANSC 327/FSTC 327.

FSTC 330 Dairy and Food Technology

Credits 4. 3 Lecture Hours. 3 Lab Hours. Principles and practices involved in processing of milk into market milk, butter, cheese and cheese foods; fundamental principles of these processes as related to their design and control.

FSTC 331 Dairy and Food Technology

Credits 4. 3 Lecture Hours. 3 Lab Hours. Manufacture of frozen, freeze-dehydrated, concentrated and dehydrated dairy foods; fundamental aspects of freezing, concentration and dehydration of foods.

Prerequisite: FSTC 330 or approval of department head.

FSTC 401 Food Product Development

Credits 3. 2 Lecture Hours. 3 Lab Hours. Design and develop food products using principles of food chemistry, food processing, nutrition, sensory analysis and statistics; team collaborate to improve food product characteristics to meet the needs of a changing society.

Prerequisites: FSTC 201, FSTC 311, FSTC 312, FSTC 313, FSTC 314, FSTC 315/AGSM 315, FSTC 326/ANSC 326, or concurrent enrollment; senior classification or approval of instructor.

FSTC 410/NUTR 410 Nutritional Pharmacometrics of Food Compounds

Credits 3. 3 Lecture Hours. Nutritional pharmacokinetics and pharmacodynamics of food compounds; specific examples of toxicological and pharmacological effects of food compounds.

Prerequisites: NUTR 201, NUTR 202, NUTR 203, CHEM 222, or CHEM 227, or approval of instructor; junior or senior classification. **Cross Listing:** NUTR 410/FSTC 410.

FSTC 416 Precision Fermentation and Future of Foods

Credits 3. 3 Lecture Hours. Exploration of precision fermentation; bioprocessing to gene editing, and its applications in sustainable food production. **Prerequisites:** Junior or senior classification.

FSTC 420 Supervised Research in Mediterranean Nutrition and Food Processing in Italy

Credits 3. 3 Other Hours. Exploration of principles of Mediterranean diet, European nutrition regulatory aspects, wine-making and food processing in Italy. **Prerequisites:** FSTC 201, NUTR 202, or NUTR 203; must be 18 years of age; class and tours taught in English; priority given to majors in FSTC or NUTR.

FSTC 422 Food Processing for Sustainable Nutrition in Brazil

Credits 3. 3 Other Hours. Sustainable nutrition and food processing in Brazil; hands-on learning at the Federal University of Vicosa, the Amazon Biotechnology Center, food processing plants and other research centers in the Amazon, central Brazil and Rio De Janeiro. **Prerequisites:** FSTC 201, NUTR 202, or NUTR 203; must be 18 years of age; class and tours taught in English; priority given to majors in FSTC or NUTR.

FSTC 430 Innovative Functional Food Ingredients

Credits 3. 3 Lecture Hours. Exploration of the impact of functional food ingredients on human health and the microbiome, processing, quality control, and regulatory compliance under FDA and FTC guidelines.

Prerequisites: FSTC 201 and FSTC 311, or FSTC 314, or FSTC 313; or approval of instructor.

FSTC 444 Fundamentals of Food Law

Credits 3. 3 Lecture Hours. History, development of, and fundamental principles behind current food regulations, including food labeling, adulteration, food safety, food additives, dietary supplements, and import and export laws; overview of government agency jurisdiction, international law and ethics. **Prerequisite:** FSTC 201; junior or senior classification.

FSTC 457/ANSC 457 Hazard Analysis and Critical Control Point System

Credits 3. 3 Lecture Hours. Hazard Analysis and Critical Control Point (HACCP) principles specifically related to meat and poultry; microbiological and process overviews; good manufacturing practices and standard operating procedures development. **Prerequisite:** FSTC 326/ANSC 326 or ANSC 326/FSTC 326, or approval of instructor. **Cross Listing:** ANSC 457/FSTC 457.

FSTC 470/ANSC 470 Quality Assurance for the Food Industry

Credits 3. 3 Lecture Hours. Principles of food system process control including statistical process control (SPC) and the tools required to assure uniform communication and understanding of quality assurance systems. **Prerequisite:** Junior or senior classification. **Cross Listing:** ANSC 470/FSTC 470.

FSTC 481 Seminar

Credit 1. 1 Lecture Hour. Guidelines and practice in journal article review and making effective technical presentations; strategies for conducting a job search; development of résumés and letters and interviewing targeted for careers in the food industry or graduate school. **Prerequisite:** Senior classification in food science and technology.

FSTC 484 Internship

Credits 0 to 6. 0 to 6 Other Hours. Professional internship or practical food science experience in the food industry, non-profit organization, or other entity by instructor. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** Junior or senior classification.

FSTC 485 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Directed study on selected problems in the area of food science not covered in other courses. **Prerequisites:** Junior or senior classification; approval of department head; 2.0 GPR in major and overall.

FSTC 487/ANSC 487 Sensory Evaluation of Foods

Credits 3. 2 Lecture Hours. 2 Lab Hours. Application of sensory science principles and practices to food systems including an understanding of discriminative, descriptive and consumer sensory techniques. **Prerequisites:** CHEM 222 or CHEM 228; junior or senior classification. **Cross Listing:** ANSC 487/FSTC 487.

FSTC 489 Special Topics in...

Credits 1 to 4. 1 to 4 Other Hours. Selected topics in an identified area of food science and technology. May be repeated for credit. **Prerequisite:** Junior or senior classification.

FSTC 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of a faculty member in food science. May be repeated 3 times for credit. Registration in multiple sections of this course are possible within a given semester provided that the per semester credit hour limit is not exceeded.

FYEX - First Year Experience (FYEX)

FYEX 101 First Year Experience

Credits 0. 0 Lecture Hours. Development of self-efficacy, self-awareness and a sense of purpose; active engagement in the learning environment inside and outside of the classroom; social integration within the university community; also taught at Galveston and Qatar campuses. Must be taken on a satisfactory/unsatisfactory basis.

GALV - TAMU-Galveston

GALV 101 Honors Seminar Connections

Credit 1. 1 Other Hour. Exploration of interdisciplinary connections between academic disciplines such as science and the humanities; focuses on the question to consider how science is embedded within culture; proposes the question on what it means to be human. **Prerequisites:** Acceptance to honors program.

GALV 201 Honors Research Methods

Credit 1. 1 Lecture Hour. Intensive interdisciplinary research; research practices, application of qualitative and quantitative research methods to questions; emphasis on social sciences and humanities. **Prerequisites:** Grade of C or better in GALV 101 or concurrent enrollment.

GALV 300 TAMUG Study Abroad

Credits 1 to 18. 1 to 18 Lecture Hours. For students in approved study abroad programs; may be repeated for credit.

GALV 301 TAMUG Study Abroad

Credits 1 to 18. 1 to 18 Lecture Hours. For students in approved study abroad programs, may be repeated for credit.

GALV 401 Honors Service Learning Seminar

Credit 1. 1 Other Hour. Focus on research on a particular issue; opportunity for discipline specific writing for publication. **Prerequisites:** Grade of C or better in GALV 101 or GALV 201, or approval of instructor.

GENE - Genetics (GENE)

GENE 101/BICH 101 Introduction to Biochemical and Genetics Research Methods

Credit 1. 1 Lecture Hour. Foundational concepts for biochemistry and genetics research methods; topics include principles of the scientific method, experimental design, analytical tools, and logical thinking, with a special focus on the use of emerging technologies such as artificial intelligence (AI) in biochemical and genetics research. **Prerequisite:** Freshman classification in biochemistry or genetics. **Cross Listing:** BICH 101/GENE 101.

GENE 102/BICH 102 Introduction to Biochemical and Genetic Techniques

Credit 1. 2 Lab Hours. Introduction to biochemistry and genetics essential techniques; concepts learned from BICH/GENE 101/BICH 101 utilized in practical laboratory situations to understand the relevance and use of these techniques in real-world research settings. **Prerequisites:** Grade of C or better in BICH 101/GENE 101 or GENE 101/BICH 101; freshman classification in biochemistry or genetics. **Cross Listing:** BICH 102/GENE 102.

GENE 201/BICH 201 Introduction to Information Literacy and Artificial Intelligence Tools for Biochemistry and Genetics

Credit 1. 1 Lecture Hour. Introduction to essential skills and knowledge for effective learning, information retrieval, evaluation, and utilization of AI tools in the fields of biochemistry and genetics; developing critical thinking abilities, learning to navigate scientific literature, evaluating the credibility of information sources, and leveraging AI tools to enhance their research and problem-solving capabilities. **Prerequisites:** Grade of C or better in BICH 102/GENE 102 or GENE 102/BICH 102; sophomore classification in biochemistry or genetics. **Cross Listing:** BICH 201/GENE 201.

GENE 202/BICH 202 Biochemical and Genetic Concepts in Medicine - Case Studies

Credit 1. 1 Lecture Hour. Exploration of the link between fundamental genetic and biochemical processes and disease states, using case studies of several human diseases; deeper comprehension and critical thinking about molecular causes of diseases and treatment strategies. **Prerequisites:** Grade of C or better in BICH 201/GENE 201 or GENE 201/BICH 201; sophomore classification in biochemistry or genetics. **Cross Listing:** BICH 202/GENE 202.

GENE 285 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Introduction to laboratory research. **Prerequisite:** Freshman or sophomore classification in genetics or approval of instructor.

GENE 301 Comprehensive Genetics

Credits 3. 3 Lecture Hours. Survey of the fundamental principles of genetics: Physical basis of Mendelian inheritance, expression and interaction of genes, linkage, sex linkage, biochemical nature of genetic material and mutation. Only one of the following will satisfy the requirements for a degree: GENE 301, GENE 302, GENE 315 or GENE 320/BIMS 320. Not open to biochemistry or genetics majors. **Prerequisite:** BIOL 111.

GENE 302 Principles of Genetics

Credits 3. 3 Lecture Hours. Mechanisms of inheritance, stressing the conservation of fundamental genetic processes throughout evolution, from bacteria to humans; mutations and phenotypes, Mendelian genetics, population genetics and evolution, and complex inheritance. Course designed for biochemistry, genetics and all majors in biology. Only one of the following will satisfy the requirements for a degree: GENE 301, GENE 302, GENE 315 or GENE 320/BIMS 320. **Prerequisite:** BIOL 112; concurrent enrollment in GENE 314.

GENE 303 Fundamentals of Genetics

Credits 3. 3 Lecture Hours. Exploration of mechanisms of inheritance and Mendelian genetics; topics include the conservation of fundamental genetic processes throughout evolution, the relationship between mutations and phenotypes, principles of population genetics and complex inheritance, along with other topics. **Prerequisites:** BIOL 112; grade of C or better in GENE 314 or concurrent enrollment; biochemistry or genetics majors.

GENE 310 Principles of Heredity

Credits 3. 3 Lecture Hours. Basic principles of classical genetics, molecular genetics, mutation theory and genetic engineering; emphasis on humans and society. Not open to biochemistry and genetics majors. **Prerequisite:** Junior classification.

GENE 312 Comprehensive Genetics Laboratory

Credit 1. 0 Lecture Hours. 3 Lab Hours. Exercises in Mendelian genetics, meiosis, probability theory in pedigrees, population and quantitative genetics, as well as interaction of genes and linkage; molecular techniques to examine DNA and analyze genetic outcomes **Prerequisite:** GENE 301 or concurrent enrollment.

GENE 314 Principles of Genetics Laboratory

Credit 1. 3 Lab Hours. Exercises in Mendelian genetics including population genetics, evolution from bacteria to humans, conservation of fundamental genetic processes, and mutations; molecular techniques to examine DNA and analyze outcomes including complex inheritance and diagnostics. **Prerequisites:** GENE 302, GENE 303, or concurrent enrollment; biochemistry, genetics and biology majors.

GENE 320/BIMS 320 Biomedical Genetics

Credits 3. 3 Lecture Hours. Fundamental genetic principles as applied to biomedical science; Mendelian inheritance, linkage and genetic mapping, mutagenesis and pedigree analysis; molecular basis of gene function and inherited disease; gene therapy and genetic counseling. Only one of the following will satisfy the requirements for a degree: GENE 301, GENE 302, GENE 315, GENE 320/BIMS 320, or BIMS 320/GENE 320. **Prerequisites:** Grade of C or better in CHEM 228 or CHEM 258; PHYS 207 or grade of C or better in PHYS 202; junior or senior classification. **Cross Listing:** BIMS 320/GENE 320.

GENE 405/BIMS 405 Mammalian Genetics

Credits 3. 3 Lecture Hours. Comparative mammalian genetic systems with emphasis on laboratory animals; organization and expression of mammalian genes; development and use of genetically defined animals in biomedical and genetic research. **Prerequisite:** GENE 301, BIMS 320/GENE 320 or GENE 320/BIMS 320; junior or senior classification. **Cross Listing:** BIMS 405/GENE 405.

GENE 406/BIOL 406 Bacterial Genetics

Credits 3. 3 Lecture Hours. A problem oriented course surveying the manipulation and mechanisms of genetic systems in bacteria; recombination, gene structure and regulation of bacterial genes, plasmids and phages. **Prerequisites:** GENE 302; BIOL 351. **Cross Listing:** BIOL 406/GENE 406.

GENE 411/SCSC 411 Biotechnology for Crop Improvement

Credits 3. 3 Lecture Hours. Use of biotechnology to improve agricultural, horticultural and forest crops; techniques and methods used and case studies where biotechnology has been used to alter traits such as pathogen resistance, protein or oil consumption, ripening, fertility and wood properties. **Prerequisite:** BIOL 111 or equivalent, or approval of instructor. **Cross Listing:** SCSC 411/GENE 411.

GENE 412 Population, Quantitative and Ecological Genetics

Credits 3. 3 Lecture Hours. Concepts of population, quantitative and ecological genetics including dynamics of natural populations with emphasis on quantitative effects and ecological interactions.

Prerequisites: GENE 301, GENE 302, or GENE 303.

GENE 416/BICH 416 Mechanisms of Cell Division

Credit 1. 1 Lecture Hour. Mitotic cell cycle; progression of biochemical and morphological phases and events; duplication of cellular constituents and segregation into daughter cells. **Prerequisites:** BICH 409, BICH 410, or BICH 440; junior or senior classification in biochemistry or genetics. **Cross Listing:** BICH 416/GENE 416.

GENE 419/BICH 419 Computational Techniques for Evolutionary Analysis

Credits 3. 3 Lecture Hours. Computational techniques for studying evolution; algorithms for construction and analysis of evolutionary relationships. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** BICH 419/GENE 419.

GENE 420/BICH 420 Bioethics

Credits 3. 3 Lecture Hours. The application of ethical theory to the use of modern genetics and biochemistry stressing the social implications of genetic engineering, agricultural manipulation and biotechnology.

Prerequisites: GENE 302 or GENE 303; BICH 409, BICH 410, or BICH 440. **Cross Listing:** BICH 420/GENE 420.

GENE 421/BIMS 421 Advanced Human Genetics

Credits 3. 3 Lecture Hours. A rigorous, analytical approach to genetic analysis of humans including diagnosis and management of genetic disease in humans; transmission of genes in human populations; human cytogenetics; the structure of human genes; human gene mapping; molecular analysis of genetic disease; genetics screening and counseling. **Prerequisites:** GENE 302; BICH 410 or BICH 440. **Cross Listing:** BIMS 421/GENE 421.

GENE 431/BICH 431 Molecular Genetics

Credits 3. 3 Lecture Hours. Molecular basis for inheritance; gene structure and function, chromosomal organization, replication and repair of DNA, transcription and translation, the genetic code, regulation of gene expression, genetic differentiation and genetic manipulations.

Prerequisite: BICH 409, BICH 410, or BICH 440; GENE 301, GENE 302, GENE 303, GENE 320/BIMS 320 or BIMS 320/GENE 320. **Cross Listing:** BICH 431/GENE 431.

GENE 432/BICH 432 Laboratory in Molecular Genetics

Credits 2. 6 Lab Hours. Laboratory for molecular genetics providing technical experience with tools of molecular biology. **Prerequisite:** GENE 301, GENE 302, GENE 303, BIMS 320/GENE 320 or GENE 320/BIMS 320; BICH 431/GENE 431 or GENE 431/BICH 431. **Cross Listing:** BICH 432/GENE 432.

GENE 464/BICH 464 Bacteriophage Genomics

Credits 3. 1 Lecture Hour. 4 Lab Hours. Examination of the latest technologies in genomic analysis by sequencing and annotating the genomes of novel bacterial viruses (phage); generates real data which will be submitted to the NIH/NCBI public database; includes phage biology and potential uses. **Prerequisites:** GENE 302 or GENE 303; BIOL 351 or concurrent enrollment. **Cross Listing:** BICH 464/GENE 464.

GENE 485 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Directed study in genetics not included in established courses. **Prerequisites:** Junior or senior classification; approval of instructor and department head.

GENE 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of genetics. May be repeated for credit. **Prerequisite:** Approval of instructor.

GENE 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Laboratory research supervised by a faculty member. **Prerequisites:** Major in genetics; junior or senior classification in genetics or approval of instructor.

GEOG - Geography (GEOG)

GEOG 201 Introduction to Human Geography

Credits 3. 3 Lecture Hours. (GEOG 1302) Introduction to Human Geography. A survey of the major systems of man-land relations of the world and their dissimilar developments; the processes of innovation, diffusion, and adaptation stressed with regard to changing relationships between people and their environment; also taught at Galveston campus.

GEOG 202 Geography of the Global Village

Credits 3. 3 Lecture Hours. (GEOG 1303) Geography of the Global Village. Survey of world regions; globalization; environmental problems at multiple scales; human-environment interactions; cultural coherence and diversity; population and settlement; geopolitics; social and economic development; place identification; also taught at Galveston campus.

GEOG 203 Planet Earth

Credits 3. 3 Lecture Hours. (GEOG 1301) Planet Earth. Earth's physical environment including climate, water, landforms, and ecosystems; processes that control these systems and their global distributions; human effects on these processes.

GEOG 205 Environmental Change

Credits 3. 3 Lecture Hours. Systems perspective on important attributes, elements, and connections within earth's physical environment; dynamic nature of environment at multiple spatial and temporal scales.

GEOG 213 Planet Earth Lab

Credit 1. 3 Lab Hours. Exercises and maps to illustrate principles of physical geography.

GEOG 215 Geospatial Cornerstone

Credit 1. 1 Lecture Hour. Professional career options, methods, strategies and skills involved in successful career planning in the geospatial sciences; highlights high impact learning opportunities such as study abroad and internships and the development of scientific communication skills. **Prerequisites:** GEOG and GIST majors; sophomore classification or approval of instructor.

GEOG 232 Cartography and Visualization

Credits 3. 2 Lecture Hours. 3 Lab Hours. Introduction to science and art of map production; principles of thematic map compilation and design; history of thematic mapping; map projections; data management and symbolization; common types and styles of thematic maps.

GEOG 285 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Individually-supervised research or intensive study on topics not covered in regular courses. **Prerequisite:** Approval of department head.

GEOG 289 Special Topics In...

Credits 1 to 4. 1 to 4 Other Hours. Selected topics in an identified area of geography. May be repeated for credit. **Prerequisite:** GEOG, GIST or USGE majors, or approval of instructor.

GEOG 291 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in geography. May be taken 2 times for credit. Registration in multiple sections of this course is possible within a given semester provided that the per semester credit hour limit is not exceeded. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

GEOG 301 Geography of the United States

Credits 3. 3 Lecture Hours. Geographic personality (physical and cultural) of the United States; also taught at Galveston campus.

GEOG 303 Health Geography

Credits 3. 3 Lecture Hours. Overview of health-related issues within society, including diseases, healthcare services, access to healthcare, environmental health, food and nutrition, urban health, neighborhood health, climate and health using geographical approaches. **Prerequisites:** Junior or senior classification.

GEOG 304 Economic Geography

Credits 3. 3 Lecture Hours. Location of economic activities over the earth; distribution of agriculture, manufacturing, tertiary activities and transportation; economic growth of areas.

GEOG 305 Geography of Texas

Credits 3. 3 Lecture Hours. Exploration into the geographic personality of Texas: past and current physical and biotic environments; cultural pluralism, including ethnic origins and distinctive human ecologies; and the social, economic and political sources of environmental problems.

GEOG 306 Introduction to Urban Geography

Credits 3. 3 Lecture Hours. Reasons humankind tends to congregate in cities. Overview of patterns in the geographic distribution of cities, and in the geographic distribution of peoples and activities within cities, and the dynamics of these distributions.

GEOG 309 Geography of Energy

Credits 3. 3 Lecture Hours. Development of high-energy society; renewable and nonrenewable energy resources and systems; physical and social economies of energy use; geography of energy systems; energy problems and decisions; energy governance; dependence of other resources on energy; decarbonization policies and scenarios; alternative energy futures. **Prerequisite:** Junior classification or approval of instructor.

GEOG 311 Cultural Geography

Credits 3. 3 Lecture Hours. Human factors which affect man-land relationship; concept of culture, culture areas; population growth and migrations, types of economic activity, urban and transportation geography.

GEOG 312 Data Analysis in Geography

Credits 3. 3 Lecture Hours. Foundation for collection and analysis of quantitative and qualitative geographic data; emphasis on hands-on, practical experience with commonly used analysis software and qualitative methods including interviewing and archival research; problems commonly encountered in dealing with data. **Prerequisite:** STAT 303.

GEOG 320 The Middle East

Credits 3. 3 Lecture Hours. Regional geography of the Middle East; physical setting and the historical evolution of Middle Eastern landscapes; current issues. **Prerequisites:** Junior or senior classification.

GEOG 323 Geography of Latin America

Credits 3. 3 Lecture Hours. Physical and cultural characteristics of Latin America; physical landscape, cultural succession and the present cultural landscape; details on sub-regions.

GEOG 324 Global Climatic Regions

Credits 3. 3 Lecture Hours. Climatological processes and their consequences for spatial distributions of climates; survey of earth's climates; relationships among climate, landforms, vegetation, soils and humans. **Prerequisite:** GEOG 203 or ATM0 201 or approval of instructor.

GEOG 325 Geography of Europe

Credits 3. 3 Lecture Hours. Regional geography of European landmass; global, political and cultural characteristics of European geography in historical and ecological contexts. **Prerequisite:** Junior or senior classification.

GEOG 330 Resources and the Environment

Credits 3. 3 Lecture Hours. Changing demand for land and sea resources; international conditions of population growth, resource depletion and geopolitical control; resource perceptions and decision-making.

GEOG 331 Geomorphology

Credits 3. 2 Lecture Hours. 3 Lab Hours. Principles and fundamentals of landform analysis. Laboratory work in advanced map interpretation. **Prerequisite:** GEOL 101 or GEOG 203; also taught at Galveston campus.

GEOG 335 Pattern and Process in Biogeography

Credits 3. 3 Lecture Hours. Distribution of organisms across the earth and on environmental and cultural processes that have contributed to these patterns of distribution; dynamic nature of biogeographic patterns; impacts of contemporary and prehistoric humans on plant and animal distributions; methods for exploring biogeographic patterns and detecting change. **Prerequisite:** Junior or senior classification.

GEOG 352/GEOL 352 GNSS in the Geosciences

Credits 3. 2 Lecture Hours. 3 Lab Hours. Fundamentals of Global Navigation Satellite Systems (GNSS); basic geodesy, figure of the earth; frames of reference, map projection, datums, ellipsoids; GPS accuracy and precision; applications in earth resource mapping and database creation; elementary GPS phase data processing. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** GEOL 352/ GEOG 352.

GEOG 360 Natural Hazards

Credits 3. 3 Lecture Hours. Introduction to the types and causes of natural events that pose risk to society; an examination of prevailing concepts and theories of human response and vulnerability; characteristics of natural events; natural hazard paradigms; case studies. **Prerequisites:** GEOG 203 or GEOL 101; junior or senior classification; also taught at Galveston campus.

GEOG 361 Remote Sensing in Geosciences

Credits 4. 3 Lecture Hours. 2 Lab Hours. Introduction to the principles, techniques and applications of remote sensing technology in geosciences including the analysis and interpretation of airborne and spaceborne remote sensing data for studying key earth system processes. **Prerequisite:** Junior or senior classification.

GEOG 370/MARS 370 Coastal Processes

Credits 3. 3 Lecture Hours. Introduction to the coastal system, waves and wave dominated coasts, shoreline morphodynamics, tidal and lake coasts, long term coastal development, sea level changes, subtidal and beach ecosystems, coastal dunes and wetlands, structures and organizations, coastal management and coastal hazards. **Cross Listing:** MARS 370/GEOG 370.

GEOG 380 Workshop in Environmental Studies

Credits 2 to 6. 2 to 6 Lab Hours. The study, understanding and solution of human environment problems based on principles learned in the classroom; library, laboratory and field work carried out by individuals and in groups; reports on work accomplished. May be repeated for credit as many as three times. **Prerequisite:** GEOG 330.

GEOG 390 Principles of Geographic Information Systems

Credits 4. 3 Lecture Hours. 2 Lab Hours. Basic concepts of design, planning and implementation of geographic information systems. **Prerequisite:** Junior or senior classification.

GEOG 391 Geodatabases

Credits 4. 3 Lecture Hours. 2 Lab Hours. GIS data modeling; introductory and advanced spatial SQL (structured query language); spatial database management system (DBMS) server setup, management and maintenance; spatial DBMS design, implementation, tuning, performance analysis and indexing; connecting spatial data services and warehouses to GIS software. **Prerequisite:** Junior or senior classification.

GEOG 392 GIS Programming

Credits 4. 3 Lecture Hours. 2 Lab Hours. Programming for geographic information science applications; principles of programming syntax and data structures; development of custom GIS programs; integration of programs into commercial GIS platforms. **Prerequisites:** GEOG 390 or equivalent, or approval of instructor; junior or senior classification.

GEOG 395 Cartography and Geovisualization

Credits 4. 3 Lecture Hours. 2 Lab Hours. Cartographic and data visualization applications of Geographic Information Systems (GIS); theory and practice of cartographic decisions and design; user interface, map design, and visualization of geospatial, spatiotemporal, 3D, and big data; designed map experiences for different environments and purposes. **Prerequisites:** GEOG 390.

GEOG 398 Interpretation of Aerial Photographs

Credits 3. 2 Lecture Hours. 3 Lab Hours. Identification and evaluation of natural and cultural features on aerial photographs; methods for extracting information concerning land use, vegetative cover, surface and structural features, urban/industrial patterns and archaeological sites. **Prerequisites:** Junior or senior classification or approval of instructor.

GEOG 400 Arid Lands Geomorphology

Credits 3. 3 Lecture Hours. Introduction to the geomorphology of deserts; processes, origin and evolution of arid lands; urban geomorphology in drylands; desertification.

GEOG 401 Political Geography

Credits 3. 3 Lecture Hours. The political process at a variety of geographic scales: international, intranational and urban; origins of territorial organization and conflicts over access to and use of space and its resources.

GEOG 405 Field Trips

Credits 1 to 4. 1 to 4 Other Hours. Supervised field trip to investigate the physical, economic and cultural processes that influence the spatial development and distribution on the landscape. May be repeated for credit. **Prerequisites:** GEOG 201, GEOG 202, GEOG 203 or GEOG 205, or concurrent enrollment; approval of instructor.

GEOG 406 Geographic Perspectives on Contemporary Urban Issues

Credits 3. 3 Lecture Hours. Contemporary readings on spatial patterns and processes in urban environments; sprawl; human-environment interaction; housing; development and growth; concept of place; scale; power and policy. **Prerequisite:** GEOG 304 or GEOG 306 or equivalent.

GEOG 409 Geographies of Decarbonization

Credits 3. 3 Lecture Hours. Geographical analysis of decarbonizing energy systems; territorialization and justice processes associated with decarbonization; implications of decarbonization for places and landscapes; influence of path dependencies and institutions on decarbonization. **Prerequisites:** GEOG 330 or GEOG 309 or approval of instructor.

GEOG 410/OCNG 412 Global Change

Credits 3. 3 Lecture Hours. The interaction of the earth, atmosphere, oceans, cryosphere and life, including the impact of human society on the environment and climate; global change modeling; politics, policy and decision making; and personal awareness. **Prerequisite:** Junior or senior classification. **Cross Listing:** OCNG 412/GEOG 410.

GEOG 420 Geography of Terrorism

Credits 3. 3 Lecture Hours. Exploration of global terrorism and counter terrorism; regional conflicts and mass violence; construction of places and regions associated with terror; American reactions to global terrorism. **Prerequisite:** Junior or senior classification.

GEOG 430 Environmental Justice

Credits 3. 3 Lecture Hours. Exploration into the spatial variability and human geography of exposure to environmental hazards in U.S. and international contexts; emphasizes environmental equity and environmental racism as it relates to occupational, leisure, and residential geography. **Prerequisites:** GEOG 201 or GEOG 202; junior or senior classification.

GEOG 434 Hydrology and Environment

Credits 4. 3 Lecture Hours. 2 Lab Hours. Examination of hydrologic processes in relation to climate, soils, vegetation, land use practices, and human impacts; natural scientific perspectives emphasized; field and laboratory included. **Prerequisite:** GEOG 203 or equivalent.

GEOG 435 Principles of Plant Geography

Credits 3. 2 Lecture Hours. 3 Lab Hours. Plant distributions, their associations and environmental relationships; survey of the principal explanatory systems; field and laboratory study of area patterns at various geographic scales. A weekend field trip is required. **Prerequisite:** BIOL 101 or BIOL 107 or BIOL 301 or approval of instructor.

GEOG 440 History and Nature of Geography

Credits 3. 3 Lecture Hours. Summary of classical knowledge of world; development of thought on nature of geography from 1800 to present. **Prerequisite:** Junior or senior classification.

GEOG 442/GEOL 442 Past Climates

Credits 3. 3 Lecture Hours. Terrestrial and marine proxy records of past climate variability, including tree rings, coral, and sediments; past climate change events such as the Little Ice Age and Medieval Warm Period; greenhouse gases and global temperature; insight into the nature of climate change and challenges humankind faces in the next few centuries. **Prerequisites:** GEOL 101, GEOL 104, GEOL 150, ATMO 201, GEOG 203, or OCNG 251; junior or senior classification. **Cross Listing:** GEOL 442/GEOG 442.

GEOG 443/GEOL 443 Global Biogeochemical Cycles

Credits 3. 3 Lecture Hours. Use of biogeochemical cycles to study the Earth system; description of movement and transformation of major elements such as C, N, P and trace elements; flux of material in and out of atmosphere, hydrosphere, pedosphere, and lithosphere; chemical and physical transformations that occur in Earth system. **Prerequisites:** CHEM 119 and CHEM 120; select two from ATMO 201, or OCNG 251, or GEOG 203 or GEOG 205, or GEOL 101 or GEOL 104 or GEOL 150. **Cross Listing:** GEOL 443/GEOG 443.

GEOG 450 Field Geography

Credits 3. 1 Lecture Hour. 6 Lab Hours. Introduction to field methods; documenting materials, reconnaissance, the field plan; mapping traverse, base maps and aerial photographs; recording techniques; interview procedures. Fields trips required, some on weekends and/or semester breaks, for which departmental fees may be assessed to cover costs. **Prerequisite:** 15 hours of geography or equivalent.

GEOG 461 Digital Image Processing in the Geosciences

Credits 4. 3 Lecture Hours. 2 Lab Hours. Key remote-sensing digital image processing methods; advanced topics in feature extraction, radiometric calibration, image enhancement, pattern recognition and geoscience applications. **Prerequisite:** GEOG 361 or equivalent and junior or senior classification.

GEOG 462/ECCB 406 Advanced GIS Analysis for Natural Resources Management

Credits 3. 2 Lecture Hours. 2 Lab Hours. Advanced topics in geographic information systems (GIS) to solve natural resource problems; manipulation of raster data types; three-dimensional modeling; emphasis on geoprocessing as it relates to applied projects particularly with habitat suitability models; field and lab use of global positioning systems (GPS); internet-based GIS modeling. **Prerequisites:** ECCB 351, RWFM 351, or AGSM 461, or equivalent, or approval of instructor; junior or senior classification. **Cross Listing:** ECCB 406/GEOG 462.

GEOG 467 Dynamic Modeling of Earth and Environmental Systems

Credits 4. 3 Lecture Hours. 2 Lab Hours. Dynamical systems modeling; key concepts and processes in earth and environmental systems; human impact on these systems; model building and testing; system behavior over time; model validation and sensitivity; examples from the applications in earth and environmental sciences. **Prerequisite:** GEOG 203 or approval of instructor.

GEOG 475 Advanced Topics in GIS (Geographic Information Systems)

Credits 4. 3 Lecture Hours. 2 Lab Hours. Advanced Topics in Geographic Information Systems. Topics related to GIS implementation, spatial database design, spatial data analysis, and various advanced GIS applications. **Prerequisite:** GEOG 390 or equivalent.

GEOG 476 GIS Practicum

Credits 3. 3 Other Hours. Introduction to current topics in Geographic Information Science including ethical and legal issues surrounding spatial technologies, proper GIS management practices and professional certification; development of professional research, technical and communication skills through participation in a coordinated internship or independent research project. Meets writing-intensive course requirements for environmental geosciences, environmental studies and geography majors. **Prerequisites:** Senior classification and enrollment in Geographic Information Science and Technology or approval of instructor.

GEOG 477 Terrain Analysis and Mapping

Credits 4. 3 Lecture Hours. 2 Lab Hours. Geomorphometry for land surface characterization; fundamentals of terrain analysis; theory of land surface dynamics; application of software for digital terrain modeling and analysis. **Prerequisites:** GEOG 361 and GEOG 390 or equivalents, or approval of instructor; junior or senior classification.

GEOG 478 WebGIS

Credits 4. 3 Lecture Hours. 2 Lab Hours. Investigation of web-based geographic information systems; introduction to server-oriented architectures for web-based applications and services; development of web applications; management of web servers, web services and databases. **Prerequisites:** GEOG 390 or equivalent, or approval of instructor; junior or senior classification.

GEOG 479 Principles of Geocomputation

Credits 4. 3 Lecture Hours. 2 Lab Hours. Geocomputation including geospatial technologies, computational techniques and algorithms utilizing high-performance computing; fundamental geocomputation principles, artificial and computational intelligence. **Prerequisites:** GEOG 361, GEOG 390, GEOG 475; CSCE 110 or CSCE 111.

GEOG 484 Internship

Credits 0 to 12. 0 to 12 Lecture Hours. Directed internship in a private firm, government agency or non-governmental organization to provide work experience related to the student's degree program and career objectives. **Prerequisites:** Junior or senior classification and approval of internship agency and departmental internship director.

GEOG 485 Directed Studies

Credits 1 to 23. 1 to 23 Other Hours. Individually supervised research or advanced study on restricted areas not covered in regular courses. **Prerequisite:** Approval of department head.

GEOG 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of geography. May be repeated for credit. **Prerequisite:** Approval of instructor.

GEOG 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in geography. May be repeated for credit. Registration in multiple sections of this course is possible within a given semester provided that the per semester credit hour limit is not exceeded. **Prerequisites:** Junior or senior classification and approval of instructor.

GEOL - Geology (GEOL)

GEOL 101 Principles of Geology

Credits 3. 3 Lecture Hours. (GEOL 1303, GEOL 1403*) Principles of Geology. Physical and chemical nature of the Earth and dynamic processes that shape it; plate tectonics, Earth's interior, materials it is made of, age and evolution, earthquakes, volcanism, erosion and deposition; introduces physical and chemical principles applied to the Earth; also taught at Galveston campus. Not open to students who have taken GEOL 103 or GEOL 104.

GEOL 102 Principles of Geology Laboratory

Credit 1. 2 Lab Hours. (GEOL 1103, GEOL 1403*) Principles of Geology Laboratory. Laboratory exercise-based introduction to the physical and chemical nature of the Earth and dynamic process that shape it; rock and mineral types; topographic and geologic maps; complements GEOL 101 but can be taken independently; also taught at Galveston campus.

GEOL 104 Physical Geology

Credits 4. 3 Lecture Hours. 3 Lab Hours. Earth materials, structures, external and internal characteristics; physical processes at work upon or within the planet. A working knowledge of high school chemistry and mathematics is required; also taught at Qatar campus.

GEOL 106 Historical Geology

Credits 4. 3 Lecture Hours. 3 Lab Hours. (GEOL 1104 and 1304, 1404) Historical Geology. Hypotheses of Earth's origin; age dating of geologic materials; development and history of life; plate tectonic reconstructions, geologic history, and paleogeography, with emphasis on the North American plate; also taught at Galveston campus.

GEOL 110/ATMO 110 Disasters and Society

Credits 3. 3 Lecture Hours. Exploration of the science behind disasters; how they occur, the choices society makes that create or affect disasters, how certain populations are privileged during disasters by the decisions society has made and how science informs preparation for and response to future disasters. **Cross Listing:** ATMO 110/GEOL 110.

GEOL 150 Introduction to the Solid Earth

Credits 4. 3 Lecture Hours. 2 Lab Hours. Introduction to the dynamic earth for careers in geosciences; origin and structure of the earth; earth materials and processes, particularly as they relate to plate tectonics; maps as a basic tool of geologists; not open to students who have taken GEOL 101 or GEOL 104.

GEOL 152 History of the Earth

Credits 4. 3 Lecture Hours. 2 Lab Hours. Evolution of life, plate tectonics processes, geography and climate through earth's history; the timing of major events in earth history; sedimentary environments and stratigraphy; fossils; biostratigraphic and radiometric dating of rocks; not open to students who have taken GEOL 106 or GEOL 208. **Prerequisites:** GEOL 101 and GEOL 102, or GEOL 104, or GEOL 150.

GEOL 180 Introduction to Geology and Geophysics

Credit 1. 1 Lecture Hour. Introduction to careers in geology and geophysics; campus resources for academic and personal success; tools for developing study skills and navigating the university; use of reflection to assess personal strengths, weaknesses and responsibilities and to devise strategies for improvement. **Prerequisite:** Approval of instructor.

GEOL 203 Mineralogy

Credits 4. 3 Lecture Hours. 3 Lab Hours. Crystallography, crystal chemistry, mineral chemistry, optical crystallography, physical properties, and geologic occurrence of rock-forming and economic minerals. **Prerequisites:** GEOL 101 and GEOL 102, or GEOL 104, or GEOL 150; MATH 151 or MATH 142; CHEM 119, or CHEM 107 and CHEM 117.

GEOL 207 Dinosaur World

Credits 3. 2 Lecture Hours. 2 Lab Hours. Survey of dinosaur paleobiology and paleoecology; terrestrial paleoclimate and paleoenvironments of the Mesozoic; dinosaur ancestors; appearance and radiation of dinosaurs; paleoecology and paleobiology of major dinosaur groups; extinction of large dinosaurs and the Cretaceous/Paleogene mass extinction; the appearance and ancestry of birds.

GEOL 208 Life on a Dynamic Planet

Credits 3. 2 Lecture Hours. 2 Lab Hours. Critical events in the Earth's 4.6 billion-year history that shaped life as we know it and the tools to investigate them; interactions between global environments, the evolution of life and the geologically recent development of human societies; not open to students who have taken GEOL 106 or GEOL 152.

GEOL 210 Geological Communication

Credits 3. 3 Lecture Hours. Introduction to communicating as a scientist particularly in geological settings; using precise language, illuminating graphs and correct mathematical and chemical symbols to describe geological observations and concepts in writing; using basic statistics to describe geological data and uncertainty; recognizing scientific ethical dilemmas and plagiarism and interpretation. **Prerequisites:** GEOL 101 and GEOL 102, or GEOL 104, or GEOL 150; ENGL 104; MATH 151 or MATH 142.

GEOL 250 Geological Field Methods

Credits 4. 3 Lecture Hours. 3 Lab Hours. Fundamental aspects of geologic mapping; field observation, data gathering and recording, use of a Brunton compass, pace-and-compass mapping, measurement of stratigraphic sections; topographic map use and interpretation, interpretation of geologic map patterns, construction of geologic cross sections; Integrating field and remote data to address geologic problems using GIS software; field trip fee charged at registration. **Prerequisites:** GEOL 101 and 102, or GEOL 104, or GEOL 150; GEOL 152.

GEOL 285 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Directed studies in specific problem areas of geology. **Prerequisite:** Approval of instructor.

GEOL 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of geology. May be repeated for credit. **Prerequisite:** Approval of instructor.

GEOL 291 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in geology. May be repeated 2 times for credit. Registration in multiple sections of this course is possible within a given semester provided that the per semester credit hour limit is not exceeded. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

GEOL 301 Mineral Resources

Credits 3. 2 Lecture Hours. 3 Lab Hours. Origin, geologic relations and geographic distribution of mineral and energy resources; mineral economics, mining and reclamation and global economics in the resource industry; identification and classification of economic minerals including energy resources, base and precious metals, chemical industrial minerals and gemstones. **Prerequisites:** GEOL 101 and 102, or GEOL 104, or GEOL 150; CHEM 107 and CHEM 117, or CHEM 119.

GEOL 304 Igneous and Metamorphic Petrology

Credits 4. 3 Lecture Hours. 3 Lab Hours. Origin and evolution of igneous and metamorphic rocks; identification, classification and petrographic analysis; relationships to tectonic settings; genetic processes inferred from laboratory studies and field occurrences. **Prerequisites:** GEOL 203; CHEM 120.

GEOL 306 Sedimentology and Stratigraphy

Credits 4. 3 Lecture Hours. 3 Lab Hours. Origin of sediments and sedimentary rocks; climate, weathering, and weathering products; transport, deposition, and depositional environments for sediments; field and laboratory studies in description and interpretation of genesis of sedimentary rocks; principles of stratigraphy and basin analysis; plate tectonics and the formation of sedimentary basins; stratigraphic nomenclature; geologic time and correlation; sequence stratigraphy and basin architecture. **Prerequisite:** CHEM 119 or equivalent; GEOL 152 or equivalent.

GEOL 310 Planetary Geology

Credits 3. 3 Lecture Hours. Introduction to planetary science; organization and composition of the solar system, including the planets, satellites and asteroids; surface features and internal structures of the terrestrial planets and moons; the dynamic processes of planetary resurfacing, including volcanism, tectonism, weathering and impacts; the history and future of solar system exploration. **Prerequisites:** GEOL 101 and GEOL 102, or GEOL 104, or GEOL 150.

GEOL 312 Structural Geology and Tectonics

Credits 4. 3 Lecture Hours. 3 Lab Hours. Fundamentals of the deformation of the lithosphere ranging from plate to atomic scales; stress, strain, experimental rock deformation, microscopic mechanisms and mechanical behaviors; analysis of faults, folds, flow and rock fabrics; subsurface interpretation; regional tectonics of selected areas; practical experience in geometric and kinematic analysis, constructing balanced cross sections. **Prerequisites:** GEOL 101 and GEOL 102, or GEOL 104, or GEOL 150; MATH 142 or MATH 152; PHYS 201 or PHYS 206.

GEOL 314 Paleontology and Geobiology

Credits 4. 3 Lecture Hours. 3 Lab Hours. Biosphere-geosphere interactions, including prokaryote controls on sedimentary geochemistry and organismal distributions, and fossil preservation; fossils in the context of evolutionary theory and global change; identification of important groups of marine fossils; use of fossils to determine the stratigraphic age of rocks and the history of life on Earth. **Prerequisites:** CHEM 107 and CHEM 117, or CHEM 119; GEOL 306.

GEOL 320 Geology for Civil Engineers

Credits 3. 2 Lecture Hours. 3 Lab Hours. Principles of physical and engineering geology; properties of minerals, rocks and soils; active surface and subsurface processes; applications to the siting, design, construction, operation and maintenance of engineered works and the protection of the environment. A three-day field trip is required (a field trip fee is charged at registration). **Prerequisite:** GEOL 101 and GEOL 102, or GEOL 104, or GEOL 150.

GEOL 330 Geologic Field Trips

Credits 1 to 3. 1 to 3 Other Hours. Field trips to observe, analyze and interpret the geology and geophysics of selected localities in Texas and adjacent regions; complements classroom experience. Trip frequencies, duration, dates and study localities vary with semester. May be repeated for credit. **Prerequisite:** GEOL 101 and GEOL 102, or GEOL 104 or GEOL 150, or approval of instructor.

GEOL 350 Summer Field Geology

Credits 3. 3 Other Hours. Intense immersive geologic mapping experience, integrating geological skills from throughout the curriculum; concepts of field relationships and field techniques are used to develop geologic maps, stratigraphic columns, cross-sections and geologic interpretations for a variety of geologic provinces; conduct off-campus in a field area or areas for three to four weeks; field trip fee charged at registration. **Prerequisites:** GEOL 304, GEOL 314, GEOL 306, GEOL 250 and GEOL 312.

GEOL 351 Geochemistry

Credits 3. 3 Lecture Hours. Chemical principles and processes responsible for the formation and cycling of Earth materials; chemical equilibrium and kinetics, acidity and alkalinity in the environment, oxidation-reduction reactions, organic geochemistry, isotope geochemistry; application to crustal processes, climate science, pollution, and petroleum and mineral exploration. **Prerequisite:** CHEM 120; GEOL 150, or GEOL 104, or GEOL 101 and GEOL 102; or approval of instructor.

GEOL 352/GEOG 352 GNSS in the Geosciences

Credits 3. 2 Lecture Hours. 3 Lab Hours. Fundamentals of Global Navigation Satellite Systems (GNSS); basic geodesy, figure of the earth; frames of reference, map projection, datums, ellipsoids; GPS accuracy and precision; applications in earth resource mapping and database creation; elementary GPS phase data processing. **Prerequisites:** Junior or senior classification or approval of instructor. **Cross Listing:** GEOG 352/GEOL 352.

GEOL 360 Analyzing Data in Geology

Credits 3. 3 Lecture Hours. Scientific programming and statistical methods commonly used in geology; univariate and multivariate statistical analyses to geological data; writing short programming scripts for R; evaluating statistical approaches and solving methodological obstacles. **Prerequisite:** GEOL 101 and GEOL 102, or GEOL 104, GEOL 150, or GEOL 208; MATH 142, MATH 147, MATH 151, or MATH 171.

GEOL 404 Geology of Petroleum

Credits 3. 2 Lecture Hours. 3 Lab Hours. Origin, migration and accumulation of petroleum; typical U.S. oil and gas fluids; laboratory work in subsurface geology. **Prerequisites:** GEOL 101 and GEOL 102, or GEOL 104 or GEOL 150; also taught at Qatar campus.

GEOL 410 Hydrogeology

Credits 3. 2 Lecture Hours. 2 Lab Hours. Geologic conditions determining the distribution and movement of ground water and their effect on the hydrologic properties of aquifers. **Prerequisite:** MATH 151 and MATH 152, or equivalent; junior or senior classification.

GEOL 412 Environmental Hydrogeology

Credits 3. 2 Lecture Hours. 2 Lab Hours. Hydrogeological, physical and geochemical processes related to geohazards and contaminant transport in the subsurface and its environmental impacts including land subsidence, flood control, slope stability control, waste disposal, groundwater resources pollution and protection, karst aquifer protection. **Prerequisite:** GEOL 410 or approval of instructor.

GEOL 416 Petroleum Systems Analysis and Basin Modeling

Credits 3. 3 Lecture Hours. Geological processes in sedimentary basins; petroleum system elements and modeling; hydrocarbon generation, expulsion, migration, accumulation; fluid analysis; multi-disciplinary data integration; basin modeling software and simulation. **Prerequisite:** GEOL 306, junior or senior classification or approval of instructor.

GEOL 420 Environmental Geology

Credits 3. 2 Lecture Hours. 2 Lab Hours. Geologic concepts of the nature of geologic environments and the dynamics of geologic processes needed to characterize and quantify human interactions with specific geologic systems including aquifers, watershed, coastlines and wetlands; specific techniques, including geophysical and geochemical techniques, field mapping, geographical information systems and remote sensing used to monitor human-geosphere interactions. **Prerequisites:** GEOL 101 or GEOL 203; junior or senior classification or approval of instructor.

GEOL 440 Engineering Geology

Credits 3. 2 Lecture Hours. 3 Lab Hours. Fundamentals of soil, rock and fluid mechanics and basic engineering practices as applied to the analysis of the geologic environment for engineering uses; intended for geoscience majors with no engineering courses. **Prerequisites:** GEOL 306 or approval of instructor; PHYS 218.

GEOL 442/GEOG 442 Past Climates

Credits 3. 3 Lecture Hours. Terrestrial and marine proxy records of past climate variability, including tree rings, coral, and sediments; past climate change events such as the Little Ice Age and Medieval Warm Period; greenhouse gases and global temperature; insight into the nature of climate change and challenges humankind faces in the next few centuries. **Prerequisites:** GEOL 101, GEOL 104, GEOL 150, ATMO 201, GEOG 203, or OCNG 251; junior or senior classification. **Cross Listing:** GEOG 442/GEOL 442.

GEOL 443/GEOG 443 Global Biogeochemical Cycles

Credits 3. 3 Lecture Hours. Use of biogeochemical cycles to study the Earth system; description of movement and transformation of major elements such as C, N, P and trace elements; flux of material in and out of atmosphere, hydrosphere, pedosphere, and lithosphere; chemical and physical transformations that occur in Earth system. **Prerequisites:** CHEM 119 and CHEM 120; select two from ATMO 201, or OCNG 251, or GEOG 203 or GEOG 205, or GEOL 101 or GEOL 104 or GEOL 150. **Cross Listing:** GEOG 443/GEOL 443.

GEOL 450 Geology Senior Project

Credits 3. 2 Lecture Hours. 3 Lab Hours. Conducting and communicating a team research project in geology and/or geophysics; formulating a research question and a plan to answer that question; synthesizing and interpreting the geological and geophysical literature; written and oral presentation of findings and critiquing those findings. **Prerequisites:** GEOL 210 and junior or senior classification, or approval of instructor.

GEOL 451 Introduction to Geochemistry

Credits 3. 2 Lecture Hours. 2 Lab Hours. Chemical principles and processes responsible for the formation and cycling of earth materials, with emphasis on low temperature equilibria and kinetics in rockwater systems. **Prerequisite:** GEOL 304 or approval of instructor.

GEOL 478 Earth Science Modeling

Credits 4. 3 Lecture Hours. 3 Lab Hours. Techniques for building, solving and analyzing numerical models applied to a wide variety of problems in geology, geochemistry, geobiology and geophysics; derivation and scaling of conservation laws; finite difference and finite element techniques; programming in MATLAB or a higher-level language. **Prerequisites:** MATH 151; MATH 152; junior or senior classification.

GEOL 481 Seminar

Credit 1. 1 Other Hour. Review of selected topics in the geological literature; preparation of oral and written reports. **Prerequisites:** Junior or senior classification or approval of instructor.

GEOL 484 Internship

Credits 0. 0 Other Hours. Directed internship in a private firm, government agency or non-governmental organization to provide work experience related to the student's degree program and career objectives. May be taken two times. **Prerequisites:** Junior or senior classification and approval of internship agency and approval of instructor.

GEOL 485 Directed Studies

Credits 1 to 12. 1 to 12 Other Hours. Advanced problems in geology; also taught at Galveston and Qatar campuses. **Prerequisites:** Junior or senior classification or approval of instructor.

GEOL 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of geology. May be repeated for credit. **Prerequisite:** Approval of instructor.

GEOL 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in geology. May be repeated 2 times for credit. Registration in multiple sections of this course is possible within a given semester provided that the per semester credit hour limit is not exceeded. **Prerequisites:** Junior or senior classification and approval of instructor.

GEOP - Geophysics (GEOP)

GEOP 170 Planet Quest

Credits 3. 3 Lecture Hours. Materials and processes that create solar systems and potentially habitable exoplanets; use of simple models to explore how exoplanets are found, and how the existence and surface condition of a planet are affected by stellar composition and luminosity, physics of orbits, gravity, magnetism, volcanism and tectonics.

GEOP 291 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in geophysics. May be repeated 2 times for credit. Registration in multiple sections of this course is possible within a given semester provided that the per semester credit hour limit is not exceeded. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

GEOP 313 Geophysical Field Methods

Credits 4. 3 Lecture Hours. 2 Lab Hours. Planning, safe execution and analysis of applied geophysical surveying including magnetics, gravity, resistivity, induced polarization, seismic reflection, seismic refraction, ground-penetrating radar, frequency-domain and time-domain electromagnetic induction; experimental design, precise navigation, quality assurance and control, data management, elementary processing, error analysis and estimation, visualization and interpretation procedures. **Prerequisites:** GEOP 341; PHYS 206 and PHYS 207, or equivalent; MATH 308; GEOL 250.

GEOP 341 Fundamentals of Geophysics

Credits 3. 2 Lecture Hours. 2 Lab Hours. The structure, composition and evolution of the earth; the concepts and application of various geophysical methods to infer earth structure, including seismology, gravity and geodesy, magnetics; generation of internal heat and heat loss; quantification of the driving forces of plate tectonics and isostatic topography. **Prerequisites:** PHYS 206 and PHYS 207, or equivalent; MATH 308; GEOL 150 or equivalent.

GEOP 361 Geophysical Signal Processing

Credits 3. 2 Lecture Hours. 2 Lab Hours. Fundamental concepts in digital signal processing for geophysicists; practical applications of sampling theory, Fourier analysis, filter design, spectral decomposition, instrument deconvolution, and methods of finding hidden signals within geophysical data; Matlab-based laboratory exercises involve analysis of various types of real geophysical/geological data. **Prerequisites:** GEOP 341, PHYS 206, PHYS 207, and MATH 311 or equivalent.

GEOP 413 Near-surface Geophysics

Credits 3. 3 Lecture Hours. Fundamentals of traditional and emergent surface and borehole geophysical methods, as they are applied to shallow (less than 100 meters) subsurface investigations; emphasis on electrical, magnetic and electromagnetic methods; seismic reflection and crosswell tomography. **Prerequisites:** GEOP 313, GEOP 361, PHYS 206, and PHYS 207, or approval of instructor.

GEOP 421 Seismology

Credits 4. 3 Lecture Hours. 2 Lab Hours. Mathematical theory of elasticity and seismic wave propagation; properties of body and surface waves and applications to inference of earth structure; introduction to source theory; use of seismic data to determine major earth structures; characteristics of seismic noise fields; influence seismic anisotropy. **Prerequisites:** GEOP 361, MATH 311 and PHYS 206, or approval of instructor.

GEOP 435 Methods of Geophysical Exploration

Credits 4. 3 Lecture Hours. 3 Lab Hours. Introduction to theory of gravity, magnetic, electrical and seismic exploration methods; physical properties of earth materials and their influence on geophysical measurements; limitations of geophysical data in the interpretation of subsurface structure. **Prerequisites:** GEOL 250 and MATH 251.

GEOP 470 Computational Geophysics

Credits 3. 3 Lecture Hours. Techniques used in the study of geophysical processes, including heat and chemical transport in the Earth, rock deformation and viscous fluid flow; development of conservation laws, relevant boundary conditions and analytical solutions; introduction to numerical solutions. **Prerequisites:** GEOL 101 and GEOL 102 or GEOL 104 or GEOL 150; MATH 308; or approval of instructor.

GEOP 475 Interpretation of Gravity and Magnetic Fields

Credits 3. 3 Lecture Hours. Applications of potential theory in the interpretation of gravity and magnetic fields; analysis of geophysical anomalies produced by geologic structures and by variation in the physical properties of rocks; use of regional gradients, residual anomalies, higher derivatives and surfaces, line integrals and two and three dimensional models. **Prerequisites:** GEOL 312; MATH 311 or approval of instructor.

GEOP 484 Internship

Credits 0. 0 Other Hours. Directed internship in a private firm, government agency or non-governmental organization to provide work experience related to the student's degree program and career objectives. May be taken two times. **Prerequisites:** Junior or senior classification and approval of internship agency and approval of instructor.

GEOP 485 Directed Studies

Credits 1 to 12. 1 to 12 Other Hours. Advanced problems in geophysics. **Prerequisites:** Junior or senior classification or approval of instructor.

GEOP 489 Special Topics In...

Credits 1 to 4. 1 to 4 Other Hours. Selected topics in geophysics. May be repeated for credit. **Prerequisite:** Junior or senior classification.

GEOP 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in geophysics. May be repeated 2 times for credit. Registration in multiple sections of this course is possible within a given semester provided that the per semester credit hour limit is not exceeded. **Prerequisites:** Junior or senior classification and approval of instructor.

GERM - German (GERM)

GERM 101 Beginning German I

Credits 4. 3 Lecture Hours. 2 Lab Hours. (GERM 1411) Beginning German I. Elementary language study with oral, written and reading practice. Preparation for conversation. Part of class preparation will be done in language laboratory.

GERM 102 Beginning German II

Credits 4. 3 Lecture Hours. 2 Lab Hours. (GERM 1412) Beginning German II. Continuation of GERM 101. Part of class preparation will be done in language laboratory. **Prerequisite:** GERM 101.

GERM 104 Intensive Beginning German

Credits 8. 8 Lecture Hours. 0 Lab Hours. Accelerated elementary language study, with oral, listening, reading, and writing practice. Equivalent to GERM 101 and GERM 102.

GERM 121 Beginning German Abroad I

Credits 4. 4 Lecture Hours. Elementary language study with focus on development of oral, written, and reading competencies; preparation for conversation and other forms of authentic interaction; conducted abroad and in German.

GERM 122 Beginning German Abroad II

Credits 4. 4 Lecture Hours. Continuation of GERM 121; elementary language study with focus on development of oral, written, and reading competencies; preparation for conversation and other forms of authentic interaction; conducted abroad and in German. **Prerequisites:** GERM 101 or GERM 121.

GERM 201 Intermediate German I

Credits 3. 3 Lecture Hours. (GERM 2311) Intermediate German I. Readings of average difficulty; review of grammar; practice in conversation composition. **Prerequisite:** GERM 102 or GERM 104.

GERM 202 Intermediate German II

Credits 3. 3 Lecture Hours. (GERM 2312) Intermediate German II. Continuation of GERM 201 with more advanced material. Some literary selections included in class readings. **Prerequisite:** GERM 201.

GERM 204 Intensive Intermediate German

Credits 6. 6 Lecture Hours. Accelerated intermediate-level language study, with oral, listening, reading, and writing practice. Equivalent to GERM 201 and GERM 202. **Prerequisite:** GERM 102 or GERM 104.

GERM 221 Field Studies I

Credits 3. 3 Other Hours. German language and culture taught in Germany; supervised travel of cultural interest; living with local families; participation in the activities and courses of a German university or institute; written and oral reports, exams. **Prerequisites:** GERM 102 or GERM 104; GERM 222 or concurrent enrollment.

GERM 222 Field Studies II

Credits 3. 3 Other Hours. German language and literature taught in Germany in cooperation with a German university or institute; exams, written reports. **Prerequisites:** GERM 102 or GERM 104; GERM 221 or concurrent enrollment.

GERM 285 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Individual supervision of readings or assigned projects in German, selected for each student individually. **Prerequisite:** Approval of instructor and department head.

GERM 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of German. May be repeated for credit. **Prerequisite:** Approval of instructor.

GERM 310 Composition

Credits 3. 3 Lecture Hours. Development of writing skills in German; emphasis on grammatical construction; taught in German. **Prerequisites:** GERM 202, GERM 204, or GERM 222; junior or senior classification or approval of instructor.

GERM 311 Conversation

Credits 3. 3 Lecture Hours. Development of effective communication skills in spoken German, with emphasis on language appropriate to various social context; taught in German. **Prerequisite:** GERM 202, GERM 204, or GERM 222; junior or senior classification or approval of instructor.

GERM 315 Literary Investigations: German Short Fiction

Credits 3. 3 Lecture Hours. Readings of selected works of short prose from the early 20th century to the present with emphasis on principles of literary analysis; conducted in German. **Prerequisites:** GERM 202, GERM 204, or GERM 222; junior or senior classification or approval of instructor.

GERM 316 Advanced Business German

Credits 3. 3 Lecture Hours. Continuation of GERM 203; reading and oral practice of German pertinent to business, trade and international commerce. **Prerequisite:** GERM 202, GERM 204, or GERM 222; junior or senior classification or approval of instructor.

GERM 321 German Culture and Civilization I

Credits 3. 3 Lecture Hours. German culture and civilization from classical antiquity to 1830; major stylistic periods in literature and the fine arts; conducted in German. **Prerequisite:** GERM 202, GERM 204, or GERM 222; junior or senior classification or approval of instructor.

GERM 322 German Culture and Civilization II

Credits 3. 3 Lecture Hours. German culture and civilization from 1830 to the present; conducted in German. **Prerequisite:** GERM 202, GERM 204, or GERM 222; junior or senior classification or approval of instructor.

GERM 331 German Literary Expression I

Credits 3. 3 Lecture Hours. Readings of selected drama, poetry, and prose works of German literature from the Middle Ages through Romanticism; problems involved in defining dramatic, lyric, and epic genres considered; structural and aesthetic elements of literary works; conducted in German. **Prerequisite:** GERM 310 or GERM 315, or concurrent enrollment.

GERM 332 German Literary Expression II

Credits 3. 3 Lecture Hours. Readings of selected drama, poetry, and prose works of German literature of the modern era; problems involved in defining dramatic, lyric, and epic genres considered; structural and aesthetic elements of literary works; conducted in German. **Prerequisite:** GERM 310 or GERM 315, or concurrent enrollment.

GERM 333 Contemporary Germany

Credits 3. 3 Lecture Hours. Social, political, and economic debates and issues in Germany from 1945 to the present through the arts (literature, film, video, music); focus on post-war reconstruction, divided Germany, and post-reunification periods; conducted in German. **Prerequisite:** GERM 310 or GERM 315, or concurrent enrollment.

GERM 334 German Drama

Credits 3. 3 Lecture Hours. Study, analysis and public presentation in German of a major German dramatic work; literary theory and intensive conversational practice combined with skills of language acquisition within a performance setting. **Prerequisite:** GERM 310 or GERM 315, or concurrent enrollment.

GERM 336 German Fairy Tales

Credits 3. 3 Lecture Hours. Introduction to and study of fairy tales and children's literature through German tradition in these forms; reception of fairy tales through adaptation and modernization; taught in German. **Prerequisite:** GERM 310 or GERM 315, or concurrent enrollment.

GERM 362 The Weimar Republic: Literature and Culture

Credits 3. 3 Lecture Hours. Film, theater and poetry in the turbulent era prior to the Nazi terror; conducted in German. **Prerequisite:** GERM 310 or GERM 315, or concurrent enrollment.

GERM 410 Seminar in German Literature and Culture

Credits 3. 3 Lecture Hours. Survey of major literary and intellectual landmarks of a period in German history (Enlightenment, Romanticism, High Modernism, post-1945); study of literary works in context of social and cultural history, with attention to Germany's particular place in Europe and the world; taught in German. May be taken two times. **Prerequisite:** GERM 310, GERM 315, or concurrent enrollment.

GERM 411 German Author and Genre Studies

Credits 3. 3 Lecture Hours. Examination of the work of a specific author, such as Goethe, Schiller, Kafka, Brecht, Frisch, or Grass, or the diachronic study of a specific genre, e.g., poetry, drama, prose; taught in German. May be taken two times. **Prerequisite:** GERM 310, GERM 315, or concurrent enrollment.

GERM 435/FILM 435 German Film

Credits 3. 3 Lecture Hours. Consideration and analysis of major works and directors of German Film; interpretation of culture through film; relationship of film to history, literature, and other arts; taught in English. May be repeated for credit. **Prerequisites:** Junior or senior classification, or approval of instructor. **Cross Listing:** FILM 435/GERM 435.

GERM 437 German Romanticism: Literature, Theory, Philosophy

Credits 3. 3 Lecture Hours. From Goethe's "Faust" to the romantic exaltation of poetry; influence of the romantic movement on European literary theory and philosophy; taught in English. **Prerequisite:** Junior or senior classification or approval of instructor.

GERM 440 Global Germany

Credits 3. 3 Lecture Hours. Impact of globalization on Germany and the globalization of German life and culture from postwar period to the present; analysis of theoretical, historical, fictional and/or cinematic works presenting relationship of modern Germany with world affairs. Course conducted in English. **Prerequisite:** Junior or senior classification or approval of instructor.

GERM 441 Representations of the Holocaust

Credits 3. 3 Lecture Hours. Analysis of artistic mediations of the Holocaust across diverse textual and visual media with particular focus on aesthetic, political, pedagogical, and ethical challenges. Course conducted in English. **Prerequisite:** Junior or senior classification or approval of instructor.

GERM 485 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Individual supervision of readings or assigned projects, selected for each student individually; written and oral reports. **Prerequisite:** Approval of instructor and department head.

GERM 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of German. May be repeated for credit. **Prerequisite:** Approval of instructor.

GERM 491 Research

Credits 1 to 3. 1 to 3 Other Hours. Research conducted under the direction of faculty member in German. May be taken three times for credit. **Prerequisites:** Junior or senior classification and approval of department head.

GLST - Global Studies (GLST)

GLST 201 Introduction to Global Studies

Credits 3. 3 Lecture Hours. Concepts, theories, and frameworks for a humanities-based approach to understanding global issues; focus on human cultures; emphasis on critical thinking and cultural literacy.

GLST 205 Research in Global Studies

Credits 3. 3 Lecture Hours. Introduction to academic research methods in Global Studies; emphasis on data analysis and library skills; qualitative and quantitative methods, theoretical approaches, and ethical considerations.

GLST 209 Languages in the United States

Credits 3. 3 Lecture Hours. Introduction to linguistic diversity in the United States, particularly the relationship between English and minority languages including Arabic, Chinese, German, Navajo, Spanish, etc.; investigation of topics such as bilingualism, history of immigration, language ideologies, language shift and maintenance, as well as case studies of individual minority language groups and their linguistic practices; taught in English.

GLST 210 Languages of the World

Credits 3. 3 Lecture Hours. Exploration of the fundamentals of language, including structures, lexicon, writing systems; examination of protolanguages, language families, and dialects; investigation of language contact, diversification, shift, attrition, and death, with a focus on revitalization of minority languages and linguistic rights.

GLST 211/ENGL 211 Foundations in Cultural Studies

Credits 3. 3 Lecture Hours. Introduction to history, influence and major ideas of Cultural Studies; use of culture as a means to critique social problems and understand social forces; analysis of culture in its relationship to power; participation in project investigating contemporary U.S. youth subcultures. **Cross Listing:** ENGL 211/GLST 211.

GLST 215/FILM 215 Global Cinema

Credits 3. 3 Lecture Hours. History and theory of global cinema; historical, socio-political, national and international contexts of film production and reception; transnational film; FILM-215 also taught at Galveston campus. **Cross Listing:** FILM 215/GLST 215.

GLST 220/WGST 220 Feminist Approaches to Science, Technology, and Medicine

Credits 3. 3 Lecture Hours. Introduction to selected topics about gender and the history of science; focus on feminist critique of science, technology, and medicine; exploration of the connections between the biomedical sciences and the politics of gender and sexuality in a global context. **Cross Listing:** WGST 220/GLST 220.

GLST 285 Directed Studies

Credits 0 to 3. 0 to 3 Other Hours. Individual supervision of readings or assigned projects in global studies. May be taken three times for credit. **Prerequisites:** Approval of instructor and department head.

GLST 289 Special Topics in...

Credits 1 to 4. 1 to 4 Other Hours. Introduction to the broad range of disciplines and issues explored in the global studies curriculum. May be repeated for credit. **Prerequisites:** Freshman or sophomore classification.

GLST 300 International Experience

Credits 0. For students completing an international experience; study abroad program, internship, volunteer service work, or a combination of these options with department approval; documentation and self-assessment of learning experience. **Prerequisites:** Grade of C or better in GLST 201 and GLST 205; GLST majors.

GLST 311/ENGL 309 Cultural Politics

Credits 3. 3 Lecture Hours. Exploration of the concept of cultural politics across several academic disciplines in the humanities and social sciences; broad interrogation of relationships that mediate culture and power in national and international contexts; focus on how culture shapes and is shaped by society, political perspectives and actions.

Prerequisites: Junior or senior classification; or approval of the instructor.

Cross Listing: ENGL 309/GLST 311.

GLST 400/AFST 400 Global Africa

Credits 3. 3 Lecture Hours. Exploration of African diaspora around the world; examination of the historic globality of Africa with a focus on Black artistic expression and its impact on global culture; investigation of Black cultures' interactions with music, literature, performing arts, visual arts, religions, and social movements. **Prerequisites:** Junior or senior classification or approval of instructor. **Cross Listing:** AFST 400/GLST 400.

GLST 401/INTA 401 The City and its Global Contexts

Credits 3. 3 Lecture Hours. Examination of rural and urban environments affected by global currents in culture, politics, and society; exploration of urbanism as represented by artists, writers, and filmmakers; study of such topics such as urban design. **Prerequisites:** INTA 211 or GLST 201; junior or senior classification or approval of instructor. **Cross Listing:** INTA 401/GLST 401.

GLST 402 Global Perspectives on Environmental Humanities

Credits 3. 3 Lecture Hours. Investigation of contemporary approaches to environmental issues in the humanities; analysis of present-day environmental challenges; implications for thought of climate change in the Anthropocene. **Prerequisites:** Junior or senior classification.

GLST 403 Global and Cultural Aspects of Everyday Consumption

Credits 3. 3 Lecture Hours. Investigation of the global implications of domestic consumer behavior in their many manifestations, specifically the exploration of the cultural connections between the globalized economy and the decisions made by consumers at the local level; analysis of intended and unintended consequences of consumerism around the world, whether they be environmental, demographic, or cultural. **Prerequisites:** Junior or senior classification or approval of instructor.

GLST 406 Humanities Studies in Science and Technology

Credits 3. 3 Lecture Hours. Exploration of global discourses on science and technology from a humanistic perspective. **Prerequisites:** Junior or senior classification.

GLST 407 Migration, Indigeneity, and Diaspora

Credits 3. 3 Lecture Hours. Examination of the cultural constructs that arise through the encounters with colonialism from the conquest of the Americas to the present; cultural studies and literary analysis to identify and interrogate the common principles of human interaction in the face of cultural diversity. **Prerequisites:** Junior or senior classification or approval of instructor.

GLST 408/VIST 408 Techne, Technology, and the Visual Arts

Credits 3. 3 Lecture Hours. Examination of the tension between techne, art, and technology through an exploration of influential theoretical texts; analysis of major challenging works of visual art, ancient and contemporary, analog and digital, human and non-human; investigation of visual art and technology in a global context. **Prerequisites:** Junior or senior classification or approval of instructor. **Cross Listing:** VIST 408/GLST 408.

GLST 410/INTA 410 Gender and Globalization

Credits 3. 3 Lecture Hours. Concepts of gender from a global perspective; global theories of gender and sexuality across media. **Prerequisites:** INTA 211 or GLST 201; junior or senior classification or approval of instructor. **Cross Listing:** INTA 410/GLST 410.

GLST 413 Race, Gender, and the Environment

Credits 3. 3 Lecture Hours. Investigation of social inequalities related to environmental issues; focus on environmental justice and ecofeminism; exploration of the connections among racism, patriarchy, and the environment. **Prerequisites:** Junior or senior classification. **Cross Listing:** HISP 413 and WGST 413.

GLST 444 Foreign Language Pedagogy

Credits 3. 3 Lecture Hours. Study of the principles of second language acquisition relating to language pedagogy in a K-12 classroom setting for modern and classical languages; examination of key concepts (e.g., input, output, interaction, corrective feedback), pedagogical frameworks (e.g., grammar translation, communicative language teaching, task-based language teaching), lesson planning, assessments, and classroom management. **Prerequisites:** Junior or senior classification, or approval of instructor.

GLST 467/ENGL 467 Cultural Texts as Data

Credits 3. 3 Lecture Hours. Exploration of concepts, tools, methods, and approaches to computationally manipulating cultural texts and large text corpora such as academic databases and newspaper, periodical, and social media archives; identification of connections between cultural phenomena through analysis of patterns of meaning, linguistic etymologies, and cultural biases. **Prerequisites:** Junior or senior classification, or approval of instructor. **Cross Listing:** ENGL 467/GLST 467.

GLST 475/FILM 475 Film, Propaganda, and Dissidence

Credits 3. 3 Lecture Hours. Examination of films promoting well-defined political aims in various countries and historical periods; focus on dissident works produced under repressive regimes. **Prerequisites:** Junior or senior classification or approval of instructor. **Cross Listing:** FILM 475/GLST 475.

GLST 481 Seminar

Credits 3. 3 Other Hours. Course designed to produce in-depth research projects; based on student's international experience and area of expertise acquired in major. **Prerequisites:** Global Studies major; grade of C or better in GLST 201 and GLST 205; GLST 300; senior classification.

GLST 484 Internship

Credits 0 to 3. 0 to 3 Other Hours. Directed internship in a private firm, government or non-profit agency; provide on-the-job experience appropriate to the student's program of work and career objectives. May be taken for credit up to three hours. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** GLST 201; approval of internship coordinator.

GLST 485 Directed Studies

Credits 0 to 3. 0 to 3 Other Hours. Research problems and readings for students majoring in global studies; directed independent study of a global issue related to student's area of interest. May be taken three times for credit. **Prerequisites:** Junior or senior classification; approval of instructor and department head.

GLST 489 Special Topics in...

Credits 1 to 4. 1 to 4 Other Hours. Selected topics in an identified area of global studies. May be repeated for credit. **Prerequisites:** Junior or senior classification; or approval of instructor.

GLST 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in global studies. May be taken three times for credit. **Prerequisites:** GLST 201; GLST 205; junior or senior classification and approval of instructor.

GLST 497 Independent Honors Study

Credits 0 to 4. 0 to 4 Other Hours. Directed independent studies designed to produce a senior honors thesis; based on international experience and interdisciplinary expertise acquired in major. May be taken two times for credit. **Prerequisites:** GLST major; honors candidate; junior or senior classification and approval of instructor.

HBRW - Hebrew (HBRW)

HBRW 101 Elementary Modern Hebrew I

Credits 4. 3 Lecture Hours. 2 Lab Hours. Elementary language study with oral, written and reading practice; preparation for conversation; part of class preparation to be done in the language laboratory.

HBRW 102 Elementary Modern Hebrew II

Credits 4. 3 Lecture Hours. 2 Lab Hours. Continuation of HBRW 101; part of class preparation to be done in the language laboratory. **Prerequisite:** HBRW 101.

HBRW 285 Directed Studies

Credits 0 to 3. 0 to 3 Other Hours. Individual supervision of readings or assigned projects in Hebrew, selected for each student individually. **Prerequisites:** Approval of instructor and department head.

HBRW 289 Special Topics In...

Credits 3. 3 Lecture Hours. Selected topics in an identified area of Hebrew studies. May be repeated for credit. **Prerequisite:** Approval of instructor.

HEFB - Health Ed Field Based (HEFB)

HEFB 222/KNFB 222 Culturally Responsive Pedagogy

Credits 3. 2 Lecture Hours. 3 Lab Hours. Developing an understanding of students in multiple settings and levels; development, structure, history, finance, and management of schools in a democratic society; philosophical, ethical and moral dimensions of teaching; professional role of teacher. **Prerequisite:** Kinesiology and Health majors. **Cross Listing:** KNFB 222/HEFB 222.

HEFB 324/KNFB 324 Technology and Teaching Skills for the 21st Century Learner

Credits 3. 2 Lecture Hours. 2 Lab Hours. Preparation of future Health and Physical Education teachers with practical skills related to: technology in the classroom/gymnasium, strategies for addressing urban education and English language learners, liability, management and classroom discipline, development of professional communication skills and time management; includes field based experiences in diverse classroom settings. **Prerequisite:** Grade of C or better in HEFB 222/KNFB 222 or KNFB 222/HEFB 222; grade of C or better in BIOL 107 or BIOL 111; grade of C or better in PHYS 201 or CHEM 119; junior or senior classification. **Cross Listing:** KNFB 324/HEFB 324.

HEFB 325/KNFB 325 Introduction to Secondary School Teaching

Credits 3. 2 Lecture Hours. 2 Lab Hours. Introduce fundamental teaching skills and theories necessary for preparing reflective teachers; examine classroom management, learning strategies and assessment techniques; classroom lectures combined with field-based experiences to link theory into practice. **Prerequisite:** Grade of C or better in HEFB 324/KNFB 324 or KNFB 324/HEFB 324; junior or senior classification. **Cross Listing:** KNFB 325/HEFB 325.

HEFB 450/KNFB 450 Supervised Student Teaching

Credits 6. 0 Lecture Hours. 6 Other Hours. Observation and participation in an accredited public school classroom; techniques of teaching student's teaching fields, and appropriate instructional strategies for assigned student population. **Prerequisites:** Grade of C or better in HLTH 415/PHLT 420 or KNFB 416. **Cross Listing:** KNFB 450/HEFB 450.

HHUM - Health Humanities (HHUM)

HHUM 107 Introduction to the Health Humanities

Credits 3. 3 Lecture Hours. Introduction to the methods and approaches of the health humanities; exposure to key scholarship in this field as well as major methods and approaches; application of such skills to the analysis of cultural case studies such as illness narratives or contemporary debates in scientific bioethics. **Cross Listing:** COMM 107, ENGL 107, and PHIL 107.

HHUM 482/ENGL 482 Advanced Studies in Health Humanities

Credits 3. 3 Lecture Hours. Capstone course; application of skills and knowledge acquired during health humanities concentration coursework; exposure to specialized methods of inquiry; development and execution of an individualized final project. **Prerequisites:** ENGL 107, COMM 107, HHUM 107, ENGL 292, ENGL 342, COMM 342, WGST 342, or ENGL 395; junior or senior classification. **Cross Listing:** ENGL 482/HHUM 482.

HISP - Hispanic Studies (HISP)

HISP 201 Current Issues in Hispanic Studies

Credit 1. 1 Lecture Hour. Exploration of current issues and concerns in Hispanic Studies through attendance and participation in Hispanic Studies-related events and lectures by noted academics and professionals in Hispanic Studies; in-class discussions. May be taken three times for credit. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisite:** ENGL 104.

HISP 204 Spanish and Spanish American Literature in Translation

Credits 3. 3 Lecture Hours. Survey of literature from the Spanish-speaking world from the Middle Ages to the present; English translations of masterpieces of Spanish language literature; authors such as Cervantes, Lope de Vega, Dario, Garcia Marquez; also taught at Galveston campus. Taught in English.

HISP 205 Don Quixote and the Other Arts

Credits 3. 3 Lecture Hours. A study of Miguel de Cervantes' masterwork, Don Quixote, and its representations in other arts such as painting, film and music. Taught in English. **Prerequisite:** ENGL 104.

HISP 206 Food in the Hispanic World

Credits 3. 3 Lecture Hours. A study of food, food preparation and consumption in the Hispanic world from historical, geographical, artistic, social and psychological perspective. Taught in English. **Prerequisite:** ENGL 104.

HISP 250 Contemporary Spanish Culture

Credit 1. 1 Lecture Hour. Cultural and practical orientation for students participating in the summer study abroad programs in Spain; brief introduction to contemporary social and cultural institutions; discussions of Spanish university system; oral reports and final paper; readings and discussion in English and Spanish. **Prerequisite:** SPAN 101 or equivalent.

HISP 260 Contemporary Mexican Culture

Credit 1. 1 Lecture Hour. Introduction to contemporary Mexican social, cultural, and political institutions; discussion of Mexican university system; readings and discussion in Spanish and English. For preparation for study abroad program in Mexico. **Prerequisite:** SPAN 101 or equivalent.

HISP 262/ENGL 262 Introduction to Latinx Literary Studies

Credits 3. 3 Lecture Hours. Introduction to Latinx literature; emphasis on methods and approaches, historical breadth and context and the diverse literary traditions of people of Hispanic and Latinx descent in the United States. **Cross Listing:** ENGL 262/HISP 262.

HISP 285 Directed Studies

Credits 0 to 3. 0 to 3 Other Hours. Individual supervision of readings or assigned projects in Hispanic Studies, selected for each student individually. **Prerequisites:** Approval of instructor and department head.

HISP 289 Special Topics In...

Credits 3. 3 Lecture Hours. Selected topics in an identified area of Hispanic Studies. May be taken three times for credit. **Prerequisites:** ENGL 104; freshman or sophomore classification; approval of department head.

HISP 291 Research

Credits 0 to 3. 0 to 3 Other Hours. Research in Hispanic Studies conducted under the direction of faculty member. May be taken two times for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

HISP 352/FILM 352 Hispanic Literature and Film

Credits 3. 3 Lecture Hours. Exploration of inter-media relationships between film and literature; investigation of the language of film, especially films as expressions of cultural realities through the adaptation of Hispanic literary works; taught in English. **Prerequisites:** Junior or senior classification, or approval of instructor. **Cross Listing:** FILM 352/HISP 352.

HISP 362/ENGL 362 Latino/a Literature

Credits 3. 3 Lecture Hours. Literature by U.S.-based Latino/a authors writing mostly in English; examination of historical and social contexts of cultural production; may include novels, poetry, short stories, plays, and films to gain understanding of aesthetic expression of diverse Latino/a authors, including but not limited to Mexican Americans, Puerto Ricans, Cuban Americans, and Dominican Americans. **Prerequisite:** Junior or senior classification. **Cross Listing:** ENGL 362/HISP 362.

HISP 363 Borderlands: U.S. and Mexico

Credits 3. 3 Lecture Hours. Multiple images of the U.S./Mexico border, their creation, their evolution, and their conflicting representations in filmic, literary and musical texts. **Prerequisites:** ENGL 104 and junior or senior classification.

HISP 409 Hispanic Photography in a Global Context

Credits 3. 3 Lecture Hours. Study of works produced by major photographers across the Hispanic world in a global context; exploration of photography the origins of the medium in the mid-19th century to the present; theoretical, historical, and critical readings; analysis of various genres, modes, and formats; taught in English. **Prerequisites:** Junior or senior classification, or approval of instructor.

HISP 413 Race, Gender, and the Environment

Credits 3. 3 Lecture Hours. Investigation of social inequalities related to environmental issues; focus on environmental justice and ecofeminism; exploration of the connections among racism, patriarchy, and the environment. **Prerequisites:** Junior or senior classification. **Cross Listing:** GLST 413 and WGST 413.

HISP 414 Environmental Perspectives on the U.S. and Mexico Border

Credits 3. 3 Lecture Hours. Exploration of selected topics about environmental history and social movements related to the U.S. and Mexico border; focus on issues of race, gender, sexuality, and nation; exploration of connections among citizenship, border militarization, and the environment. **Prerequisites:** Junior or senior classification, or approval of instructor.

HISP 471/RELS 471 Hispanic Religions

Credits 3. 3 Lecture Hours. Exploration of the history and practice of Hispanic religion, including spirit possession, evil eye, consumption of sacred substances, healing traditions, ex-votos, relics, prophecy, omens, monsters, astrology, witchcraft, the Inquisition, festivals, pilgrimage, mystics and religious contributions of diverse ethnic groups. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** RELS 471/HISP 471.

HISP 474/RELS 474 Diversity Lessons from Medieval Spain

Credits 3. 3 Lecture Hours. Crucible of cultures—Christian, Jewish, and Muslim—that was medieval Spain and modern implications of that experience in diversity. **Prerequisites:** ENGL 104 and junior or senior classification. **Cross Listing:** RELS 474/HISP 474.

HISP 485 Directed Studies

Credits 0 to 3. 0 to 3 Other Hours. Individual supervision of readings or assigned projects in Hispanic Studies, selected for each student individually. **Prerequisites:** Junior or senior classification; approval of instructor and department head.

HISP 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of Hispanic studies. May be taken three times for credit. **Prerequisites:** ENGL 104; junior or senior classification; approval of department head.

HISP 491 Research

Credits 0 to 3. 0 to 3 Other Hours. Research in Hispanic Studies conducted under the direction of faculty member. May be taken two times for credit. **Prerequisites:** Junior or senior classification and approval of instructor.

HIST - History (HIST)

HIST 101 Western Civilization to 1660

Credits 3. 3 Lecture Hours. (HIST 2311) Western Civilization to 1660. Ancient civilizations, Greek, Roman and Asian; Christianity; medieval civilization in west, eastern Europe; political, social and intellectual developments from earliest human cultures to 1660.

HIST 102 Western Civilization Since 1660

Credits 3. 3 Lecture Hours. (HIST 2312) Western Civilization Since 1660. Religious, dynastic and imperial developments; Industrial Revolution; western democracies; rise of nationalism and communism; central and eastern Europe; intellectual revolution; World Wars I and II and the contemporary world.

HIST 103 World History to 1500

Credits 3. 3 Lecture Hours. (HIST 2321) World History to 1500. Development of major world societies in the premodern era; emergence of agrarian-based modes of production, political states, religious economy and a global division of systems; Eurasian world system and the civilizations of Africa and the Americas.

HIST 104 World History Since 1500

Credits 3. 3 Lecture Hours. (HIST 2322) World History Since 1500. Interaction of major world societies in the modern era; emergence of the modern world-economy and a global division of labor; European imperialism and colonialism and reactions in Africa, Asia and Latin America.

HIST 105 History of the United States

Credits 3. 3 Lecture Hours. (HIST 1301) History of the United States. Colonial heritage; Revolution; adoption of Constitution; growth of nationalism and sectionalism; Civil War; Reconstruction; also taught at Galveston and Qatar campuses.

HIST 106 History of the United States

Credits 3. 3 Lecture Hours. (HIST 1302) History of the United States. Since reconstruction; new social and industrial problems; rise of progressivism; U.S. emergence as a world power; World War I; reaction and New Deal; World War II; contemporary America; also taught at Galveston and Qatar campuses.

HIST 201 Introduction to Public History

Credits 3. 3 Lecture Hours. Examination of the methods, practices, and approaches of Public History; exploration of how historians work with and influence the development of museums, libraries, and archives; historic markers, historic sites, and monuments; exhibits, artwork, and oral history; television, film, and podcasts/radio, digital maps, virtual reality, and programming.

HIST 202 The Human Experience

Credits 3. 3 Lecture Hours. Introduction to classic transformative texts in the history of the arts, sciences, and humanities; interdisciplinary methods and approaches within the humanities; key ethical and moral debates across the human experience. **Cross Listing:** ARSC 202 and PHIL 202.

HIST 209 Famous Trials in American History

Credits 3. 3 Lecture Hours. History of prominent legal trials in the United States; role of the media in legal discourse; overview of changing ideas about crime, punishment, and justice; examination of trials as a mirror onto social, political, and cultural trends.

HIST 210 Introduction to Russian History

Credits 3. 3 Lecture Hours. Russian history, culture and society from origins to the present; rise of the Russian Empire; autocracy; modernization without liberalization; reforms, reaction, revolution; development of Communist regime; continuity from Imperial to Soviet period in industrialization, bureaucracy and treatment of peasants, nationalities and intellectual opposition; Gorbachev and a new "revolution.

HIST 212/RELS 212 Holy War

Credits 3. 3 Lecture Hours. Concepts of holy war in Jewish, Christian and Muslim history; language and literature of holy war; motivations for waging holy war; the relationship between war, martyrdom, pilgrimage and sainthood; religious orders engaging in holy war; political aims of holy war; practices of holy war; perspectives of those attacked in holy wars. **Cross Listing:** RELS 212/HIST 212.

HIST 213 History of England

Credits 3. 3 Lecture Hours. British, Saxon and Norman origins; national development; struggles between church and state; crown and nobles; nobles and commons; development of parliament.

HIST 214 History of England

Credits 3. 3 Lecture Hours. Agrarian and Industrial Revolutions; relations with Ireland; evolution of democracy; struggles with France and Napoleon; social legislation in the 20th century; growth of Empire until World War II.

HIST 220 History of Christianity: Origins to the Reformation

Credits 3. 3 Lecture Hours. History of Christian doctrine, ecclesiastical organization, and religious practice, origins through Reformation, with emphasis on religion and society; life and teachings of Jesus; apostolic church; patristic period; Christianization of Roman Empire and northern Europe; monasticism; medieval church; Gregorian reform; heresy; papal monarchy; schism and conciliarism; reformations of the sixteenth century. **Cross Listing:** CLAS 220 and RELS 220.

HIST 221/RELS 221 History of Islam

Credits 3. 3 Lecture Hours. Key themes in Islam and Islamic history; Orientalism; pre-Islamic Arabia; the Qur'an; Sunni-Shi'i sectarian divisions; Islamic law; theology; sciences; mystical traditions; rituals of the Muslim faith; cross-cultural and religious encounters; holy war; ritual practices; fundamentalism; women in Islam; Islam in the West. **Cross Listing:** RELS 221/HIST 221.

HIST 222/RELS 222 History of Christianity, Reformation to Present

Credits 3. 3 Lecture Hours. History of Christian religion from the era of the Reformation (sixteenth century) to the present, with emphasis on social, cultural, political and economic history in relation to Christian structures and theological movements. **Cross Listing:** RELS 222/HIST 222.

HIST 225 Revolutionary America

Credits 3. 3 Lecture Hours. History of the American Revolution; cultural conflict and diversity; loyalists; the conflict as a civil war; ideological clashes; British perspectives; African slave experiences; American Indian experiences; home front; social diversity of American forces; global consequences; the ongoing struggle to fulfill the revolution's promises.

HIST 226 History of Texas

Credits 3. 3 Lecture Hours. (HIST 2301) History of Texas. History of Texas from Spanish period to present day. Stress placed upon period of Anglo-American settlement, revolution, republic and development of modern state; also taught at Galveston campus.

HIST 230 American Military History, 1609 to Present

Credits 3. 3 Lecture Hours. Main events, personalities and technologies related to American military history; also taught at Qatar campus.

HIST 231 The Second World War: Origins, Course, and Consequences

Credits 3. 3 Lecture Hours. Rise of fascism in Europe and East Asia; causes and consequences of World War Two; strategies, tactics, and battles in the European and Pacific theaters; civilian lives and the homefront for Allied and Axis powers.

HIST 232 History of American Sea Power

Credits 3. 3 Lecture Hours. Development of American sea power from the 18th century to the present; also taught at Galveston campus.

HIST 234 European Military History

Credits 3. 3 Lecture Hours. Includes societal involvement, democratization of war, technology, strategy, military thought and campaigns.

HIST 236/CLAS 236 War and Violence in the Ancient World

Credits 3. 3 Lecture Hours. Equipment, organization, tactics and strategy on land and sea in the wars of the Ancient World, including the Near East, Greece and Rome; use of force and violence in the furtherance of political objectives and social control; winners, losers and survivors. **Cross Listing:** CLAS 236/HIST 236.

HIST 240 Empires of Food

Credits 3. 3 Lecture Hours. History of the relationships between food, imperialism and colonization; topics include sugar and slavery, environmental impact of colonial agriculture, agricultural labor, cultural impact food security and consumerism; also taught at Galveston campus.

HIST 241 Sport in National and International History

Credits 3. 3 Lecture Hours. Sport in politics, culture, and region; race, place, gender, and identity in athletic history; sports as an expression of nationalism, globalism, commerce, and media.

HIST 242 United States Maritime History

Credits 3. 3 Lecture Hours. Development of American maritime history from colonial times to the present; Galveston campus.

HIST 258 American Indian History

Credits 3. 3 Lecture Hours. Survey of American Indian history; Pre-Columbian, First Contact, Colonial Conquest, Differentiation between cultural groups; Reservation period, twentieth-century self-determination, and Pan-Indianism; also taught at Qatar campus.

HIST 280 The Historian's Craft

Credits 3. 3 Lecture Hours. The world of the professional historian; meanings and uses of history; current debates; archival research; evidence and argumentation; principles and methods of the analytical narrative. **Prerequisite:** History majors.

HIST 285 Directed Studies

Credits 0 to 3. 0 to 3 Other Hours. Selected fields of history not covered in depth by other courses. Reports and extensive reading required.

Prerequisite: Approval of department head.

HIST 289 Special Topics in...

Credits 3. 3 Other Hours. Selected topics in an identified area of history. May be repeated for credit. **Prerequisite:** Approval of instructor.

HIST 291 Research

Credits 0 to 3. 0 to 3 Other Hours. Research conducted under the direction of faculty member in history. **Prerequisites:** 24 hours if history, with 12 or more at 200-level or above; freshman or sophomore classification and approval of instructor.

HIST 300/AFST 300 Blacks in the United States, 1607-1877

Credits 3. 3 Lecture Hours. Blacks in the United States from the colonial period to 1877; the slave trade, slavery, free blacks and the impact of the Civil War and Reconstruction on blacks. **Prerequisite:** Junior or senior classification. **Cross Listing:** AFST 300/HIST 300.

HIST 301/AFST 301 Blacks in the United States Since 1877

Credits 3. 3 Lecture Hours. Blacks in the United States from the end of Reconstruction to the present; ideologies of black leaders, disfranchisement, lynching and the quest for equality in the 1950s and 1960s. **Prerequisite:** Junior or senior classification; HIST-301 also taught at Qatar campus. **Cross Listing:** AFST 301/HIST 301.

HIST 302 Women and War in the African Diaspora

Credits 3. 3 Lecture Hours. Case studies of women and war in the African diaspora in a wide historical and comparative context; social, economic, and cultural influence of war on women's lives; women as victims, combatants, and refugees; historical construction of race, ethnic and gender identity during times of conflict. **Prerequisite:** Junior or senior classification.

HIST 303 History and Memory

Credits 3. 3 Lecture Hours. Relationships between past and present; role of change in political, social and cultural contexts across time; social and public functions of historical research; contested relationship between professional historians, politicians and states, cultural institutions, the media and the general public. **Prerequisites:** Junior or senior classification or approval from instructor.

HIST 304 Southwest Borderlands

Credits 3. 3 Lecture Hours. Origins and development of Indigenous, Spanish, and Mexican history of Greater Southwest; exploration and conquest; Spanish entradas into Southwest; rise of institutions and colonial society; economic history; examination of social and cultural relations including gender; Mexican independence; Mexico's far northern frontier, 1821-1848. **Prerequisite:** Junior or senior classification.

HIST 305 Chicana/o History since 1848

Credits 3. 3 Lecture Hours. Social, economic and political evolution of Chicanas/os from 1848 to present; includes current issues, legacies of violence, land tenure systems, racial discrimination, changing class relations, gender, civil rights, immigration, identity, and culture.

Prerequisite: Junior or senior classification.

HIST 307 Latinx History

Credits 3. 3 Lecture Hours. Latinx communities from the nineteenth century to the present in the U.S.; Mexican Americans, Puerto Ricans, Cubans, and Central and South Americans; differences in historical experiences; role of race, class, politics, immigration, gender and sexuality; cultural identity as expressed in art, literature, folklore and religion; contemporary social, political and economic issues. **Prerequisite:** Junior or senior classification or approval of instructor.

HIST 308 History of American Indians in the U.S. South

Credits 3. 3 Lecture Hours. Examination of the role of indigenous populations in the history and formation of the U.S. South; cultural values and social practices; impact of European exploration and African slavery; trade patterns, imperial wars, and removal policies. **Prerequisite:** Junior or senior classification.

HIST 316 Latino/a Labor in the United States

Credits 3. 3 Lecture Hours. The experience of Latino/a labor in the United States, from the 19th through the early 21st century; role of gender, race and ethnicity and policy on labor experiences and labor relations; intersections of labor and migration, globalization. **Prerequisite:** Junior or senior classification.

HIST 317 Born Country - American Agricultural History

Credits 3. 3 Lecture Hours. History of American agricultural settlement and development from the colonial period to the present; labor, technology, the environment, politics and government policy; regional variations; farmer rebellions; rural society and culture. **Prerequisites:** Junior or senior classification.

HIST 319 U.S. Immigration and Ethnicity

Credits 3. 3 Lecture Hours. The sources and persistence of ethnic identity in 19th and 20th century America; its interaction with religion, politics, languages, education and social mobility; various nativist and anti-immigrant movements; contrasts and continuities between contemporary immigration patterns and those of earlier eras.

HIST 320 History of the Atlantic World

Credits 3. 3 Lecture Hours. Introduction to the comparative study of the civilizations and cultures that bordered on the Atlantic Ocean; examination of culture and economic exchanges and adaptations, migrations, empire-building, and the emergence of new societies and cultures. **Prerequisite:** Junior or senior classification.

HIST 321 The Age of Revolution in the Atlantic World

Credits 3. 3 Lecture Hours. Origins and events of the revolutions that transformed the Atlantic empires of Great Britain, France, and Spain in the late eighteenth and nineteenth centuries; disruption of old political and economic orders; creation of independent states in the Americas.

Prerequisite: Junior or senior classification.

HIST 322 History of the Iberian World

Credits 3. 3 Lecture Hours. Introduction to the people and places of the Iberian World, ca. 1500-1900; social, political and economical relations between Spain, Portugal, Asia and the Americas; emergence of a shared culture and cross-cultural exchange. **Prerequisite:** Junior or senior classification or approval of instructor.

HIST 323 Asian American History

Credits 3. 3 Lecture Hours. Asian migration to the Americas; East Asian, Southeast Asian, South Asian and Pacific Islander American perspectives; role of race, class, gender, and sexuality; civil movements for immigration and citizenship rights; cultural expression and identity formation. **Prerequisite:** Junior or senior classification.

HIST 326 History of the Caribbean

Credits 3. 3 Lecture Hours. History of the Caribbean region from human settlement to the present; Indigenous peoples; European colonization; colonial societies; challenges to the imperial plantation model; emancipation; independence and decolonization. **Prerequisite:** Junior or senior classification.

HIST 330 Women in Ancient Greece and Rome

Credits 3. 3 Lecture Hours. Survey of women in classical Greece and Rome; emphases on female occupations and family relationships, legal and political status, traditional values, notorious women, how women were viewed and how they viewed themselves. **Prerequisite:** Junior or senior classification. **Cross Listing:** CLAS 330 and WGST 330.

HIST 331 Medieval Mediterranean, 300-1453

Credits 3. 3 Lecture Hours. History of the European, North African and Middle Eastern states of the Mediterranean region in the medieval period; emphasis on political, religious, cultural, social, economic, environmental, scientific, institutional and diplomatic issues of the area and its hinterlands. **Prerequisite:** Junior or senior classification or approval of instructor.

HIST 333 Europe in the Age of Absolutism, 1660-1815

Credits 3. 3 Lecture Hours. Europe from the "Age of Louis XIV" to the Congress of Vienna; Russia, Austria and Prussia. Mercantilism, capitalism and the rise of the middle class. Origins and consequences of the Enlightenment.

HIST 334 History of Europe in the Nineteenth Century

Credits 3. 3 Lecture Hours. Cultural, economic, and political processes that shaped European civilization (east and west); the Napoleon era; industrialization and urbanization; liberalism and socialism; empire and revolution; cultural developments. **Prerequisite:** Junior or senior classification.

HIST 335 Europe, 1890-1932

Credits 3. 3 Lecture Hours. A political, diplomatic, social and cultural history of Europe prior to, during and shortly after World War I.

HIST 336 Europe Since 1919

Credits 3. 3 Lecture Hours. A political, diplomatic, military, economic, social and cultural history of Europe since World War I. **Prerequisite:** Junior or senior classification or approval of instructor.

HIST 337 War and Society in Europe Since 1900

Credits 3. 3 Lecture Hours. War and social change in Europe during the twentieth century; relationships between front lines and home fronts; government and civil society; gender and war; ethnic and national identities in Eastern, Central, and Western Europe. **Prerequisite:** Junior or senior classification.

HIST 338 The Rise of the European Middle Class

Credits 3. 3 Lecture Hours. Survey of European society and social classes from the origins of capitalism in the Middle Ages to the triumph of the "middle class world" in the 19th century; rise of the middle class, development of bourgeois ideology and culture, and creation of the working class.

HIST 339 Eastern Europe

Credits 3. 3 Lecture Hours. Eastern Europe from the late middle ages to the present; Ottoman, Habsburg, Russian and Soviet Empires; origins of modern East European nation-states; world wars; rise of nationalism; experience of communism and the Cold War; collapse of communism; post-communist democratic and economic transitions. **Prerequisite:** Junior or senior classification.

HIST 340 Global Communism - Its Rise, Fall and Legacies

Credits 3. 3 Lecture Hours. History of communism and the movements and states it inspired across the globe; communism's intellectual origins and development throughout the world; everyday life; state violence and communism at war; race, gender, nationalism and environmental impacts; the decline, collapse and reinvention of communism; contested legacies and relevance of communism today. **Prerequisite:** Junior or senior classification.

HIST 341 Latin America to 1810

Credits 3. 3 Lecture Hours. Spanish and Portuguese colonization in the Americas; encounters between Indigenous, African and European peoples; everyday lives of individual women and men in the Iberian colonies; cultural, social, economic and political developments within colonial Latin America. **Prerequisite:** Junior or senior classification.

HIST 342 Latin America Since 1810

Credits 3. 3 Lecture Hours. Political history of independent South American nations since independence with emphasis upon ABC countries; economic, social and cultural development; foreign relations. **Prerequisite:** Junior or senior classification.

HIST 343 Inter-American Relations

Credits 3. 3 Lecture Hours. Cultural, diplomatic and economic relations in the Western Hemisphere in historical perspective. **Prerequisite:** Junior or senior classification or approval of instructor.

HIST 344/AFST 344 History of Africa to 1800

Credits 3. 3 Lecture Hours. Origins of humankind in Africa; development and spread of pastoralism, agriculture and iron-working; formation of states and empires; impact of Christianity and Islam; rise of international trade in gold, ivory and slaves; African diaspora. **Prerequisite:** Junior or senior classification. **Cross Listing:** AFST 344/HIST 344.

HIST 345/AFST 345 Modern Africa

Credits 3. 3 Lecture Hours. Survey of Africa since 1800; pre-colonial African states and societies; establishment and impact of European colonial rule; rise of nationalist movements; achievement of independence; problems of political stability and economic development in contemporary Africa; South Africa's apartheid regime and its opponents. **Prerequisite:** Junior or senior classification. **Cross Listing:** AFST 345/HIST 345.

HIST 346/AFST 346 History of South Africa

Credits 3. 3 Lecture Hours. Selected themes in the history of South Africa from the African Iron Age to the Apartheid regime; history of race relations in the 19th and 20th centuries and the rise of a modern industrial state. **Cross Listing:** AFST 346/HIST 346.

HIST 347/RELS 347 Rise of Islam, 600-1258

Credits 3. 3 Lecture Hours. Late-Antiquity; Pre-Islamic Arabia; the rise of Islam and a historical survey of the development of the Islamicate civilizations from c. 600 to the Mongol Conquests c. 1258 with an emphasis on politics, religion, society and culture. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** RELS 347/HIST 347.

HIST 348 Modern Middle East

Credits 3. 3 Lecture Hours. Survey of the Middle East since 1800; introduction to Islam and Islamic civilization; decline of the Ottoman Empire; European imperialism; rise of nationalist movements; Zionism and the emergence of Israel; Arab-Israeli conflict; impact of oil; revolution in Iran and Islamic resurgence. **Prerequisite:** Junior or senior classification.

HIST 349/ASIA 349 The Vietnam War/The American War

Credits 3. 3 Lecture Hours. Vietnam's relations with the West; French colonialism; origins and development of Vietnamese nationalism; Cold War and American involvement; wartime societies in North and South Vietnam; expansion of the war to Cambodia and Laos; anti-war movements in the United States; reasons for American defeat; consequences and lessons of the war. **Prerequisite:** Junior or senior classification. **Cross Listing:** ASIA 349/HIST 349.

HIST 350/ASIA 350 World War II in Asia and the Pacific

Credits 3. 3 Lecture Hours. Origins and development of Japanese imperialism; Japan's expansion into East and Southeast Asia and the Pacific; wartime societies; collaboration and resistance; effects of the war in the United States on Japanese-Americans; outcomes of the war; remembrance of the war. **Prerequisite:** Junior or senior classification. **Cross Listing:** ASIA 350/HIST 350.

HIST 352/ASIA 352 Modern East Asia

Credits 3. 3 Lecture Hours. Impact of the West on traditional China and Japan; the response through modernization; rise of nationalism and formation of modern nation states. **Prerequisite:** Junior or senior classification. **Cross Listing:** ASIA 352/HIST 352.

HIST 353 Modern South Asia

Credits 3. 3 Lecture Hours. Evolution of cultures, politics and societies in Indian sub-continent from c.1500 to present; rise and demise of empires (especially Mughal and British); anti-colonialism and emergence of nation states; social and cultural struggles and debates. **Prerequisite:** Junior or senior classification.

HIST 354/ASIA 354 Imperial China

Credits 3. 3 Lecture Hours. History of imperial China from the earliest dynasties through the mid-19th century, including major political events, the structure of Chinese government, economic development, philosophies and religion, wars and military and culture and daily life. **Prerequisite:** Junior or senior classification. **Cross Listing:** ASIA 354/HIST 354.

HIST 355/ASIA 355 Modern China

Credits 3. 3 Lecture Hours. History of China from the coming of the West to the present; social, economic and political changes which have taken place during that period. **Prerequisite:** Junior or senior classification. **Cross Listing:** ASIA 355/HIST 355.

HIST 356/ASIA 356 Twentieth Century Japan

Credits 3. 3 Lecture Hours. Industrialization and modernization of Japan; its rise from an isolated nation to a major world power and economic giant. **Cross Listing:** ASIA 356/HIST 356.

HIST 357/AFST 357 Out of Africa: The Black Diaspora and the Modern World

Credits 3. 3 Lecture Hours. History and cultures of the peoples of the African Diaspora from the fourteenth through the nineteenth centuries; social, political, and economic impact on Africa, the Americas, Europe, and the Arab World; emphasis on race, gender, identity, and migration. **Prerequisite:** Junior or senior classification. **Cross Listing:** AFST 357/HIST 357.

HIST 358/ASIA 358 Chinese Cultural History

Credits 3. 3 Lecture Hours. 0 Lab Hours. Examination of Chinese culture and its evolution over the last 4,000 years; customs, art, literature, festivals, folklore, religion, architecture, medicine, and everyday life. **Prerequisite:** Junior or senior classification. **Cross Listing:** ASIA 358/HIST 358.

HIST 359 American Environmental History

Credits 3. 3 Lecture Hours. History of American attitudes toward nature: use of land, water, timber, oil, coal, wildlife and other natural resources in the United States; conservation movement and significant conflicts over resources; changing perception of the physical environment.

HIST 360 History of Energy in America

Credits 3. 3 Lecture Hours. Impact of energy upon industrial America; emphasis on relationship between energy and industrial development, emergence of state and federal energy policies, role of energy in foreign policy, growth of energy-oriented industries and impact of energy development on the environment.

HIST 361 From Gutenberg to Google - International History of Technology and Innovation

Credits 3. 3 Lecture Hours. Invention, development, innovation, diffusion, transfer, adaptation and application of technologies; agricultural, industrial, transportation, communications revolutions; societal shaping of technology; technological shaping of societies.

HIST 362 History of Science

Credits 3. 3 Lecture Hours. The ideas of the great scientists and their impact on society; the Newtonian Revolution; Lavoisier and the new chemistry; Darwin and evolutionary thought; Enrico Fermi, Robert Oppenheimer and the development of nuclear energy.

HIST 363 History of Science in America

Credits 3. 3 Lecture Hours. The major developments in the physical and life sciences from colonial times to the present; the lives and scientific contributions of such famous American scientists as Benjamin Franklin, Joseph Henry, Thomas Edison and J. Robert Oppenheimer.

HIST 364 From Axes to iPads - History of Innovation and Technology in America

Credits 3. 3 Lecture Hours. Pre-colonial to contemporary eras; invention, development, innovation, transfer, diffusion, adaptation and application of technologies; societal shaping of technology; technological shaping of societies.

HIST 365/RELS 365 Religion in Early America

Credits 3. 3 Lecture Hours. Religion in North America from colonial beginnings to eve of Civil War; relations between European Christianity, Native Americans and African Americans; religious pluralism, reform movements, social and political change. **Prerequisite:** Junior or senior classification. **Cross Listing:** RELS 365/HIST 365.

HIST 366/RELS 366 Religion in Modern America

Credits 3. 3 Lecture Hours. Religion in America from the Civil War to contemporary period; relationship of religion and racial formation, capitalism, gender, sexuality, immigration; religious pluralism; evangelicalism; role of religious politics and social movements. **Prerequisite:** Junior or senior classification. **Cross Listing:** RELS 366/HIST 366.

HIST 367 American Colonies

Credits 3. 3 Lecture Hours. Colonization of North America and the Caribbean; interactions between diverse Indigenous, African and European peoples; development of colonial societies and the creation of an Atlantic world. **Prerequisite:** Junior or senior classification.

HIST 368 The Birth of the Republic, 1763-1820

Credits 3. 3 Lecture Hours. Impact of French and Indian War; British colonial policy 1763-1775; War for Independence; Confederation crisis; Constitution-making and ratification; development of political parties; problem of foreign entanglements; War of 1812; conflict of nationalist and sectionalist tendencies; historiography and interpretation.

HIST 369 The United States, 1820-1860

Credits 3. 3 Lecture Hours. Jacksonian democracy; impact of nationalism and sectionalism; manifest destiny and Mexican War; slavery controversy; expansion.

HIST 370 Civil War and Reconstruction

Credits 3. 3 Lecture Hours. Survey of background and causes of the war; military, political, economic, and diplomatic aspects of the war; life behind the lines; Reconstruction and post-war adjustments, 1861-1877.

HIST 371 America in the Gilded Age, 1877-1901

Credits 3. 3 Lecture Hours. The United States from 1877 to 1901; political, cultural and economic developments.

HIST 372 Reform, War and Normalcy: The United States, 1901-1929

Credits 3. 3 Lecture Hours. Emergence of Progressivism; reform in the cities and states; reforms and foreign policies of the Theodore Roosevelt, William Howard Taft and Woodrow Wilson administrations; World War I and aftermath; Harding-Coolidge normalcy; the Jazz Age; Hoover and the Great Crash.

HIST 373 The Great Depression and World War II

Credits 3. 3 Lecture Hours. The United States, 1929-1945; cultural, social, economic, and political developments in the nation; global diplomacy and military strategy; also taught at Galveston campus.

HIST 374 The United States After World War II

Credits 3. 3 Lecture Hours. The United States since World War II; political, economic, cultural and social changes and role as a world leader; also taught at Galveston campus.

HIST 376 Great Scientists in History

Credits 3. 3 Lecture Hours. History of fundamental scientific principles through biography; Galileo, Newton, Darwin, Mendel, Curie, Einstein, Pauling, and others. **Prerequisite:** Junior or senior classification.

HIST 377 Africana Women's History

Credits 3. 3 Lecture Hours. Black women's history from the precolonial era to the present; emphasis on the cultural, political, legal, economic, sexual, social, and religious factors that shaped their experiences across the African Diaspora and the world. **Prerequisites:** Junior or senior classification. **Cross Listing:** AFST 377 and WGST 377.

HIST 378 Afro-Latin America

Credits 3. 3 Lecture Hours. History and cultures of the Black Diaspora in Latin America from colonization through the twentieth century; social, political, cultural, and economic impact of Africans and their descendants on the region; emphasis on race, culture, citizenship, and identity. **Prerequisite:** Junior or senior classification.

HIST 379 Modern Korea

Credits 3. 3 Lecture Hours. History of modern Korea; South Korea; North Korea; Korea through imperialism, decolonization, a civil war, dictatorship, and democratization; emphasis on cultural, social, economic, and political developments. **Prerequisites:** Junior or senior classification.

HIST 380 The Mongols in World History

Credits 3. 3 Lecture Hours. Examination of the origins, development, and legacies of the largest contiguous empire in history; exploration of the environmental context, notable rulers, Mongol warfare, imperial governance and administration, interactions between the Mongols and rival nomadic groups, trade, gender and the role of women, religious and ideological policies, and long-term impacts. **Prerequisites:** Junior or senior classification; or approval of instructor.

HIST 381 Energy and the Environment - Conflict or Compatibility

Credits 3. 3 Lecture Hours. Examination of history of renewable and non-renewable energy sources and their impact on the environment; focuses on the research of scientists and the scientific-technological, political, economic, and cultural issues that emerged in the 1800s-2000s; investigation of whether production and consumption of non-renewable fossil fuel energy sources are compatible or in conflict with the scientific community's environmental concerns. **Prerequisites:** Junior or senior classification or approval of instructor.

HIST 382/ANTH 382 Conflict Archaeology and Military History

Credits 3. 3 Lecture Hours. Military history; conflict archaeology; human conflict; diplomacy, ethics, and leadership in conflicts; warfare; modern global issues; public service. **Prerequisites:** Junior or senior classification or approval of instructor. **Cross Listing:** ANTH 382/HIST 382.

HIST 401 Slavery in World History

Credits 3. 3 Lecture Hours. Comparative history of human slavery; slavery in the Ancient World, Asia, Africa; varieties of modern slavery in the New World since 1500; abolition of slavery and continuing forms of human bondage in the contemporary world. **Prerequisite:** Junior or senior classification. **Cross Listing:** AFST 401 and ASIA 401.

HIST 402 History of Modern Germany

Credits 3. 3 Lecture Hours. Germany from the late eighteenth century to the present; cultural, social and political developments in national and transnational context.

HIST 404 Post 1945 Germanies

Credits 3. 3 Lecture Hours. Examines Germany from the end of World War II to the end of the 20th century; includes political, social, cultural, and economic life in divided and occupied Germany; covers Germany since reunification in 1990. **Prerequisite:** Junior or senior classification.

HIST 405 History of the Holocaust

Credits 3. 3 Lecture Hours. History of the Nazi Holocaust; Third Reich; Jewish Ghetto life and concentration camps; role of the military, U.S. and German business; lessons and legacies; also taught at Galveston campus.

HIST 406 The Era of the French Revolution and Napoleon, 1715-1815

Credits 3. 3 Lecture Hours. Origins and events of the French Revolution; Napoleon Bonaparte and the First Empire; social, economic, political and military developments in France and Europe.

HIST 407 History of France Since 1815

Credits 3. 3 Lecture Hours. Nineteenth century Bourbon, Orleanist, Bonapartist and Republican regimes; France in World Wars I and II; De Gaulle and the role of France in the 20th century.

HIST 409 Youth in Modern Asia: Rebellions and Conformities

Credits 3. 3 Lecture Hours. Twentieth century history of youth in Asia; social, cultural and political youth movements; roots of rebellions and conformities; colonialism and post-colonialism; war and anti-war movements; role of hippies, class and consumerism; femininity and masculinity; globalization and national identity; religion and morality; education; music. **Prerequisites:** Junior or senior classification or approval of instructor.

HIST 410 Russian History to 1801

Credits 3. 3 Lecture Hours. Origins and Christianization of Russia; establishment and decline of Kievan Rus' state; Mongol conquest and domination of Russia; rise of Moscow, establishment of tsardom, expansion of state in sixteenth and seventeenth centuries; Peter the Great's reforms; emergence of Russian Empire as a major power; era of Catherine the Great.

HIST 411 Imperial Russia 1801-1917

Credits 3. 3 Lecture Hours. The last century of the autocratic Romanov dynasty and the social, intellectual, economic and political forces that ended it; political culture, society in transition, international affairs and revolutionary groups in an era of reform, counter-reform, reaction and industrialization.

HIST 412 Russia's Long Twentieth Century - The Soviet Experiment and Beyond

Credits 3. 3 Lecture Hours. Historical examination of the late Russian Empire; 1917 revolutions; building the world's first socialist society; Stalinism and political terror; Great Patriotic War; Cold War; reforming the Soviet system; socialist stagnation; the Gorbachev "revolution" and Soviet collapse; post-Soviet developments and rise of Putin. **Prerequisite:** Junior or senior classification.

HIST 416 Texas as Border Region

Credits 3. 3 Lecture Hours. History of Texas since annexation; slavery and its aftermath; border cultures and identities; race and ethnicity; modernization and its discontents. **Prerequisite:** Junior or senior classification or approval of instructor.

HIST 418 Intellectual History from the Ancient Near East to the Early Middle Ages

Credits 3. 3 Lecture Hours. Political, social, cultural and religious histories of significant figures, groups, schools of thought and movements in western Afro-Eurasia from the Assyrian Empire to the later Roman Empire; developments in political theory, literature, sociology, arts, architecture, music, philosophy, law, sciences and education. **Prerequisite:** Junior or senior classification. **Cross Listing:** CLAS 418 and RELS 418.

HIST 419/RELS 419 Intellectual History, 500 to 1600

Credits 3. 3 Lecture Hours. Political, social, cultural and religious histories of significant figures, groups, schools of thought and movements in western Afro-Eurasia from the rise of Islam to the Renaissance; developments in political theory, literature, sociology, arts, architecture, music, philosophy, law, sciences and education. **Prerequisite:** Junior or senior classification. **Cross Listing:** RELS 419/HIST 419.

HIST 420 European Intellectual History from the Enlightenment to 1900

Credits 3. 3 Lecture Hours. Political and social history of selected major figures and important movements in political theory, literature, sociology, art, economics and philosophy in the 18th and 19th centuries.

HIST 421 European Intellectual History in the Twentieth Century

Credits 3. 3 Lecture Hours. Political and social history of selected major figures and important movements in political theory, literature, sociology, art, economics and philosophy from the turn of the century to the present.

HIST 425/RELS 425 The Sacred and Profane in History

Credits 3. 3 Lecture Hours. Case studies of the sacred in varied times and regions; holy persons; holy places; holy objects; language and literature of the sacred; competing concepts of the holy within society; gender and the holy; institutions promoting holy people and places; the impact of social, political, cultural and intellectual developments on the relationship between the sacred and the profane. **Prerequisites:** Junior or senior classification. **Cross Listing:** RELS 425/HIST 425.

HIST 426/CLAS 426 The Ancient Greeks

Credits 3. 3 Lecture Hours. Greek History and civilization from the Archaic Age to Alexander the Great (8th-late 4th century B.C.). **Prerequisite:** Junior or senior classification, or approval of instructor. **Cross Listing:** CLAS 426/HIST 426.

HIST 427/CLAS 427 The Roman Republic

Credits 3. 3 Lecture Hours. Major events and issues in Roman history from the beginnings of the Republic to its incipient disintegration. **Prerequisite:** Junior or senior classification, or approval of instructor. **Cross Listing:** CLAS 427/HIST 427.

HIST 428/CLAS 428 The Roman Empire: Principate

Credits 3. 3 Lecture Hours. Major events and issues in Roman history from the late Republic to the consolidation of the state of Late Antiquity. **Prerequisite:** Junior or senior classification, or approval of instructor. **Cross Listing:** CLAS 428/HIST 428.

HIST 429/CLAS 429 The Roman Empire: Transformations

Credits 3. 3 Lecture Hours. Major events and issues in Roman history from the rise of Christianity as an imperial religion to the end of Late Antiquity. **Prerequisite:** Junior or senior classification, or approval of instructor. **Cross Listing:** CLAS 429/HIST 429.

HIST 431 The Kingdom of Ireland, 1541-1800

Credits 3. 3 Lecture Hours. History of Ireland from the mid sixteenth century through the end of the eighteenth century; impact of religion, politics, warfare, land disputes, famine, and international developments; creation of the United Kingdom. **Prerequisite:** Junior or senior classification.

HIST 432 The Nation of Ireland, 1800 to the Present

Credits 3. 3 Lecture Hours. History of Ireland from the creation of the United Kingdom through the end of the twentieth century; British-Irish relations; agrarian unrest and violence; famine; political, cultural, and religious developments. **Prerequisite:** Junior or senior classification.

HIST 433 Digital Humanities Theory and Practice

Credits 3. 3 Lecture Hours. The use of digital tools for conducting humanities research; theoretical ideas that inform the field; application of theory to the critical assessment of online digital projects in the field. **Prerequisite:** Junior or senior classification. **Cross Listing:** DHUM 433 and ENGL 433.

HIST 434/FILM 434 History and Film

Credits 3. 3 Lecture Hours. Relationship between film, historical events, and public memory; cinematic representation of political, social, and economic change in various contexts; analysis of movies as historical texts; topics covered will vary according to an individual instructor's discretion. **Prerequisites:** Junior or senior classification. **Cross Listing:** FILM 434/HIST 434.

HIST 435 Sixteenth-Century Britain

Credits 3. 3 Lecture Hours. Changes in social, cultural, economic, political and religious institutions and organization; growth of the nation state; the "new monarchy"; Reformation and religious settlement; international relations; inflation and social dislocation; the role of Parliament.

HIST 436 Seventeenth-Century Britain

Credits 3. 3 Lecture Hours. Social, political, economic, cultural and religious developments, Puritanism and the Revolution of the 1640s, the Restoration, establishment of constitutional monarchy after 1688, Great Britain's rise as an imperial power.

HIST 437 Eighteenth Century Britain

Credits 3. 3 Lecture Hours. Political, social, economical, intellectual, cultural, and imperial history of Britain in the eighteenth century. **Prerequisite:** Junior or senior classification.

HIST 438 Nineteenth Century Britain

Credits 3. 3 Lecture Hours. Political, social, economic, cultural, intellectual and military history of Great Britain from 1815 to 1914. **Prerequisite:** Junior or senior classification or approval of instructor.

HIST 439 Twentieth Century Britain

Credits 3. 3 Lecture Hours. Constitutional, political, economic, military, social and cultural history of Great Britain since 1900. **Prerequisite:** Junior or senior classification or approval of instructor.

HIST 441 History of Mexico, 1821 to the Present

Credits 3. 3 Lecture Hours. Political, economic and social development of Mexico since independence and her relation to other world powers.

HIST 442 World War II

Credits 3. 3 Lecture Hours. Origins; military campaigns in Europe, North Africa, Asia, and the Pacific; European, Japanese, Asian, and American home fronts; collapse of Germany; atomic warfare; legacies. **Prerequisite:** Junior or senior classification.

HIST 443 American Military History to 1901

Credits 3. 3 Lecture Hours. American military experience from colonial days to 1901; causes, nature and effect of the wars in which the United States has participated.

HIST 444 American Military History Since 1901

Credits 3. 3 Lecture Hours. American military experience from 1901 to present; causes, nature and effect of wars in which the United States has participated; effect of war on American history.

HIST 445 History of Military Strategy

Credits 3. 3 Lecture Hours. Military thought and theory, 1700 to the present. **Prerequisite:** Junior or senior classification.

HIST 447 Law and Society in the United States through Reconstruction

Credits 3. 3 Lecture Hours. How political and social conditions in American history have produced fundamental constitutional principles, changes and practices; historical evolution of written and unwritten Constitution; state law, legal theory, legal profession and private law through the Civil War and Reconstruction. **Prerequisite:** Junior or senior classification or approval of instructor.

HIST 448 American Law Since 1865

Credits 3. 3 Lecture Hours. Analysis of themes in American legal and constitutional history since 1865; examination of social, cultural, and political context surrounding major Supreme Court decisions; social impact of laws and Supreme Court decisions; investigation of legal activities such as moot court and amicus curiae briefs. **Prerequisites:** Junior or senior classification.

HIST 449 History of Brazil, 1822 to the Present

Credits 3. 3 Lecture Hours. Political, cultural and economic development of Brazil since independence; slavery and race relations; relation to other world powers. **Prerequisite:** Junior classification.

HIST 450 Southern Identities and Cultures through Reconstruction

Credits 3. 3 Lecture Hours. Focus on parts of North America where slavery dominated the economy, politics and demographics; experiences of native, African and European-descended peoples in such regions from the colonial period to the end of slavery; debates about geographical and cultural roots of regional identities. **Prerequisite:** Junior or senior classification or approval of instructor.

HIST 451 Southern Identities and Cultures Since Reconstruction

Credits 3. 3 Lecture Hours. Focus on the aftermath of slavery and defeat in those parts of North America where slavery dominated the economy, politics and demographics; transformations in race, culture and politics in such regions and emergence of new identities since Reconstruction; debates over the geographic and cultural roots of the American South. **Prerequisite:** Junior or senior classification or approval of instructor.

HIST 452 The American Revolution

Credits 3. 3 Lecture Hours. The causes and consequences of revolutionary activity; battlefields and homefronts during the War for Independence; social, political and economic impact of the Revolution on diverse peoples and communities both in the new United States and abroad; historical memory of the American Revolution. **Prerequisite:** Junior or senior classification.

HIST 453 The American West

Credits 3. 3 Lecture Hours. Patterns of westward expansion and settlement; Native American history and culture; global immigration to the region; Western political, economic, social, and environmental developments; the American West in popular culture. **Prerequisite:** Junior or senior classification.

HIST 455 History of the American City

Credits 3. 3 Lecture Hours. History of American Cities; a social, economic and political study of industry, labor and immigration; development of a metropolitan society.

HIST 458 The History of Childhood and Family in America

Credits 3. 3 Lecture Hours. History of childhood and family in American history; examination of how region, race, ethnicity, class and gender shape children's and the family's experiences; consideration of how social, cultural, economic, and political structures shape ideas about and activities of children and families in America.

HIST 459 American Society and Culture to 1877

Credits 3. 3 Lecture Hours. Century of social and political thought, religion, science, scholarship and education in the United States.

HIST 460 American Society and Culture Since 1877

Credits 3. 3 Lecture Hours. Continuation of HIST 459 from 1877 to the present.

HIST 461/WGST 461 History of American Women

Credits 3. 3 Lecture Hours. Cultural, political, legal and religious factors that helped shape the role and character of women in American society from colonial times to the present; historical role of women in the development of the nation. **Cross Listing:** WGST 461/HIST 461.

HIST 462 American Foreign Relations to 1913

Credits 3. 3 Lecture Hours. History of U.S. foreign relations and policies to 1913. **Prerequisite:** Junior or senior classification or approval of instructor.

HIST 463 American Foreign Relations Since 1913

Credits 3. 3 Lecture Hours. History of U.S. foreign relations and policies since 1913. **Prerequisite:** Junior or senior classification or approval of instructor.

HIST 464 International Developments Since 1918

Credits 3. 3 Lecture Hours. General survey of world politics since close of World War I; problems and ideologies of great powers of Europe and factors and conditions which explain present political tendencies and policies.

HIST 468/LMAS 468 Latinx Civil Rights Movements

Credits 3. 3 Lecture Hours. Latinx civil rights movements in the twentieth century; Mexican American, Puerto Rican, Cuban, Central American; racism, economic inequality, labor exploitation, segregation, anti-immigrant sentiment, gender discrimination; role of liberalism, multiethnic coalitions, third world liberation movements, revolutionary nationalism, religion; movement philosophies and strategies; contemporary immigrant rights movements. **Prerequisites:** Junior or senior classification or approval of instructor. **Cross Listing:** LMAS 468/HIST 468.

HIST 469 History of Collective Protest and Violence

Credits 3. 3 Lecture Hours. Examination of collective protest and violence on a case study basis and in comparative and historical context; emphasis on causes, the nature of participation, assumptions and goals, and the character of repression. **Prerequisite:** Junior or senior classification.

HIST 470 American Business History

Credits 3. 3 Lecture Hours. Management strategy and structure of the modern corporation in 19th and 20th century America and the corporation's changing roles in American society.

HIST 471 Survey of World History for Elementary Education Certification

Credits 3. 3 Lecture Hours. World history for future social studies instructors; politics, economics, religion, and culture in global context; instructional methods and pedagogical philosophy for prospective elementary-level educators. **Prerequisite:** Junior or senior classification.

HIST 472 Programming for Historians

Credits 3. 3 Lecture Hours. Exploration of the use of computers for historical research; creating data out of historical source material; computer programming skills for digitizing, querying, and sharing historical texts. **Prerequisite:** Junior or senior classification.

HIST 473/WGST 473 Women's History in the Modern U.S.

Credits 3. 3 Lecture Hours. History of women in the U.S. from the late nineteenth century to the present; role of intersectionality in defining the experience of modern womanhood; women as activists, workers, consumers, mothers, and feminists; experiences, lives and influence of women of color; examination of contemporary social, political and economic histories. **Prerequisite:** Junior or senior classification or approval of instructor; HIST-473 also taught at Galveston campus. **Cross Listing:** WGST 473/HIST 473.

HIST 474 Topics in Historical Ethnical Conflict

Credits 3. 3 Lecture Hours. Analysis of a specific instance of historical ethnic conflict; examination of the social, political, religious, and economic factors contributing to that historical conflict; discussion of structural factors influencing ethnic, national and other group efforts to advance claims to separate identity and self-government; case study will vary by semester. **Prerequisite:** Junior or senior classification.

HIST 475 Empires in History

Credits 3. 3 Lecture Hours. Empires in their formative, medieval, early modern and modern periods within a comparative framework with a case-study approach; geographic range varies; politics, religion, culture, literature, arts, economics, environment, race, gender, identity formation, technology, class, medicine, sciences, philosophy, labor, violence, agriculture, immigration, slavery, diplomacy and industrialization. May be taken 3 times for credit. **Prerequisite:** Junior or senior classification.

HIST 476/WGST 476 Sex and Sexuality in History

Credits 3. 3 Lecture Hours. Changing ideas about sex and sexuality over time; includes their interaction with ideas about gender, race, class, religion, science, technology, medicine, politics and popular culture; historical and cultural processes creating modern concerns about sex and sexuality. **Prerequisite:** Junior or senior classification. **Cross Listing:** WGST 476/HIST 476.

HIST 477/WGST 477 Women and Gender in Modern European History

Credits 3. 3 Lecture Hours. Women in Europe from the 18th century to the present: women's contributions to their societies; realities of their daily lives and their responses; perceptions of women; role of institutions in defining women's roles; significance for women of industrialization, revolution, warfare, scientific discoveries; interaction of class, race and gender. **Cross Listing:** WGST 477/HIST 477.

HIST 478 Immigration in Post-1945 European History

Credits 3. 3 Lecture Hours. History of immigration in post-1945 Europe; experiences of migrants to Europe; migrant participation in workforce; backlash to immigration; migrants' cultural contributions to Europe; transformation of Europe and European identity. **Prerequisites:** Junior or senior classification.

HIST 481 Seminar in History

Credits 3. 3 Lecture Hours. Literature of an issue, event, period or people in history; use of primary source materials connected with the field of the seminar; problems of bibliography, historiography and historical method; and experience in writing. Open to senior history majors or with instructor's approval. May be repeated for credit. **Prerequisites:** Grade of C or better in HIST 280; 21 credits of history, 9 of which must be 300-level or above; senior classification or approval of instructor.

HIST 485 Directed Studies

Credits 0 to 3. 0 to 3 Other Hours. Selected fields of history not covered in depth by other courses. Reports and extensive reading required. **Prerequisite:** Approval of instructor and academic advisor; also taught at Galveston campus.

HIST 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of history. May be repeated for credit.

HIST 491 Research

Credits 0 to 3. 0 to 3 Other Hours. Research conducted under the direction of faculty member in history. **Prerequisites:** 24 hours of history, with 12 or more at 300-level or above; junior or senior classification; approval of instructor and academic advisor.

HIST 497 Independent Honors Studies

Credits 1 to 3. 1 to 3 Other Hours. Directed independent studies for upper division Honors students, regardless of academic major, in selected aspects of history. **Prerequisites:** Junior or senior classification either as Honors student or with overall GPR of 3.25 and letter of approval from head of student's major department, approval of History department head, and approval of both instructor of record and History academic advisor.

HLTH - Health (HLTH)

HLTH 210 Introduction to the Discipline

Credits 3. 3 Lecture Hours. Concepts essential to understanding the discipline: competencies and career opportunities for professional health educators in school and community settings. **Prerequisites:** Current health major.

HLTH 214/KINE 214 Health and Physical Activity for Children

Credits 3. 3 Lecture Hours. (PHED 1331) Health and Physical Activity for Children. Coordinated school health and physical activity programs appropriate for elementary aged children; focus on the content of the curriculum and the philosophical underpinnings of programming related to health and physical activity. **Cross Listing:** KINE 214/HLTH 214.

HLTH 216/KINE 216 First Aid

Credits 2. 2 Lecture Hours. (PHED 1306) First Aid. Basic first aid instruction leading to University Level, first aid course completion recognition. **Cross Listing:** KINE 216/HLTH 216.

HLTH 221 Safety

Credits 3. 3 Lecture Hours. The magnitude of the accident problem as it relates to individual and community well-being; promotion of safe behavior.

HLTH 222 Concepts in Peer Health Education

Credits 3. 3 Lecture Hours. Preparation as peer educators and campus community leaders; experiential learning; includes various health topics, program development, presentation and public speaking, communication and group facilitation. **Prerequisite:** Grade of C or better in HLTH 210 or concurrent enrollment.

HLTH 231 Healthy Lifestyles

Credits 3. 3 Lecture Hours. (PHED 1304) Healthy Lifestyles. Health issues relevant to students; included are mental health, use and abuse of drugs, human sexuality, communicable diseases, environmental and consumer health.

HLTH 236 Introduction to Health Disparities and Diversity

Credits 3. 3 Lecture Hours. Explore in-depth the racial, ethnic, and cultural dimensions that underlie health and health disparities; emphasis on culture, social economic status and governmental policies as they influence the adaptation of health practices.

HLTH 240 Computer Technology in Health and Kinesiology

Credits 3. 3 Lecture Hours. Application of current technology in the areas of health and kinesiology; fundamentals of computers and their use; application of commercial software to health and kinesiology settings; use of computer networks for communications and research.

Prerequisite: Freshman or sophomore classification in health, kinesiology or sport management.

HLTH 285 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Work on a specified topic with the intent of promoting independent reading, research and study; supplement existing course offerings or subjects not presently covered. **Prerequisites:** Freshman or sophomore classification; approval of instructor.

HLTH 291 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in health. May be repeated 4 times for credit.

Prerequisites: Freshman or sophomore classification and approval of instructor.

HLTH 331 Community Health

Credits 3. 3 Lecture Hours. Exploration of aspects of a healthy community through community organizing, building and asset mapping; identification of factors that influence the health of the community; utilization of research methods and analysis to assess community health; identification of and application of evidence-based practices and interventions to address common community health issues. **Prerequisite:** Grade of C or better in HLTH 231 or concurrent enrollment.

HLTH 332 School Health Program

Credits 3. 3 Lecture Hours. Background, development, administration and framework of the school health program; role of the school health team; nature and function of school health services and healthful school living.

Prerequisite: Grade of C or better in HLTH 210 or concurrent enrollment.

HLTH 333/PHLT 363 Spirituality and Health

Credits 3. 3 Lecture Hours. Exploration of the relationship between spirituality, religion, health, health education and spiritual health; identification of techniques to measure spiritual health/wellness and enlighten healthcare professionals to the role spiritual health plays in healing; identification of spirituality topics important to health care professionals. **Prerequisite:** Junior or senior classification; School of Public Health majors. **Cross Listing:** PHLT 363/HLTH 333.

HLTH 334 Women's Health

Credits 3. 3 Lecture Hours. A broad range of health issues that are either unique to women or of special importance to women; information for the health consumer; preparation as an advocate of healthy lifestyles; awareness of the role health plays in the life of all women. **Prerequisite:** Junior or senior classification. **Cross Listing:** PHLT 360 and WGST 334.

HLTH 335 Human Diseases

Credits 3. 3 Lecture Hours. Causes of disease, course of communicable disease, body's defense against disease and classification and description of diseases. **Prerequisite:** Grade of C or better in BIOL 320, HLTH 210, HLTH 231, and HLTH 240.

HLTH 342/PHLT 342 Human Sexuality

Credits 3. 3 Lecture Hours. Many aspects of human sexuality; physiology and function of human reproductive system, factors involved in learning sex roles, biological and emotional motivations associated with the sexual aspects of life and their relationship to marriage and family planning. **Prerequisites:** Junior or senior classification. **Cross Listing:** PHLT 342/HLTH 342.

HLTH 353/PHLT 353 Drugs and Society

Credits 3. 3 Lecture Hours. Use and abuse of drugs in today's society; physiological, sociological and psychological factors involved.

Prerequisite: Grade of C or better in BIOL 320, HLTH 210, HLTH 231, and HLTH 240. **Cross Listing:** PHLT 353/HLTH 353.

HLTH 354/PHLT 354 Medical Terminology for the Health Professions

Credits 3. 3 Lecture Hours. Designed for students interested in pursuing a career in a health, medical, scientific or other helping profession; develop medical word power skills combined with related health and disease knowledge. **Prerequisite:** Junior or senior classification. **Cross Listing:** PHLT 354/HLTH 354.

HLTH 403/PHLT 403 Consumer Health

Credits 3. 3 Lecture Hours. Selection, evaluation and understanding of health information, medical services, advertising of products and sociocultural factors in consumer health protection. **Prerequisite:** Grade of C or better in HLTH 210. **Cross Listing:** PHLT 403/HLTH 403.

HLTH 405/PHLT 405 Rural Health

Credits 3. 3 Lecture Hours. Issues facing rural health care; emphasis on understanding the geographical characteristics of rural communities and their affect on health care delivery. **Prerequisite:** Junior or senior classification; School of Public Health major. **Cross Listing:** PHLT 405/HLTH 405.

HLTH 407 Global Health

Credits 3. 3 Lecture Hours. A synthesized examination of global health from a multi-level, anthropological perspective; strong emphasis on ethical considerations implicit in global health research and program implementation; heavy use of true case studies and problem-solving exercises designed to increase cross-cultural awareness, cultural competence, empathy and critical thinking skills. **Prerequisite:** Grade of C or better in HLTH 210, HLTH 231, HLTH 240, BIOL 319, BIOL 320 and COMM 203; grade of C or better in ENGL 103 or ENGL 104.

HLTH 410 Worksite Health Promotion

Credits 3. 3 Lecture Hours. Careful examination of strategies to design, implement and evaluate exercise and health programs in worksites; including health risk assessment, marketing protocol, needs assessment, corporate culture issues, policy development and cost-benefit analysis. **Prerequisite:** Grade of C or better in BIOL 320, COMM 203, ENGL 104 or ENGL 103, HLTH 210, HLTH 231, and HLTH 240.

HLTH 415/PHLT 420 Health Education Methodology

Credits 3. 3 Lecture Hours. Theory and practice in the development and use of creative and traditional health education strategies in secondary schools and community settings; emphasis is given to cognitive, affective and behavioral teaching strategies. **Prerequisite:** Grade of C or better in HLTH 231, BIOL 320, and COMM 203; grade of C or better in HLTH 222, HLTH 240, HLTH 332, or HLTH 331; grade of C or better in ENGL 103 or ENGL 104. **Cross Listing:** PHLT 420/HLTH 415.

HLTH 421 Elementary School Health Instruction

Credits 3. 3 Lecture Hours. Modern issues, trends, content and material in elementary school health programs; research and instructional strategies essential for reading in content areas with an emphasis on developing the coordinated school health education for health and kinesiology teacher certification majors. **Prerequisite:** Grade of C or better in HEFB 222/KNFB 222 or KNFB 222/HEFB 222; grade of C or better in BIOL 107 or BIOL 111; grade of C or better in PHYS 201 or CHEM 119; junior or senior classification.

HLTH 425/PHLT 425 Health Program Evaluation

Credits 3. 3 Lecture Hours. Theory and practice in evaluation of health programs in school and community; analysis of test results; evaluation of standardized health tests. **Prerequisite:** Grade of C or better in HLTH 222, HLTH 231, HLTH 240, HLTH 331, BIOL 320, and COMM 203; grade of C or better in ENGL 103 or ENGL 104. **Cross Listing:** PHLT 425/HLTH 425.

HLTH 429 Environmental Health

Credits 3. 3 Lecture Hours. Emphasis on the interconnectedness between the environment, both natural and man-made, and human health; range of topics including sustainability, population growth, toxicology, waste management, air and water quality, built environment and environmental psychology; demonstration of how the environment can support or hinder each dimension of wellness while being effective consumers of information. **Prerequisite:** Junior or senior classification.

HLTH 440/PHLT 440 Contemporary Issues for Community Health Interns

Credits 3. 3 Lecture Hours. Preparatory course for advanced students in the community health internship program. **Prerequisite:** Grade of C or better in HLTH 222, HLTH 231, HLTH 240, HLTH 331, BIOL 320, and COMM 203; grade of C or better in ENGL 103 or ENGL 104; admission into internship program. **Cross Listing:** PHLT 440/HLTH 440.

HLTH 445 Professional Practice in Health Education

Credits 2. 2 Lecture Hours. Information, perspectives and skills to promote health and quality of life effectively in community, school, workplace and health-care settings; boundary-crossing partnerships across health disciplines; the role of collaborative efforts to better meet community health needs. **Prerequisites:** Admission to professional phase of program; junior or senior classification.

HLTH 481 Seminar in Allied Health

Credit 1. 1 Lecture Hour. Admission to allied health professional school and/or careers; research on selected allied health fields, discussion of transition from college environment to professional school/career environment including professional development. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisite:** Grade of C or better in HLTH 210, HLTH 231, HLTH 240, and COMM 203; grade of C or better in ENGL 103 or ENGL 104.

HLTH 482 Grant Writing in Health

Credit 1. 1 Lecture Hour. A writing intensive course focused on grant writing in the field of health education and health promotion; grant application written by student on a health-related topic using a recursive writing process. May be taken two times for credit. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisite:** Grade of C or better in HLTH 210, HLTH 231, HLTH 240, BIOL 320, and COMM 203; grade of C or better in ENGL 103 or ENGL 104.

HLTH 484 Community Health Internship

Credits 0 to 12. 0 to 12 Other Hours. Supervised internship at selected community, public or private health agencies. **Prerequisites:** Grade of C or better in HLTH 415/PHLT 420, HLTH 425/PHLT 425, and HLTH 440/PHLT 440; completion of all coursework.

HLTH 485 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Directed study of special problems within the discipline. **Prerequisites:** Junior or senior classification; approval of instructor.

HLTH 489 Special Topics in...

Credits 0 to 4. 0 to 4 Lecture Hours. Selected topics in an identified area of the discipline. May be repeated for credit.

HLTH 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in health. May be repeated 4 times for credit. **Prerequisites:** Junior or senior classification and approval of instructor.

HMGT - Hosp, Hotel Mgmt, Tour (HMGT)

HMGT 201 Foundations of Hospitality, Hotel Management and Tourism

Credits 3. 3 Lecture Hours. Theoretical foundations of the hospitality, hotel management, and tourism profession; professional philosophy, present status, prospects for the future and the role of hospitality, hotel management, and tourism in modern society.

HMGT 204 International Food - Service, Cuisine and Culture

Credits 3. 3 Lecture Hours. Exploration of the diverse culinary traditions and food practices around the world; examination of how culture, history, geography, and socio-economic factors influence what and how people eat; understanding of global food cultures and the role of cuisine in cultural identity, social practices, and international relations.

HMGT 207 Interpretation of Natural and Cultural Resources

Credits 3. 2 Lecture Hours. 2 Lab Hours. Principles and methods of effective communication with the public at parks, cultural institutions and tourism destinations; application of guided techniques to connect audiences with meanings inherent in a resource.

HMGT 210 Data-Driven Decision Making in Hospitality, Hotel Management and Tourism

Credits 3. 3 Lecture Hours. Critical-to-quality metrics applied to decisions in Hospitality, Hotel, and Tourism management (HMGT) and techniques needed to inform management decisions in those agencies; future HMGT managers will learn how to acquire, and interpret data to monitor quality, improve processes, and inform decisions. **Prerequisites:** HMGT 201.

HMGT 211 Planning and Implementation of Events and Programs

Credits 3. 3 Lecture Hours. Planning, operations, administration and evaluation of experiences; includes creation and implementation of experiences and special events with budgeting, operational and venue logistics, marketing, fund raising, hospitality training and participant satisfaction.

HMGT 212 Resort Event and Program Planning

Credits 3. 3 Lecture Hours. Planning, operations, administration, implementation and evaluation of resort programs and events; includes budgeting, operational and venue logistics, marketing, fund raising, hospitality training and participant satisfaction.

HMGT 223 Managing Hospitality and Tourism Organizations

Credits 3. 3 Lecture Hours. Management theory, best practices and functions associated within hospitality, hotel and tourism agencies; concepts and issues related to budgeting, financing, planning, organizing, leading, coordinating, controlling and staffing for profit, nonprofit and public organizations.

HMGT 281 Career Planning in Hospitality, Hotel Management, and Tourism

Credit 1. 1 Lecture Hour. Development of knowledge and skills necessary for employment in hospitality, hotel management and tourism; career preparation and job search strategies, professionalism, networking and opportunities for advanced education; preparation for internship and post-graduation positions. **Prerequisites:** HMGT majors only.

HMGT 291 Research

Credits 1 to 3. 1 to 3 Other Hours. Research conducted under the direction of faculty member in Hospitality, Hotel Management and Tourism. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

HMGT 300 Supervised Field Studies

Credits 3. 3 Other Hours. Survey and application of principles of tourism, hospitality and recreation; selected aspects of management in an operational setting. May be taken three times for credit. **Prerequisites:** Junior or senior classification or approval of instructor.

HMGT 301 Recreation in American Culture

Credits 3. 3 Lecture Hours. Identify and examine the fundamental concepts of leisure and outdoor recreation and how they influence us as individuals, groups and society; critical factors such as self, family, lifespan, ecology, health, work patterns, communications, diversity, popular culture, and consumption are studied in relationship to past, present and future leisure patterns. **Prerequisite:** Junior or senior classification.

HMGT 302 Application of Tourism Principles

Credits 3. 3 Lecture Hours. Tourism principles applied at local, regional and international levels; examination of the scale, scope and organization of the industry including marketing destinations and experiences; issues related to the economic, technological and political aspects of tourism. **Prerequisite:** Junior or senior classification.

HMGT 312 Managing Human Capital in Hospitality, Hotel Management, and Tourism

Credits 3. 3 Lecture Hours. Examination of best practices in managing human capital in hospitality, hotel management and tourism, agencies including sourcing, learning and development, employee relations and compensation and benefits. **Prerequisites:** HMGT 201; junior or senior classification.

HMGT 313 Managing for Service Quality in Events, Tourism and Recreation

Credits 3. 3 Lecture Hours. Tools and skills to successfully manage customer interactions in leisure contexts; creating value and satisfaction for guests and employees; managing capacity and demand; service strategy, guest experience design, conflict, recovery, and continuous improvement research. **Prerequisites:** HMGT 201; junior or senior classification.

HMGT 314 Service Quality in Hospitality, Hotel Management, and Tourism

Credits 3. 3 Lecture Hours. Key concepts in managing service organizations and their operations to create value and satisfaction for employees and end users; service strategy, user experience and user interface design, conflict, recovery, and research; managing capacity and demand; overview of tools and skills to successfully manage customer interactions. **Prerequisites:** Junior or senior classification.

HMGT 319 Event Management in Specialized Contexts

Credits 3. 3 Lecture Hours. Intermediate level applications of event management principles as they specifically relate to various event settings, purposes, and scales to include live music, festivals, cultural events, meetings, conventions, conferences, trade shows, incentive travel, non-profit fundraisers, wedding, life cycle events, sporting events, and other ancillary activities. **Prerequisites:** HMGT 211; junior or senior classification.

HMGT 320 Event Management and Operations

Credits 3. 3 Lecture Hours. Principles and applications for effective planning and management of events; planning, promotion, operational logistics, sponsorship and evaluation. **Prerequisites:** HMGT 211; junior or senior classification.

HMGT 331 Marketing in the Digital Age for Hospitality, Hotel Management and Tourism

Credits 3. 3 Lecture Hours. Application of basic and digital tourism marketing principles and concepts in government, business, and social-cause contexts; situation analysis and operational evaluation; decision making in terms of product, place, price, and channel of distribution mixes for tourism attractions and services. **Prerequisite:** Junior or senior classification.

HMGT 333 Meetings, Incentives, Conventions, and Exhibitions

Credits 3. 3 Lecture Hours. Application of hospitality management principles to convention, incentive tourism and corporate meeting planning; key planning elements applicable to the Meetings, Incentives, Conventions, Exhibitions (MICE) industry on local, national and global scales; development of MICE careers. **Prerequisites:** Junior or senior classification.

HMGT 336 Recreation Program Assessment and Evaluation

Credits 3. 3 Lecture Hours. Best practices for service and program assessment and evaluation practices in recreation and hospitality industries; quantitative and qualitative techniques; user needs assessments; introductory data analysis techniques; use of infographics, social math and other data reporting techniques. **Prerequisites:** HMGT 201, HMGT 211 and junior or senior classification.

HMGT 340 Global Communities & Diverse Populations in Hospitality, Hotel Management and Tourism

Credits 3. 3 Lecture Hours. Global Communities & Diverse Populations in Hospitality, Hotel Management and Tourism. Impact of ethnicity, gender, sexuality, age, socioeconomic factors, and disability on the preferences and experiences of people in the United States; implications of diversity on hospitality, hotel, and tourism, programs; topics include issues of inclusion, equity, marginalization and oppression, concepts of social justice, and strategies for serving global communities and diverse populations. **Prerequisite:** Junior or senior classification.

HMGT 352 Hotel and Resort Operations

Credits 3. 3 Lecture Hours. Examination of the crucial elements involved in the successful operation of a hotel or resort and how they interrelate; analysis and application of management principles in the major departments of hotels and resorts to include rooms division, food and beverage, recreation, sales and marketing. **Prerequisites:** Junior or senior classification.

HMGT 353 Food and Beverage Management

Credits 3. 3 Lecture Hours. Key principles and skills required in the effective management of food and beverage operations; topics include application of strategic, managerial and operational factors which characterize successful food and beverage operations within hotels and resorts; menu planning, food purchasing, receiving, preparation, serving and marketing; development of the industry; ethical obligations in the industry. **Prerequisites:** Junior or senior classification.

HMGT 354 Restaurant Management

Credits 3. 3 Lecture Hours. Overview of management of all areas of restaurant business including back-of-house, front-of-house, development of a new restaurant business; legal considerations; managing staff; budget control. **Prerequisites:** HMGT 353; junior or senior classification.

HMGT 380 Healthy Living and Recreation Environments

Credits 3. 3 Lecture Hours. Roles of parks and recreation within the healthy living paradigm; outcomes of recreation programs and places on overall quality of life, physical, mental, and social health of communities and community members; examination of key sociological concepts related to lifelong leisure skills, leisure across the lifespan, and quality of life as well as agency and community level concepts such as social and behavioral marketing, social ecological model, and participatory action research. **Prerequisites:** Junior or senior classification.

HMGT 382 Sustainability and Place Management

Credits 3. 3 Lecture Hours. Exploration of parks and recreation as sustainable places; land access issues facing urban and sprawling communities and how modern-day park systems address land-use, repurpose land, and design and program spaces for park and recreation use with an emphasis on natural and environmental benefits; crucial components of land acquisition, classifications, operations, planning, and design concepts. **Prerequisites:** HMGT 201 and junior or senior classification.

HMGT 384 Junior Internship

Credits 2. 2 Other Hours. Practical experience working in a professional hospitality, tourism, recreation, or event management setting.

Prerequisites: HMGT 201 and HMGT 281; junior or senior classification.

HMGT 401 Entrepreneurship in Hospitality, Tourism and Events

Credits 3. 3 Lecture Hours. Market and financial feasibility analysis; resource characteristics, location and market aspects of hospitality, tourism and event enterprises; sources of funding for facility development; approaches to marketing hospitality, tourism and event services; business plan development. **Prerequisites:** HMGT 223 or HMGT 411; junior or senior classification.

HMGT 402 Planning and Design of Hospitality, Tourism and Recreation Places

Credits 3. 2 Lecture Hours. 2 Lab Hours. Analysis of the classification of areas according to primary function, location and clientele served; examination of basic park planning principles involving scale, circulation, function and spatial relationships; methodology for establishing planning goals, objectives and planning strategies. **Prerequisites:** HMGT 201; junior or senior classification.

HMGT 411 Cruise Tourism

Credits 3. 3 Lecture Hours. Overview of cruise tourism; management of service sectors; understanding of cultural aspects of places traveled; cruise marketing/decision making; geography of cruising; youth programming; agri-tourism; identification of issues related to the economic, technological and political aspects of cruise tourism. **Prerequisite:** Junior or senior classification.

HMGT 412 International Event Management

Credits 3. 3 Other Hours. Event execution and experience in a country other than the US; evaluation of venues, vendors, and other logistical and practical elements specific to the culture or country of study. **Prerequisites:** HMGT 211 or approval of instructor; junior or senior classification.

HMGT 424 Event Management Capstone

Credits 3. 3 Lecture Hours. Practical application of event management principles through event execution; exploration and application of event design principles; demonstration of academic knowledge in management of events through certification and professional documentation of event coordination experiences. **Prerequisites:** HMGT 320; junior or senior classification.

HMGT 426 Sustainable Tourism

Credits 3. 3 Lecture Hours. Sustainability-oriented approach to the development, planning and management of tourism destinations, attractions and events; dynamic characteristics of the complex tourism system; local to global scope of tourism-related impacts; key stakeholders and power relations; application of key principles of sustainable tourism development for destination resilience, community well-being and long-term sustainability of tourism destinations. **Prerequisites:** HMGT 302; junior or senior classification.

HMGT 430 Leadership Seminar in Hospitality and Hotel Management

Credits 3. 3 Lecture Hours. Overview of leadership styles, skills, roles, and functions of leaders of organizations; history and origins of leadership, theoretical approaches to leadership, and ethical issues facing contemporary leaders; moral and ethical responsibilities of leaders; awareness of individual styles of leadership. **Prerequisites:** HMGT 223; senior classification.

HMGT 440 Global Engagement in Hospitality, Hotel Management and Tourism Studies

Credits 2 to 6. 2 to 6 Other Hours. Exploration of sustainable tourism destination management in a foreign country; conservation of natural and cultural resources balanced with hospitality infrastructure and visitor experience. May be repeated for credit. **Prerequisites:** Junior or senior classification or approval of instructor.

HMGT 442 International Perspectives in Hospitality, Tourism and Events

Credits 3. 3 Lecture Hours. Transnational tourism and hospitality; cross-cultural consumption of experiences; differences and similarities in cultural norms, exceptions, rules and preferences; global perspective from a hospitality and tourism lens to explore culture, language, customs, religion, politics, leisure, business, law, gastronomy and environment. **Prerequisites:** HMGT 201 and HMGT 340; junior or senior classification.

HMGT 446 Information and Communication Technology in Hospitality, Hotel Management and Tourism

Credits 3. 3 Lecture Hours. Information and communication technologies in the hospitality, tourism, recreation, and event management fields; analysis of technology adoption and how technology is used for knowledge management, support, collaboration, communication, accounting, reservations and scheduling, forecasting, and payments. **Prerequisites:** HMGT 211 and HMGT 223; junior or senior classification.

HMGT 449 Tourism Capstone

Credits 3. 3 Lecture Hours. Application of theoretical frameworks and tourism management concepts to a project with a participating company; strategic analysis of company structure and needs; research of areas and markets; analysis and presentation of findings in accordance with project objectives. **Prerequisites:** HMGT 302; HMGT 320 or HMGT 446; HMGT 401; senior classification.

HMGT 450 Financing Hospitality, Hotel, and Tourism Services

Credits 3. 3 Lecture Hours. Exploration of financial vehicles for funding hospitality, hotels and tourism organizations and services. **Prerequisites:** HMGT 223 or HMGT 411; junior or senior classification.

HMGT 451 Law, Negotiation, and Risk Management in Hospitality, Tourism and Recreation

Credits 3. 3 Lecture Hours. Evaluation of laws and lines of legal inquiry related to work in hospitality, events, tourism, youth, and recreation settings; skills related to contract negotiation and review; elements of contracts and completion of agreements. **Prerequisites:** HMGT 201; junior or senior classification.

HMGT 452 Strategic Management for Hospitality and Tourism

Credits 3. 3 Lecture Hours. Fundamentals of strategic management in hospitality and tourism contexts using theoretical frameworks and practical applications; three phases in the strategic management process – planning, implementation and evaluation will be examined; critical evaluations of the long-term strategic issues affecting hospitality and tourism enterprises. **Prerequisites:** HMGT 201; junior or senior classification.

HMGT 465 Revenue Management

Credits 3. 3 Lecture Hours. Demand-based pricing system employed in the hospitality and tourism industry coupled with information technology resulting in long term strategic impacts; role and function of revenue manager as the key executive responsible for managing the pricing and supply policies in hotels and airlines. **Prerequisites:** HMGT 352; junior or senior classification.

HMGT 467 Seminar for the Visitor Economy

Credits 3. 3 Other Hours. Overview of micro, meso, and macro-economic effects of tourism related enterprises on the visitor economy; challenges facing managers in relation to the visitor economy, whether local, state, regional, national or global; impacts and opportunities for various tourism sectors. **Prerequisites:** HMGT 201; HMGT 223 or HMGT 411; junior or senior classification.

HMGT 470 Contemporary Hotel and Resort Development

Credits 3. 3 Lecture Hours. International contemporary trends including Integrated Resort and Mega Hotels to include accommodations, entertainment, event venues, theme parks, luxury management and retail facilities; course will address branding and market segmentation, and how those specific niches influence future development of hotels and resorts. **Prerequisites:** HMGT 352; junior or senior classification.

HMGT 476 Leadership for Outdoor Recreation

Credits 3. 3 Lecture Hours. Leadership principles related to outdoor recreation; classroom instruction and experiential learning; skills training through field trips; risk management planning, environmental education, group facilitation, and trip planning. **Prerequisite:** Junior or senior classification.

HMGT 480 Hospitality Enterprises Practicum

Credits 3. 3 Other Hours. Practical experience working in a professional hospitality setting; offered on an individual basis. **Prerequisites:** HMGT 201, HMGT 281; junior or senior classification.

HMGT 481 Seminar

Credit 1. 1 Other Hour. Development of knowledge and skills necessary for employment in hospitality, hotel management and tourism; career preparation and job search strategies, professionalism, networking and opportunities for advanced education; preparation for internship and post-graduation positions. **Prerequisites:** HMGT majors; junior or senior classification.

HMGT 484 Internship

Credits 3. 3 Other Hours. Practical experience working in a professional hospitality, hotel management, tourism, event management or recreation setting; offered on an individual basis. May be repeated for credit.

Prerequisites: HMGT 340 and HMGT 384; junior or senior classification.

HMGT 485 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. For individual research by advanced undergraduates upon a broad range of subjects not included in established courses. **Prerequisite:** Junior classification or approval of department head.

HMGT 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 9 Lab Hours. Selected topics in an identified area of hospitality, hotel, tourism, recreation and event management. May be repeated for credit.

HMGT 491 Research

Credits 1 to 3. 1 to 3 Other Hours. Research conducted under the direction of faculty member in Hospitality, Hotel Management and Tourism. Registration in multiple sections of this course are possible within a given semester provided that the per semester credit hour limit is not exceeded. **Prerequisites:** Junior or senior classification and approval of instructor.

HORT - Horticultural Sciences (HORT)

HORT 201 Horticultural Science and Practices

Credits 3. 3 Lecture Hours. (AGRI 1315, AGRI 1415*, HORT 1301, HORT 1401*) Horticultural Science and Practices. Structure, growth and development of horticultural plants from a practical and scientific approach; environmental effects, basic principles of propagation, greenhouse and outdoor production, nutrition, pruning and chemical control of growth, pest control and branches of horticulture.

HORT 202 Horticultural Science and Practices Laboratory

Credit 1. 3 Lab Hours. (HORT 1101, AGRI 1115, HORT 1401*, AGRI 1415*) Horticultural Science and Practices Laboratory. Methods and practices related to production of horticultural crops; practical exercises in greenhouse and field. **Prerequisite:** HORT 201 or registration therein.

HORT 203 Floral Design

Credits 3. 2 Lecture Hours. 2 Lab Hours. Principles of design illustrated with the use of floral materials; floral design elements and techniques including color, form, line and texture; history and utilization of floral art in society.

HORT 281 Professions in Horticulture

Credit 1. 1 Lecture Hour. Comprehensive view of the opportunities in the science, technology and art of horticultural sciences and potential career paths; sub-disciplines by crop (fruit, vegetable, viticulture, nut, ornamental crops, floral crops, controlled environment and urban horticulture) and approach (research, technology, biotechnology, mechanization, genetics, genomics, and breeding, phenomics, landscaping, production, sustainability, floral design, indoor farming, and entrepreneurship); examination of the national and international scope and economic, environmental and health impacts of horticulture; major horticultural regions in Texas; interactions with representatives and leaders of various horticultural industries; featured horticulture innovations presented by inventors; development of an online professional profile, such as LinkedIn.

HORT 291 Research

Credits 1 to 3. 1 to 3 Other Hours. Research conducted under the direction of faculty member in horticulture. May be repeated 2 times for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

HORT 301 Garden Science

Credits 3. 3 Lecture Hours. Identification, propagation, soil management, fertilization, growth control and protection of common garden plants: indoor ornamentals, landscape ornamentals, fruits and vegetables; special topics include home landscaping, container gardens, bonsai, herbs and medicinal plants and hobby greenhouse management; overview of the effects of organic and non-organic practices on the garden ecosystem. **Prerequisites:** Junior or senior classification, or approval of instructor.

HORT 306 Trees and Shrubs for Sustainable Built Environments

Credits 3. 2 Lecture Hours. 2 Lab Hours. Better known woody ornamental trees and shrubs; identification, morphology, classification, nomenclature and adaptability for use in landscape environments. **Prerequisite:** BIOL 101, BIOL 111, BIOL 113, HORT 201, HORT 301, LAND 101, or RENR 205, or approval of instructor.

HORT 308 Plants for Sustainable Landscapes

Credits 3. 2 Lecture Hours. 2 Lab Hours. Identification and use of indigenous and introduced landscape plants; plants for special uses in urban environments; emphasis on plants' ornamental attributes, cultural requirements, and adaptability in urban and suburban environments. **Prerequisite:** BIOL 101, BIOL 111, BIOL 113, HORT 201, HORT 301, LAND 101, or RENR 205, or approval of instructor.

HORT 313 Introduction to Plant Physiology

Credits 3. 3 Lecture Hours. Study of principal life processes of higher plants; influence of environmental factors on these processes; agricultural and ecological significance of life processes of plants. **Prerequisite:** BIOL 101, BIOL 111 or BIOL 113 and CHEM 222 or CHEM 227.

HORT 315 Issues in Horticulture

Credits 3. 3 Lecture Hours. Analysis of contemporary economic, technological, environmental, human resource, and regulatory issues that impact the way global horticultural firms compete; emphasis on problem recognition and analysis of managerial decisions by firms throughout the entire horticultural supply chain. **Prerequisites:** HORT 201, HORT 202, and junior or senior classification.

HORT 319 Fruit and Nut Production

Credits 3. 2 Lecture Hours. 3 Lab Hours. Rootstocks, cultivars, identification, site selection, pollination, pruning, fruit thinning, dormancy, orchard culture management, irrigation, pest control, harvesting and post harvest physiology of temperate fruit and nut species. **Prerequisite:** HORT 201.

HORT 325 Vegetable Crop Production

Credits 3. 2 Lecture Hours. 3 Lab Hours. Origin, nutritive value, economic importance, botany and cultural practices of the major vegetable crops. Lab activities include organic and non-organic production of major vegetable crops.

HORT 326 Plant Propagation

Credits 4. 3 Lecture Hours. 3 Lab Hours. Principles, practices and techniques followed in the sexual and asexual propagation of horticultural plants: seed technology and seed propagation, rooting and propagation of cuttings, graftage and budding systems, layering and propagation by specialized plant structures, biotechnology and tissue culture systems for micropropagation. **Prerequisites:** Grade of D or better in HORT 201 or approval of instructor.

HORT 332 Horticulture Landscape Graphics

Credits 3. 2 Lecture Hours. 2 Lab Hours. Graphic representation of landscape design; demonstrations of technique; examination of drawing examples and drawing production; basic hand graphics techniques for visual-thinking and presentation-quality landscape drawings. **Prerequisite:** Junior or senior classification.

HORT 335 Sociohorticulture

Credits 3. 3 Lecture Hours. Horticulture as it relates to humans through people-plant interactions; use of horticulture to improve quality of life; awareness and appreciation of the economic, environmental, social and health benefits of plants. **Prerequisite:** Junior classification.

HORT 360 Landscapes of Sustainable Built Environments

Credits 3. 3 Lecture Hours. Construction and maintenance considerations for landscapes in urban sustainable environments, including green roofs, bioretention cells, rain gardens, and living walls; how to maximize benefits of each system, current trends in regulatory and permitting processes of green infrastructure, and the development of industry-wide guidelines versus standards. **Prerequisites:** Grade of C or better in HORT 201 or concurrent enrollment, or junior or senior classification.

HORT 400 Field Studies in Horticulture

Credits 1 to 3. 1 to 9 Other Hours. History of garden design and the development of the field of Ornamental Horticulture; designs of famous designers Capability Brown and Gertrude Jekyll; pastoral and formal design themes; plant selection and placement from an artistic and functional design perspective; European manipulation of plant form.

Prerequisites: HORT 201 or HORT 301 and approval of instructor.

HORT 404 Plant Breeding

Credits 3. 2 Lecture Hours. 2 Lab Hours. Application of genetics and other sciences to breeding and improvement of horticultural crops; methods and special techniques employed. Offered in even numbered years. Only one of the following will satisfy the requirements for a degree: HORT 404 or SCSC 304. **Prerequisite:** HORT 201, SCSC 205, or GENE 302, or approval of instructor.

HORT 411 Hydroponic and Soilless Crop Production

Credits 3. 2 Lecture Hours. 2 Lab Hours. Principles, practices, and techniques exploring the science and management of controlled environment crop production using hydroponics and other soil-less cultivation methods; construction and maintenance of hydroponic systems and the growth of crops in a research and commercial production setting. **Prerequisites:** HORT 201 and junior or senior classification.

HORT 416 Understanding Wine - From Vines to Wines and Beyond

Credits 3. 3 Lecture Hours. Facets of wine in the United States and around the world; the history of wine, grape growing and winemaking, types of wine, wine etiquette, beer and spirits, sensory evaluation, wine marketing, and winery tasting room and event management. **Prerequisites:** Must be 21 years of age; junior or senior classification or approval of instructor.

HORT 418 Nut Culture

Credits 3. 3 Lecture Hours. Orchard management, native grove development, cultivars, fruit setting, soils, nutrition, propagation, pest control, harvesting, shelling, storage and marketing of temperate tree nut crops grown in the U.S. with major emphasis on pecans. Offered in odd numbered years. **Prerequisite:** HORT 319 or approval of instructor.

HORT 419 Viticulture and Small Fruit Culture

Credits 3. 3 Lecture Hours. Classic winegrape culture in Europe and U.S. are taught; influence of climate, soil, cultivar, rootstock, canopy and management is presented; nutrition, water, spacing, trellis, pruning, IPM and harvest are integrated for quality yields; culture of muscadines, berries, figs and persimmons are taught. Offered in even numbered years. **Prerequisite:** HORT 201 or approval of instructor.

HORT 420 Concepts of Wine Production

Credits 3. 3 Lecture Hours. Classic wine grapes of the world and where they are produced; evaluation of wine style and quality through formal laboratory tastings. **Prerequisites:** HORT 201 or FSTC 201; must be 21 years of age; junior or senior classification.

HORT 421 Enology

Credits 3. 2 Lecture Hours. 3 Lab Hours. Provides a basic understanding of each step of the wine making process; emphasis on home and small scale commercial wine production as related to Texas conditions.

Prerequisites: Must be 21 years of age; junior or senior classification.

HORT 423 Tropical Horticulture

Credits 3. 3 Lecture Hours. Production, processing and marketing of coffee, bananas, cacao, mango, cashew, pineapple, coconut and root and tuber crops; recent significant developments in plant breeding and cultural practices. Offered in odd numbered years. **Prerequisites:** HORT 201 or approval of instructor.

HORT 425 Horticulture Landscape Installation

Credits 3. 2 Lecture Hours. 3 Lab Hours. Principles and practices of grading, drainage and construction of residential and small commercial landscapes; cost and bid estimation; soil preparation; transplanting operations; control of landscape diseases and pests; estimating maintenance requirements of landscape installations. **Prerequisite:** HORT 201 or approval of instructor.

HORT 426 International Floriculture Marketing

Credits 3. 2 Lecture Hours. 2 Lab Hours. Importance, cost, and opportunities in marketing floral products, fresh cut flowers, flowering potted plants, foliage plants, and bedding/garden plants; topics include: world production areas, economic value, species grown, marketing channels, retail environments, current/future consumers, postharvest handling, promotion/advertising, perceived/added value, marketing trends and employment opportunities. **Prerequisites:** HORT 201; junior or senior classification.

HORT 428 Greenhouse Technology & Sustainable Crop Production Systems

Credits 3. 2 Lecture Hours. 2 Lab Hours. Greenhouse Technology & Sustainable Crop Production Systems. Technology used to operate and manage energy efficient greenhouses for sustainable production of crops; greenhouse structures, equipment and automation; heating, cooling and ventilating systems; environmental computerized controls; environmental inputs as they affect plant physiological processes and influence plant growth and development including temperature and light, root substrates, water quantity and quality, irrigation efficiency, fertilization sources and integrated pest management; sustainable crop production systems and practices for hydroponics, plug production, photoperiodic crops, vernalization and lighting technology to produce vegetative and reproductive plant products; scheduling, controlling growth, harvesting and marketing practices for commercially important, high quality, high value crops. **Prerequisite:** HORT 201 and junior or senior classification, or approval of instructor.

HORT 429 Floriculture Crop Production

Credits 3. 2 Lecture Hours. 2 Lab Hours. Production of floriculture crops in the greenhouse environment; scheduling and controlling crop growth for target market periods; specific flowering crops will be used as models to demonstrate potted flowering plant, cut flower, and garden plant production systems; hands-on crop production experience in lab. **Prerequisite:** HORT 201 or approval of instructor.

HORT 431 Nursery Production and Management

Credits 3. 2 Lecture Hours. 2 Lab Hours. Container, field and protected culture production of ornamental nursery plants (shrubs, trees, ground covers, bedding plants and herbaceous perennials); retail and wholesale nursery-site selection and development, financing, niche-marketing, personnel and labor management; wholesale nursery production cycles and systems, storage and shipping. **Prerequisites:** Grade of C or better in HORT 201 or approval of instructor.

HORT 432 Horticulture Landscape Design

Credits 3. 2 Lecture Hours. 2 Lab Hours. Application of the principles and elements of design to planning and developing both exterior residential landscape designs and interior commercial designs. **Prerequisites:** HORT 332 or concurrent enrollment; HORT 306 or concurrent enrollment, or HORT 308; or approval of instructor.

HORT 435 Urban Horticulture

Credits 3. 3 Lecture Hours. Introduction to urban horticulture and its role in community development and well-being; emphasis on career opportunities and the roles of the urban horticulture programmer. Offered in odd numbered years. **Prerequisite:** Junior or senior classification.

HORT 440 International Horticulture

Credits 3. 3 Lecture Hours. Examines the source of horticultural commodities; shows how geography, culture, politics, and history influence our markets, gardens and kitchens; educates students on interpreting different garden styles. **Prerequisites:** HORT 201 or HORT 301 or approval of instructor.

HORT 442 Horticulture Landscape Design II

Credits 3. 2 Lecture Hours. 2 Lab Hours. Computer-aided-drafting (CAD) to produce site layout, grading and planting plan, and construction details for small-scale landscape design; advanced design principles and practices in their historical context, includes design and drafting of hardscape details, manipulation of earth forms, ecological urban park design to traditional garden design. **Prerequisites:** HORT 432; HORT 306 or HORT 308, or concurrent enrollment, or approval of instructor.

HORT 446 Commercial Fruit and Vegetable Processing

Credits 3. 2 Lecture Hours. 3 Lab Hours. Pilot plant and laboratory operations pertaining to processed fruits, vegetables and beverages; new product development emphasized via individual laboratory projects. **Prerequisite:** FSTC 311.

HORT 450 Processing Coffee and High-Value Horticultural Crops

Credits 3. 3 Lecture Hours. Examination of the principles behind coffee processing and other high-value food crops including cultivation; different unit processing operations; methods for preservation; packaging and marketing strategies; and a processing plant visit. **Prerequisite:** Junior or senior classification or approval of instructor.

HORT 451 Retail Floristry

Credits 3. 2 Lecture Hours. 3 Lab Hours. Principles of floral design in a commercial shop enterprise; aspects of design in vase arrangements, personal flowers, sympathy flowers and flowers for special occasions; production costs and profit analysis, selling techniques and customer relations; term project required. **Prerequisite:** HORT 203 or approval of instructor.

HORT 452 Floral Design: Weddings and Personal Flowers

Credits 3. 2 Lecture Hours. 3 Lab Hours. Basic principles of floral design as applied to wedding work; design principles and mechanics as applied to corsages, headpieces, hand bouquets and ceremony and reception decorations; history of wedding traditions; selling and pricing weddings. **Prerequisite:** HORT 203 or HORT 451 or approval of instructor.

HORT 453 Floral Art

Credits 2. 1 Lecture Hour. 2 Lab Hours. Advanced study of floral design as an art form in contrast to a commercial florist operation; interpretive expression of design principles and color stressed along with international design styles. **Prerequisites:** HORT 203.

HORT 454 Special Event Design and Production

Credits 2. 1 Lecture Hour. 2 Lab Hours. Role of event planners, production managers, designers, and decorators within traditional event management practices; analyze how artistic components are used in visual styling to achieve a specific purpose; impact of collaborative planning, effective research, and strong communication skills, social psychological and economic influences as they relate to event planning. **Prerequisite:** Junior or senior classification.

HORT 460 Landscape Estimating, Bidding, and Operations

Credits 3. 2 Lecture Hours. 2 Lab Hours. Landscape estimating, bidding and sales processes; business structures, insurance and bonding requirements and business management; overhead costing structures and management; case study involves bidding from a set of landscape plans and specifications. **Prerequisites:** Junior or Senior classification.

HORT 481 Seminar

Credits 2. 2 Lecture Hours. Advanced preparation for the transition from college to the work environment including career investigation, presentation techniques and practice, resume and e-portfolio preparation, and professional development and career advancement; required of all senior students in horticulture. **Prerequisite:** Junior or senior classification.

HORT 484 Internship

Credits 1 to 9. 1 to 9 Other Hours. On-the-job experience program in the student's area of horticultural specialization. May be taken three times for credit. **Prerequisites:** Sophomore, junior or senior classification; approval of instructor; 2.0 GPR in major and overall.

HORT 485 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Special problems and projects in any area of horticulture. **Prerequisite:** Junior or senior classification or approval of department head.

HORT 489 Special Topics in...

Credits 1 to 4. 0 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of horticultural science. May be repeated for credit. **Prerequisite:** Approval of instructor.

HORT 491 Research

Credits 1 to 3. 1 to 3 Other Hours. Research conducted under the direction of faculty member in horticulture. May be repeated 2 times for credit. Registration in multiple sections of this course are possible within a given semester provided that the per semester credit hour limit is not exceeded. **Prerequisites:** Junior or senior classification and approval of instructor.

HUMA - Humanities (HUMA)

HUMA 304/RELS 304 Asian Religions

Credits 3. 3 Lecture Hours. Beliefs and practices of Hinduism, Jainism, Sikhism, Buddhism, Confucianism, Taoism and Shinto with particular attention to their philosophical presuppositions. **Cross Listing:** RELS 304/HUMA 304.

HUMA 321 Political Islam and Jihad

Credits 3. 3 Lecture Hours. Interaction between Islamic movements and politics in various Middle Eastern countries; the meaning and evolution of jihad; the role of Islam as a tool for political and social mobilization. **Prerequisite:** Junior or senior classification, or approval of instructor. **Cross Listing:** INTA 321 and RELS 321.

HUMA 485 Directed Studies

Credits 1 to 6. 1 to 6 Other Hours. Directed Studies in humanities. May be repeated for credit. **Prerequisite:** Approval of department head.

HUMA 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of humanities. May be repeated for credit. **Prerequisite:** Approval of instructor.

IBUS - International Business (IBUS)

IBUS 285 Directed Studies

Credits 1 to 3. 1 to 3 Other Hours. Directed study of selected problems in international business not covered in other courses. May be taken two times for credit. **Prerequisites:** Freshman or sophomore classification in business.

IBUS 289 Special Topics in...

Credits 1 to 3. 1 to 3 Lecture Hours. 0 to 3 Lab Hours. Selected topics in an identified area of international business. May be taken two times for credit. **Prerequisites:** Freshman or sophomore classification in business.

IBUS 291 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of faculty members in international business. May be repeated one time for credit. **Prerequisites:** Business majors; freshman or sophomore classification; approval of instructor.

IBUS 301 Business Study Abroad

Credits 1 to 18. 1 to 18 Lecture Hours. For students in approved programs abroad. May be repeated for credit. **Prerequisites:** Admission to upper division in Mays Business School and selected for program; approval of study abroad coordinator and academic dean.

IBUS 310 Global Context of Business

Credits 3. 3 Lecture Hours. Examination of how culture, government, history, politics, economy, and current events of one or more countries affect business; development of understanding of the foreign country or countries; real world comprehension on how to successfully engage in business due to understanding the economic, cultural, and political issues facing the country; global field-study based course with a duration of 1-2 weeks abroad. **Prerequisite:** Admitted to Mays Business School and approval of instructor.

IBUS 320 Global Sustainable Business

Credits 3. 3 Lecture Hours. Examination of sustainable business development, financial literacy, and small business consulting; real world comprehension on how to successfully engage in sustainable business development in context of host community and country's economic, cultural, and political issues; global field-study based course with hands on experience engaging indigenous, rural community for 1-2 weeks abroad. May be repeated two times for credit. **Prerequisite:** Admitted to Mays Business School and approval of instructor.

IBUS 401/MKTG 401 Global Marketing

Credits 3. 3 Lecture Hours. Survey of the aspects involved in marketing goods and services in a global marketplace; social, political, legal and economic issues associated with conducting business globally. **Prerequisite:** MKTG 321. **Cross Listing:** MKTG 401/IBUS 401.

IBUS 402/MKTG 402 International Marketing: Study Abroad

Credits 3. 3 Lecture Hours. Introduction to the facets of doing business in an international setting; provides exposure to a variety of foreign cultures; facilitates understanding of the international marketplace in which these students will function. **Prerequisites:** MKTG 321 or MKTG 409; junior classification; 2.5 GPR overall. **Cross Listing:** MKTG 402/IBUS 402.

IBUS 403/MKTG 403 International Market Entry Strategies

Credits 3. 3 Lecture Hours. A research-based course in which students prepare an analysis of a country, or region outside the U.S., and use it in the preparation of a marketing plan for a good or service to be introduced and marketed in that country. **Prerequisites:** MKTG 321 or MKTG 409; concurrent registration in IBUS 402/MKTG 402 or MKTG 402/IBUS 402; junior or senior classification. **Cross Listing:** MKTG 403/IBUS 403.

IBUS 430/ACCT 430 Global Immersion in Accounting

Credits 3. 3 Lecture Hours. Combination of classroom work in the spring and a field trip to the selected country in summer; introduction to international opportunities within the public accounting firms; meet with former students to gain a local and corporate view of business in the selected country. May be taken two times for credit. **Prerequisites:** ACCT 327 and approval of instructor. **Cross Listing:** ACCT 430/IBUS 430.

IBUS 440/ISTM 440 International Technology Management

Credits 3. 3 Lecture Hours. Examines global information and communications technology (ICT) business environment; challenges and opportunities for technology companies in the region; history, culture, politics, economic issues, and infrastructure influencing ICT support and innovation in the region; combination of classroom work in the spring and a field trip to the selected country in the summer; repeatable for credit if taken in a different country. **Prerequisites:** Junior or senior classification; approval of instructor. **Cross Listing:** ISTM 440/IBUS 440.

IBUS 445/ACCT 445 International Accounting

Credits 3. 3 Lecture Hours. Introduction and examination of accounting issues unique to multinational enterprises and international business activity; only ACCT 445/IBUS 445 sections count for the accounting coursework requirements for the CPA exam. **Prerequisites:** ACCT 315 or ACCT 327; FINC 341. **Cross Listing:** ACCT 445/IBUS 445.

IBUS 446/FINC 445 International Finance

Credits 3. 3 Lecture Hours. International business transactions, balance of payments and exchange rate systems, exchange rate risk and hedging techniques, sources of funding, relation to international financial institutions and capital instruments; foreign direct investment; international asset and liability management. **Prerequisites:** FINC 351 and FINC 361; ACCT 328 or concurrent enrollment. **Cross Listing:** FINC 445/IBUS 446.

IBUS 450/MGMT 450 International Environment of Business

Credits 3. 3 Lecture Hours. Broad survey of international business issues; analyzes the environment in which international businesses operate; examines international economic issues including trade theory, investment theory, foreign exchange and capital markets, and balance of payments; introduces multinational enterprises, global competition, international organizations, treaties and international law, national trade policies and the determinants of competitiveness of firms in international markets. **Prerequisites:** Admission to upper division in Mays Business School. **Cross Listing:** MGMT 450/IBUS 450.

IBUS 452/MGMT 452 International Management

Credits 3. 3 Lecture Hours. An overview of international management to include international dimensions of organizational behavior, theory, strategy and human resource management; application of theoretical ideas to real-world situations through case analyses, presentations, projects and interactive class discussion. **Prerequisite:** MGMT 450/IBUS 450 or IBUS 450/MGMT 450, or concurrent enrollment. **Cross Listing:** MGMT 452/IBUS 452.

IBUS 455 Asian Business Environment

Credits 3. 3 Lecture Hours. The scope of business environments of Asia; geographical, demographic and cultural makeup; economic integration; human and cultural elements; financial and communication infrastructures; risk and market analysis; trade and investment patterns; Asian MNC's. May be repeated for credit if taken in a different country. **Prerequisite:** Admission to upper division in Mays Business School.

IBUS 456 European Integration and Business

Credits 3. 3 Lecture Hours. History and institutional structure of the European Union; its regional cultures, values, economies and rifts; challenges faced by corporations and people in the region, including issues involving doing business with the European Union. May be repeated one time for credit. **Prerequisite:** Admission to upper division in Mays Business School.

IBUS 457/MGMT 457 Global Entrepreneurship

Credits 3. 3 Lecture Hours. Practical issues associated with taking small- and medium-size business global; includes importing and exporting, developing global strategies, evaluating market opportunities, regional impact on economies and people. **Prerequisite:** Admission to upper division in Mays Business School. **Cross Listing:** MGMT 457/IBUS 457.

IBUS 459 Latin American Markets

Credits 3. 3 Lecture Hours. Comparing and contrasting the Latin American, Canadian and U.S. markets across different variables, including culture, economics, social and legal aspects. May be repeated for credit if taken in a different country.

IBUS 460 Academy for Future International Leaders

Credits 3. 3 Lecture Hours. A practical orientation to international business and cultural issues to prepare selected Texas A&M students for the international marketplace; joint effort among all colleges at Texas A&M; designed to complement any academic major by helping students gain a global perspective of their chosen field of study. **Prerequisites:** Junior or senior classification and selection for the Academy for Future International Leaders.

IBUS 484 International Business Internship

Credits 1 to 4. 1 to 4 Other Hours. International business internship with practicing professionals under the direction of a faculty member. **Prerequisites:** Admission to upper division in Mays Business School; approval of department head.

IBUS 485 Directed Studies

Credits 1 to 6. 1 to 6 Other Hours. Directed study on selected problems in the area of international business. **Prerequisites:** Admission to upper division in Mays Business School and approval of instructor.

IBUS 489 Special Topics in...

Credits 0 to 4. 0 to 4 Other Hours. Selected topics in an identified area of international business. May be repeated for credit. **Prerequisites:** Admission to upper division in Mays Business School and approval of instructor.

IBUS 491 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of faculty members in international business. May be repeated one time for credit. **Prerequisites:** Business majors; junior or senior classification; approval of instructor.

IDIS - Industrial Distribution (IDIS)

IDIS 240 Introduction to Industrial Distribution

Credits 3. 3 Lecture Hours. Definition, history, types of industrial distribution; range of products; line of distribution; function of and services provided by distributors; distributor operational and financial analyses; measures of organizational effectiveness; employment and advancement opportunities in the field of industrial distribution.

IDIS 330 Sales Engineering

Credits 4. 3 Lecture Hours. 2 Lab Hours. Sales and sales management techniques for analyzing distribution challenges and providing solutions through effective communication; establishing credibility, effective questioning techniques, developing solutions, presenting solutions, anticipating objections and gaining a commitment, plus techniques for building, developing and compensating an effective sales organization. **Prerequisites:** Grade of C or better in IDIS 240 or concurrent enrollment; industrial distribution major or technical sales minor.

IDIS 340 Manufacturer Distributor Relations

Credits 3. 3 Lecture Hours. Approaches and procedures for developing and maintaining effective manufacturer distributor relations: marketing channel design, channel roles, managing uncertainty, legal and ethical imperatives, conflict resolution, decision support and strategic marketing. **Prerequisites:** Grade of C or better in IDIS 240 or concurrent enrollment; industrial distribution major or technical sales minor.

IDIS 343 Distribution Logistics

Credits 3. 3 Lecture Hours. Study of concepts, issues and techniques used to plan, analyze and control the logistics network; examination of three key logistical decision-making areas: inventories, facilities and transportation; techniques and technologies for managing and optimizing the logistical (supply) chain. **Prerequisite:** Grade of C or better in IDIS 240; grade of C or better in STAT 201, STAT 211, or STAT 303; industrial distribution major.

IDIS 344 Distributor Information and Control Systems

Credits 4. 3 Lecture Hours. 3 Lab Hours. Industrial distribution systems including hardware and software operations; inventory management, vendor evaluation; physical distribution systems; use of bar codes, radio frequency and other automated data entry techniques; purchasing operations. **Prerequisites:** Grade of C or better in IDIS 240; industrial distribution major, junior or senior classification.

IDIS 364 Distributor Financial Management

Credits 3. 3 Lecture Hours. Maximization of shareholder value; assessment and improvement of firm performance utilizing financial statement analysis and industry studies; methods for planning, implementing and monitoring profitability from distributor operations; procedures for controlling cash flow; credit and receivables, payables, inventory, capital assets, personnel and productivity; related financial operations. **Prerequisites:** Grade of C or better in IDIS 240; grade of C or better in ACCT 209 or ACCT 229.

IDIS 371 Industrial Distribution Technical Sales Seminar

Credit 1. 1 Other Hour. Practical applications for materials presented in academia; practical insights delivered by industry guest speakers from their perspectives of what they encounter and expect in the real-world of industrial distribution sales. **Prerequisites:** Junior or senior classification.

IDIS 424 Purchasing Applications in Distribution

Credits 3. 3 Lecture Hours. Applications of purchasing systems, specifically for the distribution industry; emphasis on supplier relations, strategic purchase planning, supplier evaluation, global purchasing techniques, cost analysis, life cycle costing, value analysis; case studies and procurement modeling for distributors. **Prerequisites:** Grade of C or better in IDIS 340; grade of C or better in IDIS 343 or concurrent enrollment; junior or senior classification in industrial distribution major.

IDIS 433 Industrial Sales Force Development

Credits 3. 3 Lecture Hours. Techniques and processes for developing, maintaining and leading high performing industrial sales organizations; organization planning and forecasting processes, processes and procedures for identifying and developing talented sales professionals who can operate within a sales process and provide solutions to customers while growing profitable accounts. **Prerequisite:** Grade of C or better in IDIS 330; senior classification in industrial distribution or technical sales minor.

IDIS 434 The Quality Process in Distribution

Credits 3. 3 Lecture Hours. Application of the Deming principles specifically for distributors, including customer needs analysis, research and data collection methodology, employee involvement techniques, team building, statistical methods and data analysis; solutions to quality problems for distributors, lean and six-sigma principles. **Prerequisites:** Grade of C or better in IDIS 343; senior classification in industrial distribution.

IDIS 443 Distribution Project and Process Management

Credits 3. 3 Lecture Hours. Design and development of a solution to a distribution problem using systematic research methods and tools in a team-based environment; application of systems thinking to develop best practices related to the chosen field, logistics, operations, sales, etc., to determine the impact of their proposed solution on other components, or fields, of the business. **Prerequisites:** Grade of C or better in IDIS 343; grade of C or better in ESET 300, IDIS 344, and MMET 301 or concurrent enrollment; must be taken the long semester immediately prior to IDIS 444; senior classification in Industrial Distribution.

IDIS 444 Distribution Project and Process Management II

Credits 3. 3 Lecture Hours. Continuation of IDIS 443; second-semester in capstone design sequence; design and development of a solution(s) to a distribution problem using systematic research methods and tools in a team-based environment; application of a systems-thinking approach for the development of best practices related to the chosen field such as logistics, operations, sales, etc. to determine the impact of their proposed solution on other component areas of the business. **Prerequisites:** Grade of C or better in IDIS 464 or IDIS 443; grade of C or better in IDIS 424, IDIS 433, IDIS 434, and IDIS 450, or concurrent enrollment; satisfactory grade in ENTC 399 or concurrent enrollment; must be taken in the last semester of coursework; senior classification in industrial distribution.

IDIS 450 Analytics for Distribution Operation

Credits 4. 3 Lecture Hours. 2 Lab Hours. Fundamental concepts in data analytics; transformation of business transaction data and visualization with state-of-the-art software; various statistical and analytical models used in the distribution world; building and interpreting the predictive analytics model for strategic and tactical decisions making problems. **Prerequisite:** Grade of C or better in IDIS 343 and IDIS 344; senior classification in industrial distribution.

IDIS 464 Distributor Operations and Financial Management

Credits 3. 3 Lecture Hours. First course in a two-semester capstone project course sequence; assessment of firm performance utilizing financial statement analysis and industry studies; methods for planning, implementing and monitoring profitability from distributor operations; procedures for controlling cash flow; credit, receivables, inventory, personnel and productivity; and related financial operations. **Prerequisites:** Grade of C or better in IDIS 343 and ACCT 209 or ACCT 229; grade of C or better in ESET 300, IDIS 344, and MMET 301 or concurrent enrollment; must be taken the long semester immediately prior to IDIS 444; senior classification in industrial distribution major.

IDIS 471 Industrial Business to Business Marketing

Credits 3. 3 Lecture Hours. Study of Business to Business (B2B) industrial and construction distributors' marketing strategies, planning, and tactics; focus on the alignment of sales and marketing, customer buying journey, B2B branding, the role of suppliers in marketing, digital marketing strategies, marketing tactics, lead generation, and social selling; marketing tech, tools, and analytics. **Prerequisites:** Junior or senior classification and enrollment in Technical Sales minor.

IDIS 481 Seminar - Internship Preparation

Credit 1. 1 Lecture Hour. Develop an understanding of the distribution industry and its opportunities; prepare students for summer internships; provide students with opportunities to network with industry and companies that will be hiring summer interns. **Prerequisite:** Minimum of 60 credit hours.

IDIS 484 Professional Internship

Credits 2. 2 Other Hours. Independent study and on-the-job supervised experience related to a professional area of interest in industrial distribution. **Prerequisites:** IDIS 481; junior or senior classification.

IDIS 485 Directed Studies

Credits 1 to 6. 1 to 6 Other Hours. Permits work in a special problem area on an individual basis with the intent of promoting independent reading, research and study; to supplement existing course offerings or subjects not presently covered. **Prerequisites:** Senior classification and approval of instructor.

IDIS 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of industrial distribution. **Prerequisite:** Approval of instructor.

IDIS 491 Research

Credits 0 to 4. 0 Lecture Hours. 0 Lab Hours. 0 to 4 Other Hours. Research conducted under the direction of faculty member in the college of engineering. May be repeated three times for credit. **Prerequisites:** Junior or senior classification and approval of instructor.

INST - Interdisciplinary Studies (INST)

INST 181 Seminar

Credits 0 to 4. 0 to 4 Other Hours. Assist with the transition to college; may include career exploration, employment skills, self-advocacy, campus resources, financial literacy, independent living, social skills, and relationship development. May be taken nine times for credit.

INST 210 Understanding Special Populations

Credits 3. 3 Lecture Hours. (EDUC 2301) Understanding Special Populations. Referral, assessment and categorization of special populations including physical, cognitive and affective characteristics; cultural, ethnic, economic and linguistic differences; giftedness; special education and compensatory programs; awareness of legislative history that results in rights for special populations. **Prerequisite:** Sophomore classification or above.

INST 222 Foundations of Education in a Multicultural Society

Credits 3. 3 Lecture Hours. Historical, philosophical and cultural foundations of education emphasizing education for a multicultural society; also taught at Qatar campus.

INST 291 Research

Credits 0 to 3. 0 to 3 Other Hours. Research conducted under the direction of faculty member in teaching, learning and culture. May be taken three times for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

INST 301 Educational Psychology

Credits 3. 3 Lecture Hours. Application of psychology to problems of teaching. Nature and operation of principles of learning, transfer of training; nature, measurement and significance of individual differences; conditions influencing efficiency of learning. **Prerequisite:** Junior or senior classification.

INST 362 English as a Second Language Methods I

Credits 3. 3 Lecture Hours. Basic principles of language acquisition, multiple approaches to second language acquisition; individual differences and second language acquisition; stages of second language development; multiple approaches to assessment. **Prerequisite:** INST or EDIS majors.

INST 363 English as a Second Language Methods II

Credits 3. 3 Lecture Hours. Strategies and techniques for teaching English language learners; curriculum design and material development, instruction of English language learners, content area instruction, and language assessment instruments; a historical perspective of the education of English language learners in United States' schools. **Prerequisite:** Grade of C or better in INST 362 or approval of instructor.

INST 491 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of faculty member in teaching learning and culture. May be repeated 2 times for credit. **Prerequisites:** Junior or senior classification and approval of instructor.

INTA - International Affairs (INTA)

INTA 205 Current Issues in International Studies

Credit 1. 1 Lecture Hour. Exploration of current issues and problems in International Studies through attendance of events, lectures by noted international academics and professionals, and in-class discussions. May be taken three times for credit. **Prerequisite:** International studies major.

INTA 211 Introduction to International Social Issues

Credits 3. 3 Lecture Hours. Introduction to the basic concepts and frameworks for analyzing global events and understanding the current international situation; for freshman and transfer international studies majors. **Prerequisites:** International Affairs major.

INTA 216 World Cinema and International Politics

Credits 3. 3 Lecture Hours. Investigation of film as political discourse; overview of how films and filmmakers from Africa, Asia, Latin America, Europe, and/or the Middle East frame and represent international politics and explore how the influence of film becomes a powerful form of political speech.

INTA 221 Principles of International Affairs

Credits 3. 3 Lecture Hours. An overview of the study of international relations; exploration of theories of international politics, war, nuclear weapons, terrorism, trade, finance, globalization, international law and human rights, and the environment. **Prerequisites:** International Affairs major.

INTA 231 Principles of the Global Economy

Credits 3. 3 Lecture Hours. Instruction in three fundamental aspects of the global economic environment including economics of trade and international trade policies, international finance issues, introduction of international economic issues in developing countries; exposure to analytical tools and concepts in international economics and development economics. **Prerequisites:** International Affairs major.

INTA 251 Contemporary Issues in the Middle East

Credits 3. 3 Lecture Hours. Exploration of current political and cultural issues in the Middle East.

INTA 261/AFST 261 Contemporary Issues in the Global South

Credits 3. 3 Lecture Hours. Exploration of current political and cultural issues in the Global South. May be repeated once for credit. **Cross Listing:** AFST 261/INTA 261.

INTA 285 Directed Studies

Credits 0 to 3. 0 to 3 Other Hours. Individual supervision of readings or assigned projects in international studies. May be taken two times for credit. **Prerequisites:** Approval of instructor and department head.

INTA 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Introduction to the broad range of disciplines and issues explored in the international studies curriculum. May be repeated for credit. **Prerequisite:** Freshman or sophomore classification.

INTA 300 International Experience

Credits 0. 0 Other Hours. Language immersion program abroad; minimum of ten weeks; completed after the fourth semester of the target foreign language; study abroad program, internship, volunteer service work, or a combination of these options with department approval. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** Grade of C or better in INTA 211; grade of C or better in ARAB 202, CHIN 202, FREN 202, GERM 202, ITAL 202, JAPN 202, RUSS 202, SPAN 202, or SPAN 203; major in international studies; junior or senior classification.

INTA 301 Theories of Globalization

Credits 3. 3 Lecture Hours. Diverse global and international cultural processes in their economic and political contexts; analyses of theoretical lenses on transnationalism including diaspora, hybridity, liminality, marginality, cyborgism, nomadism, scapes and flows and others; case studies of global cultures. **Prerequisite:** Junior or senior classification or approval of instructor.

INTA 321 Political Islam and Jihad

Credits 3. 3 Lecture Hours. Interaction between Islamic movements and politics in various Middle Eastern countries; the meaning and evolution of jihad; the role of Islam as a tool for political and social mobilization. **Prerequisite:** Junior or senior classification, or approval of instructor. **Cross Listing:** HUMA 321 and RELS 321.

INTA 323 International Law

Credits 3. 3 Lecture Hours. The course provides an overview of International Law; sources, organization, and adjudicating bodies of international law; examination of topics such as use of force, humanitarian law, economic law and environmental law from an international perspective. **Prerequisites:** International Affairs major; junior or senior classification.

INTA 330 Governing Capitalism

Credits 3. 3 Lecture Hours. Exploration of the interaction between economics and politics; examination of some of the foundational theorists of political economy over the last three centuries. **Prerequisites:** INTS and INTA majors; junior or senior classification; prior background in introductory economics recommended.

INTA 352 Cyberpolicy

Credits 3. 3 Lecture Hours. Examination of the national security implications of cyberspace and cyber-enabled technologies, including cyber-enabled influence operations, in support of national security interests; understanding and analysis of relevant issues related to cyberspace and cyber-enabled operations; introduction to and examination of the cyberspace aspects of several disruptive technologies in a national security context, including artificial intelligence (AI), autonomous weapons systems, biotechnology, and others. **Prerequisites:** INTS and INTA majors; junior or senior classification.

INTA 401/GLST 401 The City and its Global Contexts

Credits 3. 3 Lecture Hours. Examination of rural and urban environments affected by global currents in culture, politics, and society; exploration of urbanism as represented by artists, writers, and filmmakers; study of such topics such as urban design. **Prerequisites:** INTA 211 or GLST 201; junior or senior classification or approval of instructor. **Cross Listing:** GLST 401/INTA 401.

INTA 403 Nations and Nationalisms

Credits 3. 3 Lecture Hours. Interdisciplinary approach where nation is understood as modern political entity distinct from country; examination of historical and philosophical origins of idea of nationalism; theories on nationhood, national identity and rise of nationalism; global variety of concrete test cases to highlight actual functions (wars, decolonization, symbolic representations in film, etc.). **Prerequisites:** International studies major; INTA 211.

INTA 405 War and Memory

Credits 3. 3 Lecture Hours. Examination of world wars, colonial wars, genocides, and historical crimes from the late nineteenth century until the present; analysis of the changing memory of those traumatic events as evident in historical accounts, commemorations, film, and literature. **Prerequisites:** International studies major; INTA 211.

INTA 406 Technology and Global Change

Credits 3. 3 Lecture Hours. Interdisciplinary examination of the transformative impact of new technologies on global social, economic, political and cultural reality; focus on changes in the exercise of power and state sovereignty, labor and economic transactions, war and social activism, subjectivity and social interactions, surveillance and anonymity, internet of things and artificial intelligence. **Prerequisite:** INTA 211; international studies major; junior or senior classification.

INTA 409 Culture, Neoliberalism and Globalism

Credits 3. 3 Lecture Hours. Examination of largely North Atlantic cultural forms and meanings that arise in the context of neoliberalism from the late 1970's to the present; cultural studies and broad-based social analysis to identify and interrogate the many relational contexts where power circulates through cultural objects and meanings. **Prerequisites:** INTA 211; international studies major; junior or senior classification.

INTA 410/GLST 410 Gender and Globalization

Credits 3. 3 Lecture Hours. Concepts of gender from a global perspective; global theories of gender and sexuality across media. **Prerequisites:** INTA 211 or GLST 201; junior or senior classification or approval of instructor. **Cross Listing:** GLST 410/INTA 410.

INTA 412 International Economic Development

Credits 3. 3 Lecture Hours. Examines theories of economic growth and development; explains concepts and methods commonly used when evaluating the effectiveness of international development programs. **Prerequisites:** International Affairs Major and junior or senior classification.

INTA 415 American Foreign Policy

Credits 3. 3 Lecture Hours. Examination of political, economic, cultural, and military dimensions of the United States' interactions with the world since the 19th century; focus on how interests of soldiers, business people, missionaries, civilians within the United States and in combat zones impact policy. **Prerequisites:** International Affairs major; junior or senior classification.

INTA 418 Economic Statecraft

Credits 3. 3 Lecture Hours. Introduction to emerging field of economic statecraft; use of economic tools of national power; overview of important seminal works on economic statecraft; instruction in theoretical and empirical aspects of economic statecraft. **Prerequisites:** International Affairs major; junior or senior classification, and ECON 202, ECON 203, INTA 301, and INTA 231 or approval of instructor.

INTA 443 International Organizations

Credits 3. 3 Lecture Hours. Theoretical and empirical aspects of the role, potentials, and limitations of major International Organizations (IO) in world politics; study of norms and rules that govern international relations and institutions where those rules are formulated and implemented; survey of IOs in areas of peace operations, human rights, environment and international trade. **Prerequisites:** International Affairs major; junior or senior classification.

INTA 445 Women and International Affairs

Credits 3. 3 Lecture Hours. Overview of important dimensions of women and international affairs; stratification of human society by sex, women and international political economy, women and national/international security, women and international human rights; examination of international efforts to improve women's situation worldwide and other international policy initiatives. **Prerequisites:** International Affairs major; junior or senior classification.

INTA 452 Intelligence and National Security

Credits 3. 3 Lecture Hours. Examination of historical and contemporary Intelligence capabilities as a part of the National Security environment, study of teamwork used by multiple organizations to inform world leaders; understanding of the major intelligence disciplines; instruction in how the intelligence cycle collects, analyses, and informs decisions related to National Security matters. **Prerequisites:** International Affairs major; junior or senior classification.

INTA 455 European Politics

Credits 3. 3 Lecture Hours. Historical examination of the evolution of the European Union and its contemporary politics; overview of formation of the European Union and its integration processes, contemporary European Politics in Western and Eastern Europe and security developments in the European Union. **Prerequisites:** International Affairs major; junior or senior classification.

INTA 473 Chinese Politics

Credits 3. 3 Lecture Hours. Study of Chinese domestic political history; instruction in the origins and development of the contemporary political system of China; overview of the history and foundational experiences of the Chinese Communist Party and its leaders. **Prerequisites:** International Affairs major; junior and senior classification.

INTA 476 International Politics of the Middle East

Credits 3. 3 Lecture Hours. Examination of interactions among states of the region, the region's non-state actors and outside powers in the post-World War II period; topics include power distributions within the region and globally, effects of transnational ideological and identity movements, domestic political institutions in the region's states, regional economic systems, outside power policies in the region, war and peace decisions, alliance and alignment patterns, and regional modes of statecraft. **Prerequisites:** International Affairs major; junior or senior classification.

INTA 481 Senior Seminar in International Studies

Credits 3. 3 Lecture Hours. Capstone course designed to produce in-depth research projects; based on student's international experience and specific area of expertise acquired in major. **Prerequisite:** International Studies major; INTA 211; 6 hours of INTA 401/GLST 401, 403, 405, 407, 409, 410 or INTA 489; senior classification; INTA 300.

INTA 484 Directed Internship

Credits 0 to 3. 0 to 3 Other Hours. Directed internship in a private firm, government or non-profit agency outside the United States; provide on-the-job experience appropriate to the student's program of work and career objectives. To be taken on a satisfactory/unsatisfactory basis. Maximum of 3 credit hours may count towards degree. **Prerequisites:** INTA 211; approval of internship coordinator.

INTA 485 Directed Studies

Credits 0 to 3. 0 to 3 Other Hours. Research problems and readings for students majoring in international studies; directed independent study of an international issue related to student's area of interest. **Prerequisite:** Junior or senior classification or approval of instructor.

INTA 486 Russia and the Former Soviet Union

Credits 3. 3 Lecture Hours. Investigation of how history, institutions, and political culture in Russia influences choices that elites and ordinary people make about politics; overview of Tsarist Russian imperialism, Soviet experiment in modernization and multinational governance, collapse of Soviet Union and creation of 15 independent states; examination of processes of political change and governance in post-communist Russia, and factors that influence processes. **Prerequisites:** International Affairs major; junior or senior classification.

INTA 489 Special Topics in...

Credits 1 to 4. 1 to 4 Other Hours. Selected topics in an identified area of international affairs. May be repeated for credit. **Prerequisite:** Junior or senior classification or approval of instructor; INTS and INTA majors.

INTA 491 Research

Credits 0 to 3. 0 to 3 Other Hours. Research conducted under the direction of faculty member in international studies. **Prerequisites:** INTA 211; junior or senior classification and approval of instructor.

INTA 494 Inter-American Affairs - U.S. Interventions in Latin America and Beyond

Credits 3. 3 Lecture Hours. Study of the dynamics of contemporary Inter-American political relations; introduction of policy and security issues relevant to the Americas (US, Canada, Caribbean, and Latin America). **Prerequisites:** International Affairs major; junior or senior classification.

INTA 497 Independent Honors Study

Credits 3. 3 Other Hours. Directed independent studies designed to produce a senior honors thesis; based on international experience and interdisciplinary expertise acquired in major. **Prerequisites:** INTA major; honors candidate; completed international experience.

ISEN - Indust & Systems Engr (ISEN)

ISEN 210 Deterministic Optimization Modeling and Design

Credits 2. 2 Lecture Hours. Development and application of fundamental deterministic optimization models; emphasis on formulating real-world problems as linear, integer, and network flow models; computer optimization software will be used to solve the linear and integer models. **Prerequisites:** Grade of C or better in MATH 152 and ENGR 102.

ISEN 230 Informatics for Industrial Engineers

Credits 3. 3 Lecture Hours. Structured programming concepts for implementing mathematical and statistical models in industrial engineering problems; emphasis on introductory production and service system problems and computer-based approaches to solve the problems; engineering applications of probability and statistics concepts. **Prerequisites:** CSCE 206, CSCE 111, CSCE 120, CSCE 121, or CSCE 110 or equivalent; concurrent enrollment in STAT 211.

ISEN 281 Essentials of Modern Manufacturing Methods for Engineering Design

Credits 3. 2 Lecture Hours. 3 Lab Hours. . Fundamental basis from materials and manufacturing methods selection in engineering design; basic elements and theory of a range of materials manufacturing methods, with specific emphasis on recent developments in the field including rapid prototyping 3D, computer control of machines - tools, automation robotics micro-fabrication and metrology. **Prerequisite:** Grade of C or better in ENGR 217/PHYS 217 or PHYS 217/ENGR 217, or concurrent enrollment.

ISEN 285 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Problems of limited scope in industrial engineering approved on an individual basis intended to promote independent study. **Prerequisite:** Approval of department head.

ISEN 289 Special Topics in...

Credits 1 to 5. 1 to 5 Other Hours. Selected topics in an identified area of Industrial Engineering. May be repeated for credit. **Prerequisites:** Approval of instructor.

ISEN 291 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of faculty member in industrial and systems engineering. May be taken four times for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

ISEN 302 Economic Analysis of Engineering Projects

Credits 2. 2 Lecture Hours. Principles of economic equivalence; time value of money; analysis of single and multiple investments; comparison of alternatives; capital recovery and after-tax analysis of economic projects. **Prerequisites:** Grade of C or better in MATH 152 or MATH 172; also taught at Qatar campus.

ISEN 310 Uncertainty Modeling for Industrial Engineering

Credits 3. 3 Lecture Hours. Models and methods based on probability and statistics for industrial engineering applications; random variables, expectation, distribution fitting, reliability of systems, central limit theorem and interval estimates in the context of production and service systems. **Prerequisites:** Grade of C or better in ISEN 230 or concurrent enrollment; grade of C or better in STAT 211.

ISEN 311 Introduction to Data Analytics and Engineering

Credits 3. 3 Lecture Hours. Basic concepts in data engineering, including data acquisition, data management and models for learning with associated algorithms; iterative algorithms; tree-based and regression-based classification; graphs and graph-based methods; clustering; neural networks basics and their training; data structures for storing and processing data; introduction to databases. **Prerequisites:** Grade of C or better in CSCE 110, CSCE 111, CSCE 120, CSCE 121, or CSCE 206; grade of C or better in STAT 211; junior or senior classification.

ISEN 320 Operations Research I

Credits 3. 3 Lecture Hours. Development and application of fundamental deterministic optimization models and solution methods; focus on quantitative modeling and formulation of linear, integer, and network flow problems; use of computer optimization software to model and solve real-life problems. **Prerequisites:** Grade of C or better in MATH 304 or MATH 323.

ISEN 330 Human Systems Interaction

Credits 3. 3 Lecture Hours. Principles of human factors and ergonomics; emphasis on design to support human capabilities, limitations, and interaction tendencies in sociotechnical work systems; topics include human information processing, physiological and biomechanical functioning, and implications for design of the workplace and jobs; case studies in manufacturing, medicine, aerospace, ground transportation, and computer interaction. **Prerequisite:** Grade of C or better in MEEN 221; junior or senior classification.

ISEN 340 Operations Research II

Credits 3. 3 Lecture Hours. Probabilistic methods for industrial and service systems; stochastic processes used in industrial engineering, including Poisson processes and discrete and continuous-time Markov chains; applications to production operations, inventory control, revenue management, quality control, reliability, digital simulation and finance. **Prerequisites:** Grade of C or better in MATH 304 or MATH 323; grade of C or better in ISEN 310, STAT 212, or ECEN 303; junior or senior classification.

ISEN 350 Quality Engineering

Credits 3. 2 Lecture Hours. 3 Lab Hours. Strategic approach to implementing quality, process and business improvement methods using data analysis tools; total quality management and six sigma approaches to define, measure, analyze, improve and control processes; principles of lean engineering; control charts; process capability analysis; basic metrology, applied statistics, lean principles and process capability. **Prerequisites:** Grade of C or better in ISEN 310 and ISEN 230.

ISEN 355 System Simulation

Credits 3. 2 Lecture Hours. 3 Lab Hours. Systems simulation structure, logic and methodologies; development of simulation models; data handling methods; analysis of simulation data; verification and validation; system simulation languages, models and analysis; applications to industrial situations. **Prerequisites:** Grade of C or better in ISEN 230 and ISEN 310.

ISEN 360 Lean Thinking and Lean Engineering

Credits 3. 3 Lecture Hours. Philosophical, managerial, and operational principles of lean thinking within the context, tools, and practices of lean engineering; focuses on principles and practices of lean engineering that are applicable across industry types; includes design of lean systems, lean cell design, modeling of lean manufacturing systems and operation of manufacturing cells; queuing network theory for the analysis of lean systems. **Prerequisite:** Grade of C or better in STAT 211; junior or senior classification.

ISEN 370 Production Systems Engineering

Credits 3. 3 Lecture Hours. Principles, models, and techniques for planning and analysis of production and distribution systems; application of linear, integer, and nonlinear optimization models and solution methods for aggregate planning, supply chain planning, push (MRP) and pull (JIT) material flow management, inventory control under deterministic and stochastic demands, operations scheduling, and production scheduling. **Prerequisites:** Grade of C or better in ISEN 230 and ISEN 320.

ISEN 399 Professional Development

Credits 0. 0 Other Hours. Participation in an approved high-impact learning practice; reflection on professional outcomes from engineering body of knowledge; documentation and self-assessment of learning experience at mid-curriculum point. **Prerequisites:** Grade of C or better in ISEN 210 and ISEN 230; senior classification.

ISEN 405 Facilities Design and Material Handling

Credits 3. 3 Lecture Hours. Principles of facilities location, layout, and material handling systems and to practice designing facilities; modeling, design, and analysis techniques; methodologies in facilities location, layout, and material handling; integration of ergonomics analysis techniques and their implications on design, layout, safety and quality. **Prerequisites:** Grade of C or better in ISEN 210 and ISEN 320; junior or senior classification.

ISEN 410 Advanced Engineering Economy

Credits 3. 3 Lecture Hours. Principles of economic equivalence; borrowing, lending, and investing; establishing minimum attractive rate of return; replacement analysis; capital budgeting; uncertainty analysis; decision trees. **Prerequisites:** Grade of C or better in ISEN 210 or ISEN 302; junior or senior classification.

ISEN 411 Engineering Management Techniques

Credits 3. 3 Lecture Hours. Techniques relating to managing engineering activities; engineer's transition into management; engineering managerial functions; motivation of individual and group behavior; productivity assessment/improvement; managing the quality function and communications. **Prerequisite:** Grade of C or better in ISEN 350; senior classification.

ISEN 413 Advanced Data Analytics for Industry

Credits 3. 3 Lecture Hours. Data mining; linear discriminant analysis (LDA), principal component analysis (PCA) and other methods; classification, clustering, and mining, information extraction; dealing with uncertainty, Bayesian inference; neural models, regression and feature selection. **Prerequisites:** Grade of C or better in ISEN 310 and ISEN 350; junior or senior classification.

ISEN 414 Total Quality Engineering

Credits 3. 2 Lecture Hours. 3 Lab Hours. Principles of total quality engineering; total quality management philosophy, engineering approaches for designing quality into products and processes; off-line experimentation methods for the robust design; emphasis on teamwork and continuous quality improvement. **Prerequisite:** Grade of C or better in STAT 211; junior or senior classification.

ISEN 425 Design and Analysis of Industrial Systems with Simulation

Credits 3. 2 Lecture Hours. 3 Lab Hours. In-depth study into the design-modeling and subsequent analysis of contemporary production/service systems; factory/service systems are modeled using the ARENA/SIMAN V simulation-animation language; emphasis is placed on the critical analysis of alternative flow designs of modeled systems using flow and economic parameters to assess system improvement. **Prerequisites:** Grade of C or better in ISEN 210 and ISEN 355.

ISEN 427/DAEN 427 Decision and Risk Analysis

Credits 3. 3 Lecture Hours. Overview of the state of the art in descriptive and prescriptive theories of decision making under uncertainty with emphasis on the ways in which human decisions depart from normative models of rationality; analytical foundations stemming from several disciplines, economics, psychology, management science; application in engineering systems will be considered. **Prerequisite:** Grade of C or better in ISEN 310, DAEN 321, or STAT 212. **Cross Listing:** DAEN 427/ISEN 427.

ISEN 432/AERO 436 Human Factors Engineering for Aerospace Designs

Credits 3. 3 Lecture Hours. Physiological and psychophysiological issues encountered in aviation and space environments and their effect on human cognitive and physical performance; survey methods for human workload and performance evaluations; apply human-systems design principles to an aerospace design project. **Prerequisites:** Junior or senior classification. **Cross Listing:** AERO 436/ISEN 432.

ISEN 433 Biomechanics of Work

Credits 3. 3 Lecture Hours. Mechanical behavior of the human musculoskeletal system and component tissues during physical activity; fundamental biomechanical concepts, principles, tools and methods for the measurement of human physical attributes, evaluation of human mechanical capabilities and modeling of human musculoskeletal system; application of concepts to improve performance or prevent injuries during daily activities. **Prerequisite:** Grade of C or better in ISEN 330; junior or senior classification.

ISEN 434 Human Error and Resilient System Design

Credits 3. 3 Lecture Hours. Human error from a sociotechnical systems perspective; role of error in complex system failures; human behavioral modes and system design factors; analytical methods for defining the roles and impact of errors in large-scale system accidents; real-world case studies. **Prerequisites:** Grade of C or better in ISEN 330; junior or senior classification.

ISEN 440 Systems Thinking

Credits 3. 3 Lecture Hours. Systems thinking process, systems of systems and the fundamental considerations associated with the engineering of large-scale systems, or systems engineering including systems modeling, design and the system development process.

Prerequisites: Grade of C or better in MATH 304; junior or senior classification.

ISEN 441 System Reliability Engineering

Credits 3. 3 Lecture Hours. Methods of system modeling and analysis to predict and enhance the reliability, maintainability, and availability of complex engineered systems including component and systems reliability models, system life prediction, and data collection and analysis of failure and repair distributions. **Prerequisites:** Grade of C or better in STAT 211 or equivalent; junior or senior classification.

ISEN 442 Organizational Systems

Credits 3. 3 Lecture Hours. Role of people and organizations in the design and development of complex engineered systems; providing engineers with the skills needed to effectively manage large-scale system development programs. **Prerequisites:** Grade of C or better in ISEN 330; junior or senior classification.

ISEN 453 Manufacturing Operations

Credits 3. 3 Lecture Hours. Analytical principles of manufacturing systems design, analysis and control; emphasis placed on stochastic analysis; role of variability and impact on cycle time; push versus pull production strategies including Kanban and constant WIP control; probability, queuing theory, Little's Law, heavy traffic approximations, and queuing networks. **Prerequisites:** Grade of C or better in ISEN 340 and MATH 304; junior or senior classification.

ISEN 460 Capstone Senior Design

Credits 3. 1 Lecture Hour. 6 Lab Hours. Engineering design including identification of a problem; development, analysis and evaluation of alternative solutions; and recommendations for and, where possible, development of systems improvement tools; application of experience and training to provide a product or solution that helps company clients; balancing client needs with academic requirements. **Prerequisite:** Grade of C or better in ISEN 210, ISEN 330, ISEN 340, ISEN 350, ISEN 355 and ISEN 370; junior or senior classification.

ISEN 485 Directed Studies

Credits 1 to 6. 1 to 6 Other Hours. Permits work on special project in industrial engineering; project must be approved by department head. May be taken for credit up to 6 hours. **Prerequisites:** Senior classification in industrial engineering.

ISEN 489 Special Topics in...

Credits 1 to 5. 1 to 5 Lecture Hours. 0 to 5 Lab Hours. In-depth study of areas of current student interest and recent advances; normally used for first time offering of new courses. **Prerequisite:** Approval of instructor.

ISEN 491 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of faculty member in industrial and systems engineering. May be taken for credit up to 6 hours. **Prerequisites:** Junior or senior classification and approval of instructor.

ISTM - Mgmt Info Systems (ISTM)

ISTM 209 Business Information Systems Concepts

Credits 3. 3 Lecture Hours. Introduction to the use of computers in data and document management and as a problem-solving tool for business; fundamental concepts of information technology and theory; opportunities to use existing application software to solve various business information systems oriented problems. May not be used to satisfy degree requirements for majors in business. **Prerequisite:** For students other than business and agribusiness majors.

ISTM 210 Fundamentals of Information Systems

Credits 3. 3 Lecture Hours. (BCIS 1305 and 1405) Fundamentals of Information Systems. Introduction to information systems concepts; study of information systems in the functional areas of business; overview of hardware, software and popular operating systems; study of problem solving tools; human factors. **Prerequisite:** Business and Maritime Business Administration majors; also taught at Galveston campus.

ISTM 250 Business Programming Logic and Design

Credits 3. 3 Lecture Hours. Development of structured and object-oriented program logic and design in solving business programming problems; writing, documenting, debugging and testing computer code; emphasis on good coding techniques and logical thinking. **Prerequisite:** ISTM 210 or concurrent enrollment.

ISTM 281 Professional Development Information Systems Seminar

Credit 1. 1 Other Hour. Exposure to professional issues, contemporary information systems topics, potential MIS careers and employers. May be taken three times for credit. **Prerequisite:** Admission to Mays Business School; intend to major in management information systems.

ISTM 310 Network Communications and Infrastructure

Credits 3. 3 Lecture Hours. Concepts, technologies and applications of on-line and network-based systems; analysis and design of data communications; requirements in an information system environment; impact on business organizations; installation, configuration and management of virtual servers. **Prerequisite:** ISTM 250; ACCT 230 and BUSN 203, or concurrent enrollment; admission to upper division in Mays Business School, or approval of instructor if major is outside of Mays Business School.

ISTM 313 Foundations of Data Analytics for Non-MIS Majors

Credits 3. 3 Lecture Hours. Use and application of data modeling, Structured Query Language (SQL), Database Management Systems (DBMS) and data visualization in the solution of business problems. Only one of the following will satisfy the requirements for a degree: ISTM 313 or ISTM 315. **Prerequisites:** Admission to upper division in Mays Business School.

ISTM 315 Database Programming

Credits 3. 3 Lecture Hours. Use and application of Structured Query Language (SQL); Database Management Systems (DBMS) in the solution of business problems; database programming. Only one of the following will satisfy the requirements for a degree: ISTM 313 or ISTM 315.

Prerequisites: ISTM 310; ISTM 320; or approval of instructor.

ISTM 320 Business Systems Analysis and Design

Credits 3. 3 Lecture Hours. Techniques and methods currently used in system analysis and design including object oriented methods; use of automated tools to support systems development. **Prerequisite:** ISTM 250; ACCT 230 and BUSN 203, or concurrent enrollment; admission to upper division in Mays Business School or approval of instructor if major is outside of Mays Business School.

ISTM 325 Business Object Oriented Programming with Java

Credits 3. 3 Lecture Hours. Introduction of abstract data types, inheritance, object identity, polymorphism as they relate to building business objects and business classes; use of Java programming language depicting the object orientation concepts; use of class libraries and Java packages for business object construction. **Prerequisites:** Admission to upper division in Mays Business School; ISTM 250.

ISTM 360 Applied Predictive Analytics

Credits 3. 3 Lecture Hours. Development and application of predictive analytics to business problems using state-of-the-art software tools; implementation, validation and testing of models that employ machine learning methods and artificial intelligence; hands-on, practical approach to project-based predictive analytics using real-world data sets.

Prerequisite: ISTM 313 or ISTM 315; BUSN 203 or equivalent; admission to upper division in Mays Business School.

ISTM 365 Fundamentals of Cloud Computing

Credits 3. 3 Lecture Hours. Overview of cloud computing concepts; examination of information systems in the cloud impacting functional areas of business; topics include Infrastructure as a Service (IaaS), Platform as a Service (PaaS), Software as a Service (SaaS); focus on how changes in computing towards commodity services drive impact across business systems, Line of Business (LoB) applications, cost efficiency, and top-line revenue growth. **Prerequisites:** Admission to upper division in Mays Business School.

ISTM 380 Human-Computer Interaction

Credits 3. 3 Lecture Hours. Techniques, principles and theory involved in designing, implementing and evaluating interactive technologies based on humans' physical, cognitive and emotional resources; focus on the role of task and context as key to understanding interaction phenomena at the individual, group, organizational and societal levels; accessibility, cultural and ethical implications of human-computer interaction. **Prerequisite:** ISTM 320; admission to upper division in Mays Business School.

ISTM 381 Ethics of Information Systems

Credits 3. 3 Lecture Hours. Exposure to the main ethical issues surrounding information, data and the systems and artifacts that are used; examination of information in multiple business areas, including marketing, accounting, finance, HR, sales, operations, and information systems. **Prerequisite:** Admission to upper-division in Mays Business School.

ISTM 410 Management of Information Systems

Credits 3. 3 Lecture Hours. Strategic management of information systems; change and risk management processes during information systems implementation; role of information systems to support business goals; writing business cases for request for proposals and responses; project management techniques. **Prerequisite:** ISTM 310; ISTM 320; or approval of instructor.

ISTM 415 Information Systems Capstone Project

Credits 3. 3 Lecture Hours. Design and development of information system software based on technical specifications; multi-platform environment; database server and web server software deployment. **Prerequisites:** ISTM 315; ISTM 410; or approval of instructor.

ISTM 420 Web-Enabled Applications

Credits 3. 3 Lecture Hours. Distributed business applications using the World Wide Web; advanced discussions of the concepts of internet, intranet, extranet; different methods to design web-enabled applications; active web applications; cutting edge website design; legacy to web integration; use of web-oriented languages. **Prerequisites:** Admission to upper division in Mays Business School.

ISTM 440/IBUS 440 International Technology Management

Credits 3. 3 Lecture Hours. Examines global information and communications technology (ICT) business environment; challenges and opportunities for technology companies in the region; history, culture, politics, economic issues, and infrastructure influencing ICT support and innovation in the region; combination of classroom work in the spring and a field trip to the selected country in the summer; repeatable for credit if taken in a different country. **Prerequisites:** Junior or senior classification; approval of instructor. **Cross Listing:** IBUS 440/ISTM 440.

ISTM 444 Computer Trading for Non-Finance Majors

Credits 3. 3 Lecture Hours. Overview of quantitative investing using algorithmic trading for investment management; exploration of collecting and preparing financial trading data, time series analysis, trend systems, momentum and mean reversal, arbitrage, backtesting, order execution, and reporting of risk and performance measures; tools, methods, and trading techniques using R programming language and R Studio. **Prerequisites:** ISTM 313 or ISTM 315; BUSN 203; admission to upper division in Mays Business School.

ISTM 450 Business Intelligence and Data Mining

Credits 3. 3 Lecture Hours. Rationale for Business Intelligence and data mining through business case studies; lab training using data mining software; and process of data mining by using commercial data mining software on large data sets. **Prerequisites:** Grade of "C" or better in BUSN 203 or equivalent; junior or senior classification.

ISTM 455/SCMT 455 Cybersecurity Management

Credits 3. 3 Lecture Hours. Explores business, managerial and technological aspects of information and cybersecurity; analysis, design, implementation and management issues surrounding effective information security; includes risk management, business continuity planning, and security policy development. **Prerequisite:** ISTM 310 or SCMT 375. **Cross Listing:** SCMT 455/ISTM 455.

ISTM 481 Information Systems Seminar

Credit 1. 1 Other Hour. Exposure to professional issues, contemporary information systems topics, potential MIS careers and employers. May be taken three times for credit. **Prerequisite:** Admission to upper division in Mays Business School; or approval of instructor.

ISTM 482 Data Analytics Platforms

Credits 3. 3 Lecture Hours. Coding platforms used for data analytics; data wrangling, exploration and visualization; model testing and validation; machine learning techniques. **Prerequisite:** BUSN 203 or equivalent.

ISTM 484 Management Information Systems Internship

Credits 1 to 4. 1 to 4 Other Hours. A directed internship in an organization to provide students with a learning experience supervised by professionals in organizational settings appropriate to the student's professional objectives. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** Management Information Systems major and approval of academic advisor and instructor.

ISTM 485 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Directed study of selected problems in an area of management information systems not covered in other courses. **Prerequisites:** Admission to upper division in Mays Business School and approval of academic advisor and instructor.

ISTM 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topic in an identified field of management information systems. **Prerequisites:** Admission to upper division in Mays Business School and approval of academic advisor and instructor.

ISTM 601 Fundamentals of Business Programming

Credits 3. 3 Lecture Hours. Business Application Development using both procedural and object-oriented programming techniques; use of component based software design and development for distributed business software systems. **Prerequisite:** Graduate business classification or approval of instructor.

ISTM 610 Network and Cloud Infrastructure

Credits 3. 3 Lecture Hours. Concepts and technology of network and cloud systems in business; analysis of networking and cloud requirements, design, selection and application of technologies including wide and local area networks, distributed processing, network and cloud architecture, and systems management and control; software simulation projects emphasized. **Prerequisites:** Graduate classification.

ISTM 612 Management Information Systems

Credits 1 to 3. 1 to 3 Lecture Hours. Concepts, theories, and the strategic role of information systems as applied to business organizations; highly integrative/cross functional in nature. Classification 6 students may not enroll in this course. **Prerequisite:** Enrollment is limited to MBA students.

ISTM 615 Business Database Systems

Credits 3. 3 Lecture Hours. Information processing and management involving applications and user orientation in a business environment using commercially available database management systems. **Prerequisite:** Graduate classification or approval of instructor.

ISTM 620 Systems Analysis and Design

Credits 3. 3 Lecture Hours. Methodologies, techniques, and tools for information systems analysis and design; the analysis and logical design of business processes and management information systems focusing on the systems development life cycle; techniques for logical system design.

ISTM 622 Advanced Data Management

Credits 3. 3 Lecture Hours. Data and database management and advanced SQL techniques; issues of data security, backup and recovery, large scale databases, master data management, concurrent user data access, scalability, and policies. **Prerequisites:** ISTM 615 or equivalent; graduate classification in business.

ISTM 624 Advanced Systems Analysis and Design

Credits 3. 3 Lecture Hours. Advanced topics in business systems analysis and design; alternative methodologies such as agile development, extreme programming, Rational Unified Process; Unified Modeling Language; bench marking and best practices for systems development; cost/benefit analysis, estimation and budgeting for business information systems; testing; patterns, domain-driven design; process modeling; service-oriented architecture and cloud computing. **Prerequisite:** ISTM 620 or equivalent; graduate classification in business.

ISTM 630 MIS Project Management and Implementation

Credits 3. 3 Lecture Hours. Advanced coverage of systems development topics with emphasis on the management and implementation of business computing systems; group project orientation to include feasibility analysis, alternative evaluation and selection, and management approval; use of software engineering tools where appropriate. Classification 6 students may not enroll in this class. **Prerequisite:** ISTM 620.

ISTM 631 Information Systems Design and Development Project

Credits 3. 3 Lecture Hours. Design and delivery of functional, multi-platform application system using current technologies; user interface design emphasized; issues of mobile device forms, software delivery, and development. **Prerequisites:** Graduation classification; ISTM 622; ISTM 630.

ISTM 635 Business Information Security

Credits 3. 3 Lecture Hours. Explores the business, managerial, and technological aspects of information security; analysis, design, and implementation issues surrounding effective information security; authentication, authorization, availability, business continuity planning, confidentiality, disaster recovery, encryption, firewalls, fraud protection, security policy development, integrity, risk management, virus protection, VPNs and wireless security. Classification 6 students may not enroll in this course. **Prerequisite:** ISTM 610.

ISTM 637 Data Warehousing

Credits 3. 3 Lecture Hours. Provides an understanding of the process by which a data warehouse system is designed and developed along with the underlying concepts and software systems; includes OLAP models and their differences with standard OLTP models. **Prerequisite:** ISTM 615 or approval of instructor.

ISTM 643 Corporate Information Planning

Credits 3. 3 Lecture Hours. Concepts regarding the design and use of computer-based management information and decision support systems; combinations of computing hardware and software and design concepts evaluated to meet managers' information needs. Classification 6 students may not enroll in this course. **Prerequisites:** ISTM 615 or equivalent or approval of instructor.

ISTM 644 Computer Trading for Non-Finance Majors

Credits 3. 3 Lecture Hours. Overview of quantitative investing using algorithmic trading for investment management; exploration of collecting and preparing financial trading data, time series analysis, trend systems, momentum and mean reversal, arbitrage, backtesting, order execution, and reporting of risk and performance measures; tools, methods, and trading techniques using R programming language and R Studio.

Prerequisites: ISTM 601 and ISTM 615, or approval of instructor.

ISTM 645 IT Security Controls

Credits 3. 3 Lecture Hours. Familiarization with planning, design, and implementation of controls to minimize risks to business information; focus on the importance of managing business information security; introduction to the tools, concepts and theories to safeguard an organization's information systems and IT assets; understanding of cryptography and application, operations, and physical security. **Prerequisite:** ISTM 635.

ISTM 650 Business Data Mining

Credits 3. 3 Lecture Hours. Rationale for business Data Mining through case studies of business applications; process of data mining by using commercial Data Mining software on very large data sets; classification, clustering, association rule mining, visualization, and prediction through a hands-on approach. **Prerequisite:** STAT 652 or approval of instructor.

ISTM 652 Customer Relationship Management and Technologies

Credits 3. 3 Lecture Hours. Theory and application of information technology in customer relationship management, construction of CRM infrastructures in organizations. **Prerequisite:** ISTM 615.

ISTM 655 Security Management and Compliance

Credits 3. 3 Lecture Hours. Familiarization with managerial and legal aspects of business information security; focus on importance of managing business information security and theories to help safeguard an organization's information systems and IT assets; understanding of Security Architecture and Design, Business Continuity and Disaster Recovery Planning, Laws Investigation and Ethics. **Prerequisite:** ISTM 635.

ISTM 657 Blockchain and Artificial Intelligence Business Transformation

Credits 3. 3 Lecture Hours. Transforming processes and business models through the application of advanced technologies; Blockchain and Artificial Intelligence (AI); focus on underlying technologies, business process design, and business case development; final project presentation of a new process or model and a supporting business case. **Prerequisites:** Graduate classification.

ISTM 660 Applied Predictive Analytics for Business

Credits 3. 3 Lecture Hours. Develop an understanding of the role of predictive analytics in shaping business outcomes; provide hands-on, practical approach to implementing predictive analytics tools for gaining competitive advantage in business. **Prerequisite:** Graduate classification.

ISTM 662 Management of the Technology Organization

Credits 3. 3 Lecture Hours. Corporate management of technology; exploration of Management Information Systems, Operations, Strategic Management, Human Resources, Management, Organizational Behavior, Entrepreneurship, Marketing, Finance, and Accounting from both a strategic and tactical perspective. **Prerequisites:** Graduate classification.

ISTM 665 Cloud Computing Technologies

Credits 3. 3 Lecture Hours. Overview of cloud computing concepts; examination of information systems in the cloud impacting functional areas of business; topics include Infrastructure as a Service (IaaS), Platform as a Service (PaaS), Software as a Service (SaaS); focus on how changes in computing towards commodity services drive impact across business systems, Line of Business (LoB) applications, cost efficiency, and top-line revenue growth. **Prerequisites:** Graduate classification.

ISTM 670 Capstone Information Systems Service Project

Credits 3. 3 Lecture Hours. Philanthropic collaboration with a not-for-profit or non-profit entity in a consultative capacity; hands-on experience with consulting practices, client relationships, systems analysis and design, project-management, IT development and implementation, digital collaboration tools, knowledge management, organizational change, and/or IT security. **Prerequisite:** ISTM 615 or equivalent; ISTM 620 or equivalent; ISTM 630 or equivalent.

ISTM 680 Human-Computer Interaction in Management Information Systems

Credits 3. 3 Lecture Hours. Techniques, principles and theory involved in designing and implementing interactive technologies based on humans' physical, cognitive and emotional resources; focus on application of qualitative and quantitative evaluation techniques for interaction phenomena; understanding interaction phenomena at the individual, group, organizational and societal levels; accessibility, cultural and ethical implications of human-computer interaction. **Prerequisite:** Graduate classification.

ISTM 681 Ethics of Information Systems

Credits 3. 3 Lecture Hours. Exposure to the main ethical issues surrounding information, data and the systems and artifacts that are used; examination of information in multiple business areas, including marketing, accounting, finance, HR, sales, operations and information systems.

ISTM 682 Data Analytics Platforms

Credits 3. 3 Lecture Hours. Coding platforms used for data analytics; data wrangling, exploration and visualization; model testing and validation; machine learning techniques. **Prerequisite:** STAT 601 or equivalent.

ISTM 683 Web and Social Media Analytics

Credits 3. 3 Lecture Hours. Study of business challenges faced by modern firms in the new economy; focus on web analytics, unstructured data analytics and social network analytics to derive insights from business data. **Prerequisites:** Graduate classification.

ISTM 684 Professional Internship

Credits 1 to 6. 1 to 6 Other Hours. A directed internship in an organization to provide students with on-the-job training with professionals in organizational settings appropriate to the student's professional objectives. May be repeated for credit. Classification 6 students may not enroll in this course. **Prerequisite:** Approval of committee chair and department head.

ISTM 685 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Directed study on selected problems using recent developments in business research methods. Classification 6 students may not enroll in this course. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** Approval of instructor and graduate advisor.

ISTM 689 Special Topics in...

Credits 1 to 4. 1 to 4 Other Hours. Selected topics in identified area of information systems, operations management or management science. Classification 6 students may not enroll in this course. May be repeated for credit.

ISTM 705 Information Management for Decision Making

Credits 1 to 4. 1 to 4 Lecture Hours. Policies, practices and procedures for management corporation information; relational database theory and relationship database management systems; data modeling; structured and unstructured data management; structured query language; secure data practices; information management for managerial decision making. **Prerequisite:** For Master of Science in Business students only.

ITAL - Italian (ITAL)

ITAL 101 Beginning Italian I

Credits 4. 3 Lecture Hours. 2 Lab Hours. (ITAL 1411) Beginning Italian I. Elementary language study with oral, written and reading practice; preparation for conversation; part of class preparation will be done in language laboratory.

ITAL 102 Beginning Italian II

Credits 4. 3 Lecture Hours. 2 Lab Hours. (ITAL 1412) Beginning Italian II. Continuation of ITAL 101; part of class preparation will be done in the language laboratory. **Prerequisite:** ITAL 101.

ITAL 201 Intermediate Italian I

Credits 3. 3 Lecture Hours. (ITAL 2311) Intermediate Italian I. Readings of average difficulty; review of grammar; practice in conversation and composition. **Prerequisite:** Grade of C or better in ITAL 102 or equivalent, or approval of instructor.

ITAL 202 Intermediate Italian II

Credits 3. 3 Lecture Hours. (ITAL 2312) Intermediate Italian II. Continuation of ITAL 201 with more advanced material. **Prerequisite:** Grade of C or better in ITAL 201 or equivalent, or approval of instructor.

ITAL 221 Field Studies I

Credits 3. 3 Lecture Hours. 3 Other Hours. Italian language and culture taught in Italy; supervised travel of cultural interest; participation in living with local families; participation in the activities of an Italian university or institute. **Prerequisite:** Grade of C or better in ITAL 102 or equivalent or approval of instructor; concurrent enrollment with ITAL 222.

ITAL 222 Field Studies II

Credits 3. 3 Lecture Hours. 3 Other Hours. Italian language and culture taught in Italy; supervised travel of cultural interest; participation in living with local families; participation in the activities of an Italian university or institute. **Prerequisite:** Grade of C or better in ITAL 102 or equivalent, or approval of instructor; concurrent enrollment in ITAL 221.

ITAL 251 Global Italy

Credits 3. 3 Lecture Hours. Examination of how Italian uniqueness shaped the world in the literary, visual, plastic, performance and applied arts, and in the natural and social sciences; course materials drawn from a variety of media to highlight the continued presence of Italian culture on the global stage; taught in English.

ITAL 285 Directed Studies

Credits 1 to 4. 1 to 4 Lecture Hours. Individual supervision of readings or assigned projects in Italian, selected for each student individually. **Prerequisites:** Approval of instructor and department head.

ITAL 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of Italian studies. May be repeated for credit. **Prerequisite:** Approval of instructor.

ITAL 303 Composition and Conversation

Credits 3. 3 Lecture Hours. Readings of contemporary Italian prose; intensive review of grammar and syntax; development of written and oral skills; expansion of vocabulary; translations, compositions and short presentation. **Prerequisite:** ITAL 202 or equivalent.

ITAL 321 Italian Culture and Arts I

Credits 3. 3 Lecture Hours. Italian culture and arts from classical antiquity to 1860; major stylistic periods in literature and the fine arts; conducted in Italian. **Prerequisite:** Grade of C or better in ITAL 202 or equivalent and junior or senior classification; or approval of instructor.

ITAL 322 Italian Culture and Arts II

Credits 3. 3 Lecture Hours. Italian culture, arts, and society from 1860 to the present; conducted in Italian. **Prerequisite:** Grade of C or better in ITAL 202 or equivalent and junior or senior classification; or approval of instructor.

ITAL 452 Topics in Italian Women and Gender Studies

Credits 3. 3 Lecture Hours. The historical and cultural dynamics forging the notion of woman and gender in Italian society and cultural production; discussion of cultural works, media, and theoretical texts concerning subjectivity and language, body and culture; Italian feminist theories from different disciplinary perspectives; conducted in English. May be repeated two times for credit. **Prerequisite:** Junior or senior classification or approval of instructor.

ITAL 453 Literatures of Italy

Credits 3. 3 Lecture Hours. Exploration of literary works that sparked Western realism in fiction and lyrical language in poetry, from Dante to modern and contemporary Italian authors; the relationship between literature and the natural and physical sciences, and between literature and the social sciences; taught in English. May be repeated two times for credit. **Prerequisites:** Junior or senior classification, or approval of instructor.

ITAL 455/FILM 455 Italian Cinema

Credits 3. 3 Lecture Hours. Consideration and analyses of major works and directors of Italian cinema, from its origin through Neorealism to the present; analysis of how its visual language relates to Italian history, culture and to other arts; taught in English. May be repeated two times for credit. **Prerequisite:** Junior or senior classification, or approval of instructor. **Cross Listing:** FILM 455/ITAL 455.

ITAL 456 Contemporary Italian Cultures

Credits 3. 3 Lecture Hours. Examination of issues currently debated in multicultural Italian society since World War II, such as national identity, immigration, emigration, homoparental families, the "Made in Italy" brand, ecology and sustainability; discussion of creed, country, color, gender, class and organized crime, in literature and film, sociology, political theory and critical studies; conducted in English. May be repeated two times for credit. **Prerequisites:** Junior or senior classification, or permission of instructor.

ITAL 485 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Individual supervision of readings or assigned projects, selected for each student individually; written and oral reports. **Prerequisite:** Approval of instructor and department head.

ITAL 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of Italian. May be repeated for credit. **Prerequisite:** Approval of instructor.

ITAL 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of a faculty member in Italian. May be repeated two times for credit. **Prerequisites:** Junior or senior classification and approval of instructor.

ITDE - Interdisciplinary Engr (ITDE)

ITDE 201 Foundations of Interdisciplinary Engineering

Credit 1. 1 Lecture Hour. Success strategies for the interdisciplinary approach to engineering problems; ethical issues in engineering and formation of ethical codes in the interdisciplinary context; effective communications for engineering practice; formation of professional cohorts and networks. **Prerequisites:** Admission to major degree sequence in interdisciplinary engineering.

ITDE 285 Directed Studies

Credits 0 to 6. 0 to 6 Other Hours. Directed studies within interdisciplinary engineering. **Prerequisites:** Sophomore classification and approval of interdisciplinary engineering director or delegate.

ITDE 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of interdisciplinary engineering.

ITDE 291 Research

Credits 1 to 6. 1 to 6 Other Hours. Research conducted under the direction of faculty member in interdisciplinary engineering. **Prerequisites:** Sophomore classification and approval of interdisciplinary engineering director or delegate.

ITDE 301 Interdisciplinary Engineering Experimentation

Credit 1. 0 Lecture Hours. 3 Lab Hours. Role of experimentation across engineering problems; data collection, analysis and interpretation; use of engineering judgment to draw conclusions; instrumentation and procedures used in a variety of engineering contexts; presentation of experimental findings in written and oral formats. **Prerequisite:** Grade of C or better in ITDE 201 or approval of instructor.

ITDE 399 High Impact Experience for Interdisciplinary Engineers

Credits 0. 0 Other Hours. Participation in an approved high-impact learning practice; reflection on professional outcomes from engineering body of knowledge; documentation and self-assessment of learning experience at mid-curriculum point. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** ITDE major; junior or senior classification.

ITDE 401 Interdisciplinary Engineering Capstone Design I

Credits 3. 2 Lecture Hours. 3 Lab Hours. Instruction and practice in the design process applied to an interdisciplinary design project including establish the customer need; determination of requirements in terms of function, what, and performance, how well; development of alternative design concepts; performance of trade-off studies among performance, cost and schedule; embodiment and detail design; iteration of the above steps; major interdisciplinary design project. **Prerequisite:** Grade of C or better in ITDE 301; senior classification; approval of instructor.

ITDE 402 Interdisciplinary Engineering Capstone Design II

Credits 2. 1 Lecture Hour. 3 Lab Hours. Extended interdisciplinary design development process; project management; product-market fit and customer search considerations; manufacturing detailed design specifications; failure modes; applications of codes and standards; selection of design margins; product, component, development guidelines; intellectual property, product liability and ethical responsibility. **Prerequisite:** Grade of C or better in ITDE 401.

ITDE 485 Directed Studies

Credits 0 to 6. 0 to 6 Other Hours. Directed studies within interdisciplinary engineering. **Prerequisites:** Junior or senior classification and approval of interdisciplinary engineering director or delegate.

ITDE 489 Special Topics In...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of interdisciplinary engineering. May be repeated for credit.

ITDE 491 Research

Credits 1 to 6. 1 to 6 Other Hours. Research conducted under the direction of faculty member in interdisciplinary engineering. **Prerequisites:** Junior or senior classification and approval of interdisciplinary engineering director or delegate.

ITDE 499 Degree Plan Approval for ITDE

Credits 0. 0 Other Hours. Successful completion of approved Bachelor of Science in Interdisciplinary Engineering degree plan; must be taken in graduating semester. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** Grade of C or better in ITDE 402 or concurrent enrollment; ITDE major; junior or senior classification.

ITSV - Info Tech Service Mgmt (ITSV) Information Technology Service Management (ITSV)

ITSV 101 Introduction to Information Technology Service Management

Credit 1. 1 Lecture Hour. Framework of processes and best practices used to manage a modern Information Technology (IT) service organization using specific IT service management principles promulgated via the ITIL framework; framework of best practices for delivering IT services; offers optional ITIL Foundations certification examination; passing of this industry standard credential assesses the student's understanding of IT service management practices and is foundational to understanding higher-level service management problems.

ITSV 272 Foundations of Information Technology Management

Credits 3. 3 Lecture Hours. Overview of the theory and practices in the field of Information Technology Service Management; analysis of the foundations of alignment of IT services with organizational value goals, as well as basic understanding of computational thinking; fundamentals of IT management and its roles in today's organizations. **Prerequisites:** Grade of C or better in ITSV 101; sophomore classification.

ITSV 274 Foundations of Networking

Credits 3. 3 Lecture Hours. 1 Lab Hour. Introduction to the fundamental building blocks that form a modern digital network, such as OSI model, protocols, topologies, hardware, and network operating systems; topics include in-depth coverage of the most important concepts in contemporary networking, such as TCP/IP, Ethernet, wireless transmission, and security; preparation of the skills required to build a network from scratch and maintain, upgrade, and troubleshoot an existing network. **Prerequisites:** Grade of C or better in ITSV 272 or concurrent enrollment; approval of instructor; sophomore classification.

ITSV 303 Unix System Administration Practices

Credits 4. 3 Lecture Hours. 3 Lab Hours. Development and system administration of the Unix operating system; technical alternatives for proactive and reactive maintenance of system health. **Prerequisites:** ITSV 272 and ITSV 274 with a grade of C or better; junior or senior classification or approval of instructor.

ITSV 308 Cybersecurity and Digital Ethics

Credits 3. 3 Lecture Hours. Introduction to cybersecurity; analysis of threats and risks from the environment; development of appropriate strategies to mitigate impact; ethics of extraordinary administrative access; ethics of digital forensics and implications to society. **Prerequisites:** ITSV 272 and ITSV 274 with a grade of C or better; junior or senior classification or approval of instructor.

ITSV 316 Database Systems Administration and Application

Credits 4. 3 Lecture Hours. 3 Lab Hours. Database administration and application use techniques; database structures, modeling, configuration, development, security, topologies and access; focus on system administration of Unix-based database systems. **Prerequisite:** ITSV 303 with a grade of C or better.

ITSV 385 Information Technology Management and Service Delivery

Credits 3. 3 Lecture Hours. Study of the disciplines necessary to create an organization that consistently delivers business value through Information Technology (IT) services; examination of all types of interaction between an IT service provider and their customers, users, suppliers, and partners, including governance and risk management, organizational change, communication models, and business relationship management; examination of customer and user experience concepts through customer journey mapping and acquire practical and strategic approaches to aligning IT services to organizational values; examination of the practical skills necessary to create a "learning and improving" IT organization, with an emphasis on Agile and Lean methodologies, and the strategies needed to embed continual improvement at every layer of the organization. **Prerequisites:** Grade of C or better in ITSV 101 and ITSV 274; junior or senior classification; Information Technology Service Management major.

ITSV 396 Foundations of Data Analytics in Information Technology Service Management

Credits 3. 3 Lecture Hours. Development of knowledge and skills towards gathering, describing, and analyzing data, and using advanced statistical tools to make decisions on information technology service management, organization operations, and risk management, etc; instruction in processes used to identify, locate, analyze, and report on data sources both qualitatively and quantitatively; exposure to hands-on practical experience of some advanced data analytic skills, including statistical inference, time series analysis, Monte Carlo simulation, and optimization models, etc. **Prerequisites:** Grade of C or better in STAT 201; junior classification; or approval of instructor.

ITSV 412 Contemporary Issues in Technology Management

Credits 3. 3 Lecture Hours. Specific innovation or practices nascent to the professional information technology industry; discovery of practical applications and analytics of new innovation. **Prerequisites:** ITSV 272 and ITSV 274 with a grade of C or better; junior or senior classification.

ITSV 465 DevOps and High Velocity Service Delivery

Credits 4. 3 Lecture Hours. 2 Lab Hours. A survey of concepts used to manage a modern Information Technology (IT) team in order to deliver IT services with scale and velocity; the ideas behind Lean and Agile organizations; systems automation and infrastructure as code; delivering modern IT services at scale using public cloud resources; how the IT unit relates to other groups within the organization (business relationship management and IT governance); practical application by creating an API-driven IT service; using continuous delivery tools to automate the build and delivery pipeline. **Prerequisite:** Grade of C or better in ITSV 274 and ITSV 303; junior or senior classification; Information Technology Service Management major.

ITSV 475 Information Technology Service Management Capstone I

Credits 4. 3 Lecture Hours. 2 Lab Hours. Exploration of planning, management, and execution of IT projects; reviewing project management methodologies; examination of project artifacts, deliverables, scoping, scheduling, critical path, changes, retrospectives, conducting meetings; exploration of team development and constraint theory. **Prerequisites:** Grade of C or better in ITSV 303, ITSV 308, ITSV 316, and ITSV 385; grade of C or better in ITSV 396 and ITSV 412, or concurrent enrollment; ENGL 210; junior senior classification or approval of instructor; Information Technology Service Management majors.

ITSV 476 Information Technology Service Management Capstone II

Credits 3. 3 Lecture Hours. Continuation of ITSV 475; execution of plan for capstone project; team experience in execution of project; sponsor interaction; peer review and feedback. **Prerequisites:** Grade of C or better in ITSV 475; grade of C or better in ITSV 465 or concurrent enrollment; or approval of the instructor.

JAPN - Japanese (JAPN)

JAPN 101 Beginning Japanese I

Credits 4. 3 Lecture Hours. 2 Lab Hours. (JAPN 1411) Beginning Japanese I. Elementary language study with oral, written and reading practice; preparation for conversation; part of class preparation to be done in the language laboratory.

JAPN 102 Beginning Japanese II

Credits 4. 3 Lecture Hours. 2 Lab Hours. (JAPN 1412) Beginning Japanese II. Continuation of JAPN 101; part of class preparation to be done in the language laboratory. **Prerequisite:** JAPN 101.

JAPN 201 Intermediate Japanese I

Credits 4. 4 Lecture Hours. Readings of average difficulty; review of grammar; practice in conversation and composition. **Prerequisite:** JAPN 102.

JAPN 202 Intermediate Japanese II

Credits 4. 4 Lecture Hours. Continuation of JAPN 201 with more advanced material. **Prerequisite:** JAPN 201.

JAPN 285 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Individual supervision of readings or assigned projects in Japanese, selected for each student individually; written or oral reports. **Prerequisite:** Approval of instructor and Director of AALO.

JAPN 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of Japanese studies. May be repeated for credit. **Prerequisite:** Approval of instructor.

JAPN 291 Research

Credits 0 to 3. 0 to 3 Other Hours. Research in Japanese studies conducted under the direction of faculty member approved by the Director of AALO. May be taken 2 times for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

JAPN 301 Upper Level Japanese I

Credits 3. 3 Lecture Hours. Reading and listening practice using authentic and near-authentic materials; conversation practice in different levels of formality; composition and grammar; conducted in Japanese. **Prerequisite:** JAPN 202.

JAPN 302 Upper Level Japanese II

Credits 3. 3 Lecture Hours. Continuation of JAPN 301 with more advanced material. **Prerequisite:** JAPN 301.

JAPN 325 Japanese Language and Culture through Manga

Credits 3. 3 Lecture Hours. Examination of Japanese and Asian visual, linguistic, and cultural traditions, with emphasis on genre of Manga. **Prerequisite:** JAPN 202.

JAPN 401 Advanced Japanese I

Credits 3. 3 Lecture Hours. Readings with selected grammar and kanji lessons; focus on Japanese traditional and popular culture, religion, and history; taught in Japanese. **Prerequisite:** JAPN 302 or equivalent.

JAPN 402 Advanced Japanese II

Credits 3. 3 Lecture Hours. Readings with selected grammar and kanji lessons; focus on Japanese private and business life, education, politics, and contemporary culture; taught in Japanese. **Prerequisite:** JAPN 302 or equivalent.

JAPN 485 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Individual supervision of readings or assigned projects selected for each student individually; written or oral reports. **Prerequisite:** Approval of instructor and Director of AALO.

JAPN 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of Japanese studies. May be repeated for credit. **Prerequisite:** Approval of instructor.

JAPN 491 Research

Credits 1 to 4. 1 to 4 Other Hours. Research in Japanese studies conducted under the direction of faculty member approved by the Director of AALO. May be taken 2 times for credit. **Prerequisites:** Junior or senior classification and approval of instructor.

JOUR - Journalism (JOUR)

JOUR 102 American Mass Media

Credits 3. 3 Lecture Hours. (COMM 1307) American Mass Media. Introductory survey of mass communication media, their history and social role, to provide an understanding of the development and importance of mass communication media in modern society.

JOUR 200 Mass Media Information

Credits 3. 3 Lecture Hours. Strategies and procedures in identifying, gathering, analyzing and organizing information for the mass media; sources and methods; evaluation and validation of evidence; legal and ethical considerations. **Prerequisites:** Grade of C or better in JOUR 102; freshman or sophomore classification; enrollment in JOUR major, USLA-BA-JNS concentration, or JOUR minor; or approval of program director.

JOUR 203 Media Writing I

Credits 3. 2 Lecture Hours. 3 Lab Hours. (COMM 2311) Media Writing I. Basic journalistic techniques common to all media; integration of news gathering, writing and editing; ethics. Limited to minors in journalism, or with approval of program director. **Prerequisites:** Grade of C or better in JOUR 102 and JOUR 200; enrollment in JOUR major, the USLA-BA-JNS concentration or JOUR minor; or approval of program director.

JOUR 208 Television Sports Production

Credits 3. 3 Lecture Hours. Detailed study of all aspects of television sport production to develop an overall understanding and appreciation of the art of sports broadcasting; history of the sports broadcast industry; examination of historic and current philosophies.

JOUR 215/COMM 215 Interviewing: Principles and Practice

Credits 3. 3 Lecture Hours. Theory and practice of methods in selected interview settings; emphasis on communication between two persons, questioning techniques, and the logical and psychological bases of interpersonal persuasion. **Cross Listing:** COMM 215/JOUR 215.

JOUR 230/COMM 230 Communication Technology Skills

Credits 3. 3 Lecture Hours. Introduction to interactive media and media literacy skills in the digital domain; survey of technology histories, standards, and markets for industries such as multichannel TV, digital radio, video games, streaming media, epublishing, teleconferencing, and social networking. **Prerequisites:** Enrollment in communication or telecommunication media studies majors, USLA-BA-JNS concentration, or JOUR minor. **Cross Listing:** COMM 230/JOUR 230.

JOUR 248/COMM 248 Podcasting and Audio Storytelling

Credits 3. 3 Lecture Hours. Basic audio storytelling techniques required for podcast production within the journalism and public media context; principles of podcast development, scripting, audio recording and editing, and promotion. **Cross Listing:** COMM 248/JOUR 248.

JOUR 250/COMM 250 New Media and the Independent Voice

Credits 3. 3 Lecture Hours. Examination of new media as independent voices for cultural and political movements; principles governing the design, presentation, and evaluation of blogs as a persuasive medium in society. **Cross Listing:** COMM 250/JOUR 250.

JOUR 255/COMM 255 Media Literacy in the Digital Age

Credits 3. 3 Lecture Hours. Criticism and analysis of the function, role, and responsibility of the mass media in contemporary society. **Cross Listing:** COMM 255/JOUR 255.

JOUR 275/COMM 275 Introduction to Social Media

Credits 3. 3 Lecture Hours. Theoretical and practical approaches to social media; overview of social media, social media concepts and theories; social media applications and contexts. **Cross Listing:** COMM 275/JOUR 275.

JOUR 285 Directed Studies

Credits 0 to 3. 0 to 3 Other Hours. Research problems related to communication field; individual work, fitted to special needs of specific student as determined by their interests and aptitude. **Prerequisites:** Enrollment in JOUR major, USLA-BA-JNS concentration or JOUR minor; approval of the program director.

JOUR 289 Special Topics in...

Credits 3. 3 Other Hours. Selected topics in an identified area of journalism and mass communication. May be repeated for credit. **Prerequisites:** Enrollment in USLA-BA-JNS concentration or JOUR minor.

JOUR 291 Research

Credits 0 to 3. 0 to 3 Other Hours. Research conducted under the direction of a chosen faculty member in Journalism Studies. May be taken for a maximum of 3 hours credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

JOUR 301/COMM 307 Communication Law and Policy

Credits 3. 3 Lecture Hours. Law and policy that create the context and consequences for communication via mass media, social media, organizational, group and interpersonal communication, free speech, free press, libel, privacy, copyright, cybersecurity, constitutional principles, international law and human rights, fairness, equity and diversity in communication. **Prerequisites:** Junior or senior classification, or approval of instructor; COMM-307 also taught at Galveston campus. **Cross Listing:** COMM 307/JOUR 301.

JOUR 302 The Mass Media and Politics

Credits 3. 3 Lecture Hours. Examination of mass media impact on politics and political behavior, and governmental impact on the mass media. **Prerequisite:** POLS 206 or approval of department head; junior or senior classification. **Cross Listing:** COMM 302 and POLS 302.

JOUR 303 Media Writing II

Credits 3. 2 Lecture Hours. 3 Lab Hours. Interpretative news gathering and writing for various media; basic communication law and ethics; assigned practice on campus or other publications. **Prerequisites:** JOUR 203, enrollment in JOUR major, USLA-BA-JNS concentration or JOUR minor; or approval of program director.

JOUR 304 Editing for the Mass Media

Credits 3. 3 Lecture Hours. Principles and practice of editing including: improving and tightening text; writing headlines, titles and subheads; self-editing and editing others; tailoring texts for specific audiences; understanding style guides. **Prerequisite:** Grade of C or better in JOUR 203; enrollment in JOUR major, USLA-BA-JNS concentration or JOUR minor; or approval of program director; junior or senior classification.

JOUR 305/COMM 303 Communication Data Applications

Credits 3. 3 Lecture Hours. Overview of communication using big data; data management, extraction and visualization; message construction, message critique; uses and applications in the field of communication and media for evidence-based arguments, persuasion, education and digital storytelling. **Prerequisite:** Junior or senior classification. **Cross Listing:** COMM 303/JOUR 305.

JOUR 306/COMM 304 Digital Communication Analytics and Metrics

Credits 3. 3 Lecture Hours. Digital communication analytics; extraction of information and knowledge from digital communication data; application of data-analytics to social media marketing, demographic analyses of web users, optimization and connection of results across digital tactics; applications of special interest to fields of strategic communication, public relations, advertising, integrated marketing communication, social media strategy and journalism. **Prerequisite:** Grade of B or better in COMM 275/JOUR 275, COMM 323, or JOUR 200; junior or senior classification. **Cross Listing:** COMM 304/JOUR 306.

JOUR 313 Photojournalism I

Credits 3. 3 Lecture Hours. Photographic techniques, tools and content issues for visual journalism; photo assignments on the variety of situations working photojournalists encounter. **Prerequisites:** Junior or senior classification, or approval of instructor.

JOUR 317/COMM 317 Social Media Law

Credits 3. 3 Lecture Hours. Laws and regulations applied to social media, including communication law applied to enduring issues in the social media context; legal problems unique to social media; free speech, commercial speech and employment law as they affect individual users of social media as well as groups and organizations promoting points of view or products via social media, and employers. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** COMM 317/JOUR 317.

JOUR 318 Visual Journalism

Credits 3. 3 Lecture Hours. Critical evaluation of visual communication approaches as applied to journalism across mediums; assessment of strengths, and limitations of visual journalism through process of advancing technology and aesthetics in journalism and documentary projects. **Prerequisites:** Junior or senior classification; or approval of instructor.

JOUR 319/SPAN 319 Bilingual Reporting

Credits 3. 3 Lecture Hours. Journalistic techniques and skills used to report in Spanish and/or for Spanish-language media; examination of the unique set of challenges facing LatinX communities in the United States, Latin American, and Hispanic countries abroad; integration of newsgathering, writing, editing, research skills, multimedia podcasting. **Prerequisites:** Junior or senior classification; SPAN 302 or approval of instructor. **Cross Listing:** SPAN 319/JOUR 319.

JOUR 341 Mobile Journalism

Credits 3. 3 Lecture Hours. Multimedia journalism; photography, audio and video as used in journalism; reporting stories; adaptation of storytelling across media platforms; real-time mobile publishing. **Prerequisites:** Junior or senior classification or approval of instructor.

JOUR 345 Media Industries

Credits 3. 3 Lecture Hours. Survey of the business organization, economic structures and processes, and regulations of the media industry. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** COMM 345 and FILM 345.

JOUR 346/COMM 346 Media, Culture and Identity

Credits 3. 3 Lecture Hours. Media representations relating to power, privilege and difference; communication theories and concepts centered on how media and technology-use shape, and are shaped by, identity; critical analysis of media as sites for negotiation and construction of identities such as gender, race, ethnicity, sexuality, social class, physical/mental ability, nationality and religion; reflection on and analysis of bias, prejudice, discrimination, power, equity and privilege. **Prerequisites:** Junior or senior classification or approval of instructor. **Cross Listing:** COMM 346/JOUR 346.

JOUR 359 Reporting Sports

Credits 3. 3 Lecture Hours. Gathering, organizing, researching, evaluating and writing sports information; employing accepted professional sports writing style across various news media platforms. **Prerequisites:** Junior or senior classification.

JOUR 365/COMM 365 International Communication

Credits 3. 3 Lecture Hours. Mass media, international, and cross-cultural audiences; theoretical, pragmatic, political and ethical issues; including cultural differences, comparative media systems, development communication, patterns of world news flow, political propaganda, impact of international advertising and other issues. **Prerequisite:** Junior or senior classification; COMM-365 also taught at Qatar campus. **Cross Listing:** COMM 365/JOUR 365.

JOUR 450 Political Reporting

Credits 3. 3 Lecture Hours. Interviewing; reporting; and writing various types of political stories and commentary; exploration of ethical principles and issues in political reporting including role of free press in a democracy. **Prerequisite:** Junior or senior classification or approval of instructor.

JOUR 451 Arts & Entertainment Journalism

Credits 3. 3 Lecture Hours. Arts & Entertainment Journalism. Journalistic coverage of arts and entertainment issues and events; examination of reviews and feature stories; feature writing and criticism; extensive workshop experience; emphasis on the value of research, self-editing and revision. **Prerequisite:** Junior or senior classification or approval of instructor.

JOUR 452 Business Reporting

Credits 3. 3 Lecture Hours. Specialized concepts and skills required to cover business; everyday impact on the lives of consumers; exploration of and writing about interaction of companies, communities, consumers, governments and global events. **Prerequisites:** Junior or senior classification or approval of instructor.

JOUR 455 Literary Nonfiction

Credits 3. 3 Lecture Hours. Explores the art of writing literary nonfiction, a major trend in 21st century journalism; examines several forms of literary nonfiction, including personal essay, memoir, historical biography and modern narrative: to be written in each form; provides extensive workshop experience; emphasizes the value of critiques, self-editing and revision. **Prerequisite:** Junior or senior classification or approval of instructor.

JOUR 458/COMM 458 Global Media

Credits 3. 3 Lecture Hours. Study of globalization through media ownership; content, flow, cultural values, political power and technological impact; implications of globalization for local economies and audiences. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** COMM 458/JOUR 458.

JOUR 459 Sports Entertainment Reporting

Credits 3. 3 Lecture Hours. Nontraditional sports storytelling for 21st-century audiences; instruction in narrative components of sports blogs, fan sites, commentary and analysis; examination of key debates about sports media and sports journalism ethics in the 24/7 digital and social media-driven news cycle. **Prerequisites:** Junior or senior classification, or approval of instructor.

JOUR 468 Magazine Feature Writing

Credits 3. 3 Lecture Hours. Focus on the ability to communicate through a variety of styles including traditional long-form magazine writing and profiles; critical analysis and adaptation of writing skills for the latest trends in magazine, including audio and multimedia storytelling and the advent of purely digital magazines. **Prerequisites:** JOUR 203; junior or senior classification, or approval of instructor; major in JOUR or university studies-journalism or minor in journalism.

JOUR 484 Internship

Credits 0 to 3. 0 to 3 Other Hours. Directed internship in a private firm or public agency to provide on-the-job experience appropriate to the student's degree program and career objectives. To be taken on a satisfactory/unsatisfactory basis. Maximum of 3 credits may apply toward degree. **Prerequisites:** Junior or senior classification; enrollment in USLA-BA-JNS concentration or JOUR minor; approval of instructor; grade of C or better in JOUR 203.

JOUR 485 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Research problems related to communication field. Individual work, fitted to special needs of specific student as determined by his or her interests and aptitude. **Prerequisites:** Junior or senior classification; enrollment in USLA-BA-JNS concentration or JOUR minor; approval of instructor.

JOUR 489 Special Topics in...

Credits 1 to 4. 1 to 4 Other Hours. Selected topics in an identified area of journalism and mass communication. May be repeated for credit. **Prerequisites:** Junior or senior classification; enrollment in USLA-BA-JNS concentration or JOUR minor; or approval of instructor.

JOUR 490 Journalism as a Profession

Credits 3. 3 Lecture Hours. Exit-level course for interdisciplinary minor in Journalism; requires students to produce publication-quality projects; includes seminars in contemporary news media issues and practices. **Prerequisite:** JOUR 203; junior or senior classification; enrollment in USLA-BA-JNS concentration or JOUR minor; and approval of instructor.

JOUR 491 Research

Credits 0 to 3. 0 to 3 Other Hours. Research conducted under the direction of a chosen faculty member in Journalism Studies. May be taken for a maximum of 3 hours credit. **Prerequisites:** Grade of C or better in JOUR 203; junior or senior classification and approval of instructor.

JWST - Jewish Studies (JWST)

JWST 201/RELS 201 Introduction to Jewish Studies

Credits 3. 3 Lecture Hours. Exploration of Jewish history, culture, identity, and art throughout the millennia and in the modern world; focus on material in multiple media and approaches from a variety of disciplines. **Cross Listing:** RELS 201/JWST 201.

JWST 285 Directed Studies

Credits 0 to 3. 0 to 3 Other Hours. Readings and/or assigned projects for specific needs of students minoring in Jewish studies; directed independent or individual study in an identified area of Jewish studies. **Prerequisites:** Approval of instructor.

JWST 289 Special Topics in...

Credits 1 to 4. 1 to 4 Other Hours. Selected topics in an identified area of Jewish studies. May be repeated for credit.

JWST 291 Research

Credits 0 to 3. 0 to 3 Other Hours. Research conducted under the direction of a faculty member in Jewish Studies. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

JWST 301 Contemporary Jewish Cultures

Credits 3. 3 Lecture Hours. Exploration of contemporary Jewish cultures in the United States and around the world; examination of intersections and challenges of Jewish identity with local and global influences. **Prerequisites:** Junior or senior classification.

JWST 315/FILM 315 Cinema in Israel

Credits 3. 3 Lecture Hours. Consideration and analysis of major works of film in Israel; interpretation of diverse cultures in Israel through film; relationship of film to Israeli history; taught in English. **Prerequisites:** Junior or senior classification or approval of instructor. **Cross Listing:** FILM 315/JWST 315.

JWST 485 Directed Studies

Credits 0 to 6. 0 to 6 Other Hours. Readings and/or assigned projects for specific needs of students minoring in Jewish studies; directed independent or individual study in an identified area of Jewish studies. May be repeated for credit. **Prerequisites:** Junior or senior classification; approval of instructor.

JWST 489 Special Topics in...

Credits 1 to 4. 1 to 4 Other Hours. Selected topics in an identified area of Jewish studies. May be repeated for credit. **Prerequisites:** Junior or senior classification, or approval of instructor.

JWST 491 Research

Credits 0 to 3. 0 to 3 Other Hours. Research conducted under the direction of a faculty member in Jewish Studies. May be taken three times for credit. **Prerequisites:** Junior or senior classification and approval of instructor.

KINE - Kinesiology (KINE)

KINE 120 The Science of Basic Health and Fitness

Credit 1. 1 Lecture Hour. 1 Lab Hour. Overview of the human body; scientific fundamentals of stress, fitness, nutrition, disease and drug use; interdisciplinary focus on wellness and longevity; integrated physical activity experiences centering on principles and applications of the scientific basis of conditioning; not open to students who have taken KINE 223; also taught at Galveston campus.

KINE 121 Physical and Motor Fitness Assessment

Credits 2. 1 Lecture Hour. 2 Lab Hours. Assessment of individual physical fitness and motor ability profiles for students majoring in kinesiology. **Prerequisite:** Kinesiology major.

KINE 175 Gender Neutral Partnering

Credit 1. 2 Lab Hours. Explores the fundamental principles of partnering; explores the properties of momentum, weight sharing, contact improvisation, breath, timing and trust; develops movement phrases on the principles of impromptu and partnering.

KINE 199 Required Physical Activity

Credit 1. 2 Lab Hours. (Any 1-hour PHED activity course) Required Physical Activity. Selection from a wide variety of activities designed to increase fitness and/or encourage the pursuit of lifetime activity; also taught at Galveston campus.

KINE 210 The Art of Movement

Credits 3. 3 Lecture Hours. Introductory course that examines and appreciates movement as expressed by every culture; movement is a function driven by context, whether practical or artistic; this course examines how dance is used to advance personal, social expression via design, patterning, connoted meaning, and inter-connectivity of form; in-class discussions, applications, and presentations, students attend and critique off-campus dance productions to enhance perspective, experience and appreciation of dance movement; Galveston campus; also taught at College Station campus.

KINE 213 Foundations of Kinesiology

Credits 3. 3 Lecture Hours. (PHED 1301) Foundations of Kinesiology. History, principles, objectives, current concepts of kinesiology.

KINE 214/HLTH 214 Health and Physical Activity for Children

Credits 3. 3 Lecture Hours. (PHED 1331) Health and Physical Activity for Children. Coordinated school health and physical activity programs appropriate for elementary aged children; focus on the content of the curriculum and the philosophical underpinnings of programming related to health and physical activity. **Cross Listing:** HLTH 214/KINE 214.

KINE 215 Fundamentals of Coaching

Credits 3. 3 Lecture Hours. (PHED 1321) Fundamentals of Coaching. Preparation of prospective coaches by gaining competence in coaching in today's environment; emphasis on developing the athlete, creating an effective practice environment, utilizing game management strategies, and skill analysis; research of successful coaches to develop coaching philosophy. **Prerequisite:** Kinesiology majors and coaching minors only.

KINE 216/HLTH 216 First Aid

Credits 2. 2 Lecture Hours. (PHED 1306) First Aid. Basic first aid instruction leading to University Level, first aid course completion recognition. **Cross Listing:** HLTH 216/KINE 216.

KINE 223 Introduction to the Science of Health and Fitness

Credits 3. 2 Lecture Hours. 2 Lab Hours. Overview of the human body systems; interdisciplinary focus on wellness, fitness, nutrition, disease, drug use; integrated physical activity centering on principles and applications of conditioning; collect data, evaluate information, formulate plans based on findings; experience with pedometers, heart rate monitors, bioelectrical impedance devices, software and other technology; also taught at Galveston campus.

KINE 282 Culture of Wellness

Credits 3. 2 Lecture Hours. 2 Lab Hours. Explore the dimensions of wellness across worldwide cultures; analyze, compare and contrast wellness choices and their impact on the individual and society; investigate a global region and its wellness practices; integrate physical activity experiences that are centered on the history and culture of a focus activity that originated outside the United States; also taught at Galveston campus.

KINE 285 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Work on a specified topic with the intent of promoting independent reading, research and study; supplement existing course offerings or subjects not presently covered. **Prerequisites:** Freshman or sophomore classification; approval of instructor.

KINE 289 Special Topics in...

Credits 0 to 4. 0 to 4 Lecture Hours. Selected topics in an identified area of kinesiology. May be repeated for credit.

KINE 291 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in kinesiology. May be repeated 4 times for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

KINE 305 Sport Nutrition

Credits 3. 3 Lecture Hours. 0 Lab Hours. Optimal nutritional intake in support of peak performance in sport and dance; food as fuel and which fuels are most important to specific sport/dance activities; the role nutritional supplements can play; fluid balance; weight management for athletes and dancers. **Prerequisites:** Junior or senior classification.

KINE 307 Lifespan Motor Development

Credits 3. 3 Lecture Hours. Comprehensive study of biological, neurological, and physiological changes that influence motor behavior across the human lifespan; focus on heredity, neural development, physical growth, motor skill changes, and the impact of sociocultural settings; application of ecological and information processing models, and use of assessment tools to evaluate motor development in typical and atypical populations from prenatal stages through older adulthood. **Prerequisites:** Junior or senior classification or approval of instructor.

KINE 308 Integrated Adventure Education

Credits 3. 2 Lecture Hours. 3 Lab Hours. Philosophy of outdoor education in a physical education program; designing and implementing outdoor adventure activities in an experiential and interdisciplinary manner for reinforcing the Texas Essential Knowledge and Skills. **Prerequisites:** Junior or senior classification or instructor approval.

KINE 311 Fundamental Rhythms and Dance

Credits 3. 2 Lecture Hours. 3 Lab Hours. Appreciation of rhythms and dance movements in a cultural context; analysis of dance performance; basic understanding of the various dance components. **Prerequisite:** Approval of instructor.

KINE 312 Coaching of Baseball

Credits 2. 1 Lecture Hour. 2 Lab Hours. Theory and practice of coaching fundamentals in baseball. **Prerequisite:** Grade of C or better in KINE 215.

KINE 314 Coaching of Soccer

Credits 2. 1 Lecture Hour. 2 Lab Hours. Study of modern theories and applications related to coaching soccer. **Prerequisites:** Grade of C or better in KINE 215.

KINE 317 Coaching of Football

Credits 2. 1 Lecture Hour. 2 Lab Hours. Theory and practice of coaching fundamentals in football. **Prerequisite:** Grade of C or better in KINE 215.

KINE 318 Care of the Athlete

Credits 3. 3 Lecture Hours. Overview of the profession of athletic training; comprehensive analysis of the theories and practices in preventing, recognizing and treating common athletic injuries. **Prerequisite:** Junior or senior classification.

KINE 321 Coaching of Volleyball

Credits 2. 1 Lecture Hour. 2 Lab Hours. Coaching fundamentals in volleyball. **Prerequisites:** Grade of C or better in KINE 215.

KINE 324 Career Development in Coaching and Youth Development

Credits 3. 3 Lecture Hours. Topic relevant to and career options in the coaching profession; preparation of future coaches and youth development professionals for successful careers; exploration and development of skills and knowledge to lead and manage individuals and teams. **Prerequisites:** Junior or senior classification; approval of instructor.

KINE 325 Administrative and Athletic Operations for Coaches

Credits 3. 3 Lecture Hours. Development of knowledge and skills related to event and tournament organization, sport governing bodies, school officials; comprehension of risk management, financial management; includes classroom experiences, observations and field-based experiences to link theory into practice. **Prerequisites:** Junior or senior classification.

KINE 334 Coaching in Personal Training

Credits 2. 1 Lecture Hour. 2 Lab Hours. An overview of the knowledge, skills, and expectations associated with being a competent personal trainer or fitness professional; fundamentals in addressing an individual's health, medical and fitness status, along with comprehending fitness concepts including nutrition, bioenergetics, biomechanics and applied anatomy. **Prerequisite:** Grade of C or better in KINE 215.

KINE 335 Coaching in Group Fitness

Credits 2. 1 Lecture Hour. 2 Lab Hours. An overview of the knowledge, skills and expectations associated with being a competent group fitness instructor; creation, application and adaptation of a variety of group fitness classes based on population size, skill level, equipment available and facility space; basic business practices and professional certification procedures that are required of a fitness professional. **Prerequisite:** Grade of C or better in KINE 215.

KINE 340 Essentials of Strength and Conditioning

Credits 3. 3 Lecture Hours. Current principles and procedures essential to strength training and conditioning practices; emphasis on development and practical applications of scientific based anaerobic conditioning, flexibility, mobility, muscular strength, power and aerobic endurance program designs. **Prerequisites:** Junior or senior classification; recommend KINE 199 Majors Aerobic Movement or Majors Resist Flex.

KINE 345 Coaching of Weight Training

Credits 2. 1 Lecture Hour. 2 Lab Hours. Overview of the knowledge, skills, and expectations associated with being a competent resistance training coach; fundamentals in addressing training facility etiquette and safety, along with gaining proper knowledge for exercise technique and improvement of athletic performance; specific, real-world information about the knowledge, skills, and expectations associated with a competent coach and specific skills gained during weight training sessions. **Prerequisites:** Grade of C or better in KINE 215.

KINE 351 Coaching of Basketball

Credits 2. 1 Lecture Hour. 2 Lab Hours. Theory of fundamental skills needed to coach basketball with emphasis on knowledge of rules, strategies and skill analysis. **Prerequisites:** Grade of C or better in KINE 215.

KINE 353 Coaching of Softball

Credits 2. 1 Lecture Hour. 2 Lab Hours. Theory of fundamental skills needed to coach softball with emphasis on knowledge of rules, strategies and skill analysis. **Prerequisites:** Grade of C or better in KINE 215.

KINE 355 Coaching of Track

Credits 2. 1 Lecture Hour. 2 Lab Hours. Theory and practice of coaching fundamentals in track and field events. **Prerequisite:** Grade of C or better in KINE 215.

KINE 370 Basic Biology of Performance for Coaches

Credits 3. 3 Lecture Hours. Fundamental knowledge in motor neuroscience, biomechanics, cardiovascular and skeletomuscular physiology, strength and conditioning and sport nutrition from an applied perspective for coaches. **Prerequisites:** Junior or senior classification.

KINE 386 Sport Physiology

Credits 3. 3 Lecture Hours. Scientific physiological principles as they relate to sport and exercise in the preparation of current and future coaches; emphasis on cognitive, physiological knowledge and practical applications necessary to earn a creditable national certification; safely and effectively train athletic, fitness and general populations. **Prerequisites:** KINE 121 and KINE 213; grade of C or better in KINE 302.

KINE 404 Coaching Psychology

Credits 3. 3 Lecture Hours. Mental aspects of coaching for performance improvement in athletic and exercise settings; focus on coaching applications of theoretical concepts including individual differences, motivation, team and group dynamics, leadership, performance enhancement, positive and negative health behaviors and youth development.. **Prerequisite:** Junior or senior classification, or approval of instructor.

KINE 406 Motor Learning and Skill Performance

Credits 3. 3 Lecture Hours. Learning and control in the psychomotor domain focusing on the study of neurophysiological processes involved in physical or motor activity, sensorimotor interactions, and diseases/disabilities limiting motor activity; instruction of central and peripheral neural anatomy, muscular anatomy, and function, as related to the performer and instructional techniques (body training, practice, exercise) that influence motor skill learning at the level of cognitive, neural, and muscular processes. **Prerequisites:** Grade of C or better in BIOL 319 and PHYS 201; concurrent enrollment BIOL 320; junior or senior classification.

KINE 407 Motor Control and Learning Lab

Credit 1. 2 Lab Hours. Study of control and learning of physical or motor activity; collection of behavioral and neurophysiological measures of human performance, muscle activity, sensorimotor interactions, cognitive processes; assessment of the influence of instructions, body training and practice on skill performance; development of graphing and scientific writing skills. **Prerequisites:** Junior or senior classification; grade of C or better or concurrent enrollment in KINE 406.

KINE 425 Tests and Measurements

Credits 3. 3 Lecture Hours. Comprehensive examination of the conceptual and theoretical aspects of measurement and evaluation in the field of kinesiology; emphasis on the application of statistical techniques germane to measurement and evaluation. **Prerequisites:** Junior or senior classification; or approval of instructor for non-majors.

KINE 426 Exercise Biomechanics

Credits 3. 3 Lecture Hours. An integrated, mechanistic study of biomechanics of human motion during physical activity and exercise; biology and mechanical properties of the human movement system including bones, tendons, ligaments, cartilage, skeletal muscles, joints and whole body systems investigated. **Prerequisites:** Grade of C or better in KINE 121, KINE 213, PHYS 201, BIOL 319, and BIOL 320; junior or senior classification.

KINE 427 Therapeutic Principles

Credits 3. 3 Lecture Hours. Focused on anatomy and physiology of human tissue injury, degeneration, and regeneration including biochemistry and molecular biology of corresponding cell signaling events; comparative physiology to describe composite tissue regeneration with particular emphasis placed upon the role of the immune system and tripartite crosstalk of muscles, blood vessels, and nerves; overview of therapeutic modality physics and physiology pertaining to human tissue regeneration. **Prerequisites:** Grade of C or better in KINE 121, KINE 213, BIOL 319, BIOL 320, and PHYS 201; junior or senior classification.

KINE 428 Exercise Biomechanics Laboratory

Credit 1. 2 Lab Hours. Applied development of the mechanistic concepts of biomechanics of human motion during physical activity, performance and exercise; investigation of the biological and mechanical properties of the human movement system including bones, tendons, ligaments, cartilage, skeletal muscles, joints and whole body system. **Prerequisites:** Grade of C or better in KINE 426 or concurrent enrollment; grade of C or better in PHYS 201; junior or senior classification.

KINE 429 Adapted Physical Activity

Credits 3. 2 Lecture Hours. 2 Lab Hours. Kinesiology for individuals with handicapping conditions; emphasis on cognitive recognition of such handicaps as postural deviations, emotional disturbances, convulsive disorders, vision and auditory problems, and other learning disability conditions. **Prerequisite:** Grade of C or better in HEFB 222/KNFB 222 or KNFB 222/HEFB 222; grade of C or better in BIOL 107 or BIOL 111; grade of C or better in PHYS 201 or CHEM 119; junior or senior classification.

KINE 433 Physiology of Exercise

Credits 3. 3 Lecture Hours. Physiological bases of exercise and physical conditioning; measurement of metabolic efficiency during exercise, neuromuscular efficiency and body composition. **Prerequisites:** Grade of C or better in KINE 121, KINE 213, PHYS 201, BIOL 319, and BIOL 320; junior or senior classification.

KINE 435 Physiology of Exercise Lab

Credit 1. 2 Lab Hours. Assessment of systemic physiological responses to exercise; contemporary laboratory equipment used to assess physiological responses to aerobic and anaerobic exercise; emphasis on physiology relating to bioenergetics/ fuel utilization, skeletal muscle function, and cardio-respiratory responses to exercise. **Prerequisites:** Grade of C or better in KINE 433 or concurrent enrollment; junior or senior classification.

KINE 439 Exercise Evaluation and Prescription

Credits 4. 3 Lecture Hours. 3 Lab Hours. Theory and techniques for evaluation of human performance and cardiovascular disease risk factors in healthy and diseased populations; exercise prescription for disease prevention and rehabilitation. **Prerequisite:** Grade of C or better in KINE 433 or concurrent enrollment; junior or senior classification.

KINE 483 Practicum in Kinesiology

Credits 0 to 3. 0 to 2 Lecture Hours. 0 to 2 Lab Hours. Participation and study in the areas of fitness assessment, exercise and/or sport programming, and fitness/sport administration; acquisition and practice of professional and/or clinical skills in kinesiology and/or coaching. **Prerequisite:** Senior classification; approval of instructor.

KINE 484 Internship in Kinesiology

Credits 0 to 12. 0 to 12 Other Hours. Supervised internship with corporate fitness centers, rehabilitation centers, hospitals, recreation centers and similar agencies and organizations. **Prerequisites:** Grade of C or better in KINE 483; completion of all coursework.

KINE 485 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Special problems in kinesiology assigned to individual students or to groups. **Prerequisites:** Junior or senior classification; approval of instructor.

KINE 489 Special Topics in...

Credits 0 to 4. 0 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of kinesiology; also taught at Galveston campus. May be repeated for credit.

KINE 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in kinesiology. May be repeated 4 times for credit. **Prerequisites:** Junior or senior classification and approval of instructor.

KNFB - Kinesiology Field Based (KNFB)

KNFB 222/HEFB 222 Culturally Responsive Pedagogy

Credits 3. 2 Lecture Hours. 3 Lab Hours. Developing an understanding of students in multiple settings and levels; development, structure, history, finance, and management of schools in a democratic society; philosophical, ethical and moral dimensions of teaching; professional role of teacher. **Prerequisite:** Kinesiology and Health majors. **Cross Listing:** HEFB 222/KNFB 222.

KNFB 315 Elementary School Physical Activities

Credits 3. 2 Lecture Hours. 2 Lab Hours. Physical activities, materials and curriculum in elementary schools. **Prerequisite:** Grade of C or better in HEFB 222/KNFB 222 or KNFB 222/HEFB 222; grade of C or better in BIOL 107 or BIOL 111; grade of C or better in PHYS 201; junior or senior classification.

KNFB 324/HEFB 324 Technology and Teaching Skills for the 21st Century Learner

Credits 3. 2 Lecture Hours. 2 Lab Hours. Preparation of future Health and Physical Education teachers with practical skills related to: technology in the classroom/gymnasium, strategies for addressing urban education and English language learners, liability, management and classroom discipline, development of professional communication skills and time management; includes field based experiences in diverse classroom settings. **Prerequisite:** Grade of C or better in HEFB 222/KNFB 222 or KNFB 222/HEFB 222; grade of C or better in BIOL 107 or BIOL 111; grade of C or better in PHYS 201 or CHEM 119; junior or senior classification.

Cross Listing: HEFB 324/KNFB 324.

KNFB 325/HEFB 325 Introduction to Secondary School Teaching

Credits 3. 2 Lecture Hours. 2 Lab Hours. Introduce fundamental teaching skills and theories necessary for preparing reflective teachers; examine classroom management, learning strategies and assessment techniques; classroom lectures combined with field-based experiences to link theory into practice. **Prerequisite:** Grade of C or better in HEFB 324/KNFB 324 or KNFB 324/HEFB 324; junior or senior classification. **Cross Listing:** HEFB 325/KNFB 325.

KNFB 416 Middle and Secondary School Physical Activities

Credits 3. 2 Lecture Hours. 2 Lab Hours. Physical activities, teaching strategies, media techniques and curriculum in middle and secondary schools. **Prerequisite:** Grade of C or better in HEFB 222/KNFB 222 or KNFB 222/HEFB 222, grade of C or better in BIOL 107 or BIOL 111; grade of C or better in PHYS 201; junior or senior classification.

KNFB 450/HEFB 450 Supervised Student Teaching

Credits 6. 6 Other Hours. Observation and participation in an accredited public school classroom; techniques of teaching student's teaching fields, and appropriate instructional strategies for assigned student population. **Prerequisites:** Grade of C or better in HLTH 415/PHLT 420 or KNFB 416. **Cross Listing:** HEFB 450/KNFB 450.

LAND - Landscape Architecture (LAND)

LAND 101 Introduction to Landscape Architectural Practice

Credit 1. 1 Lecture Hour. Explores and evaluates the diversity of landscape architectural practice; defines the traditional practice forms and examines evolving and boundary expanding opportunities for future practice; introduces the departmental curriculum and faculty.

LAND 111 Landscape Architecture Communications I

Credits 3. 2 Lecture Hours. 4 Lab Hours. Introduction to basic drafting and drawing required for landscape architecture projects, introduction to basic concepts, principles of graphic composition and pencil sketching techniques.

LAND 112 Landscape Architectural Communications II

Credits 3. 2 Lecture Hours. 4 Lab Hours. Advanced study in traditional and computer-based communication techniques in landscape architecture including studio explorations in concept and analysis graphics, color sketching, perspective drawing and rendering, desktop publishing, image capturing and manipulation, and compilation of graphic presentations; lecture, demonstrations and studio assignments. **Prerequisite:** LAND 111 or approval of instructor.

LAND 210 Microclimatic Urban Design: Cool Solutions for Hot Cities

Credits 3. 3 Lecture Hours. Introduction to methods of designing thermally-comfortable urban microclimates to reduce negative impacts of hot cities on human health and well-being; includes methods of analyzing and illustrating climate data; human thermal comfort modeling; application to urban design and landscape architecture; no previous drawing or design skills necessary.

LAND 211 Landscape Design I

Credits 4. 2 Lecture Hours. 7 Lab Hours. Beginning studio course in land design; forces that produce useable three-dimensional site-space relationships; problems presented to give a basic knowledge, scope and application of landscape architecture design principles. Overnight field trip required. **Prerequisites:** LAND 112; junior or senior classification or approval of instructor.

LAND 212 Landscape Design II

Credits 4. 2 Lecture Hours. 7 Lab Hours. Continuation of LAND 318; basic design principles that combine natural systems (such as landform, water, vegetation, wildlife habitat, soils, climate) and human-built systems (such as roads, building utilities). **Prerequisites:** LAND 211 and LAND 231.

LAND 231 Landscape Construction I

Credits 4. 2 Lecture Hours. 4 Lab Hours. First construction studio course; aspects of site engineering and consideration of earth bound elements in land development; contours, landform, grading design, drainage principles, cut and fill computations, basic hydraulics and hydrology, stormwater management. **Prerequisite:** Junior or senior classification or approval of instructor.

LAND 232 Landscape Construction II

Credits 3. 2 Lecture Hours. 4 Lab Hours. Second construction studio course; essential construction materials and systems applied in landscape development; topics include statics and mechanics of simple structures; properties and procedures of wood, masonry and concrete construction; construction sequencing and material costs; development of a construction document package required. Construction observation field trips required. **Prerequisites:** LAND 211 and LAND 231; junior or senior classification.

LAND 240 History of Landscape Architecture

Credits 3. 3 Lecture Hours. Introduction to history of land use, urban design and planning, and site design from prehistory to the present in Europe, Asia, Africa and Australia; contemporary issues in landscape architecture such as sustainability, ecological design, and professional roles, both historically and at present, with comparisons to American examples. **Prerequisite:** Sophomore classification or higher.

LAND 241 History and Development of Landscape Architecture in North America

Credits 3. 3 Lecture Hours. Interaction between people and the land in North America from first settlement to the present; settlement patterns, sustainable land use, urban design and plan, and site design in context of cultural, social, and technological factors; current issues in landscape architecture, landscape urbanism, and land-use planning.

LAND 291 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of faculty member in landscape architecture. May be repeated 2 times for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

LAND 301 Landscape Architecture Theory

Credits 3. 3 Lecture Hours. Landscape Architecture. Relevant theoretical discourse in landscape architecture, urban planning and urban design; urban theory, social and cultural theory; critical and creative thinking; ecological planning and design; design process and sustainable development; environmental philosophy and environmental aesthetics. **Prerequisite:** Junior classification or approval of instructor.

LAND 311 Landscape Design III

Credits 5. 2 Lecture Hours. 9 Lab Hours. Design process, sustainable landscape design, synthesis and design refinement; problems to stimulate highly creative self-motivated results, design thinking to integrate behavioral settings into natural and/or built landscape systems. **Prerequisites:** LAND 212 and LAND 232; junior or senior classification.

LAND 312 Landscape Design IV

Credits 5. 2 Lecture Hours. 9 Lab Hours. Continuation of LAND 311; land design projects of increased complexity and emphasis on sustainability, with site scale problems used to demonstrate complete design thought. One or more field trips may be required. **Prerequisite:** LAND 311.

LAND 331 Landscape Construction III

Credits 4. 2 Lecture Hours. 4 Lab Hours. Third construction studio course; sustainable water management techniques in landscape development; theory, principles and techniques of low impact development; construction document preparation, working drawings, project layout and design; theory and principles of irrigation and lighting design. Field trips required. **Prerequisites:** LAND 320 and LAND 330; junior or senior classification.

LAND 412 Landscape Design VI

Credits 5. 2 Lecture Hours. 9 Lab Hours. Capstone studio; advanced study and research designed to go beyond the core design experience; introduction of issues, methodologies, tools and techniques developing in professional practice. **Prerequisite:** LAND 312.

LAND 431 Professional Practice

Credits 3. 3 Lecture Hours. Procedures, management and ethical frameworks in which professional landscape architectural practice occurs; topics include forms of practice, employment, proposal preparation, fee and contract structures, project management, roles of the landscape architect, presentations and public participation, legal and ethical responsibilities. **Prerequisites:** Senior classification; approval of instructor.

LAND 484 Summer Internship

Credits 0. 0 Lecture Hours. Practical experience in an office of design allied professionals; 10 week internship with a minimum of 400 hours; continuous employment; departmental pre-approval through the department internship coordinator required. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** Upper level classification and approval of internship coordinator; LAND 321.

LAND 485 Directed Studies

Credits 1 to 6. 1 to 6 Other Hours. Special problems in various phases of landscape architecture assigned to individual students or to groups. Consultation and assigned collateral reading. **Prerequisite:** Approval of department head.

LAND 489 Special Topics in...

Credits 1 to 4. 1 to 4 Other Hours. Selected topics in an identified field of landscape architecture. May be repeated for credit.

LAND 491 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of faculty member in landscape architecture. May be repeated 2 times for credit. **Prerequisites:** Junior or senior classification and approval of instructor.

LAND 494 Internship

Credits 6. 6 Lecture Hours. An internship (15 week, 600 hours) with a landscape architecture or landscape architecture-related company that exposes the student to landscape architectural professional practice; monthly reports, final internship portfolio and internship supervisor assessment letter required; distance education course with non-resident status. **Prerequisites:** LAND 321 and approval of coordinator.

LING - Linguistics (LING)

LING 209/ENGL 209 Introduction to Linguistics

Credits 3. 3 Lecture Hours. Nature of human language and of linguistics; includes an introduction to phonology, syntax, semantics and morphology and the role of spoken and written discourse in sustaining societal arrangements. **Cross Listing:** ENGL 209/LING 209.

LING 291 Research

Credits 1 to 3. 1 to 3 Other Hours. Research conducted under the direction of faculty member in linguistics. **Prerequisites:** LING 209/ENGL 209; freshman or sophomore classification and approval of instructor.

LING 307 Language and Culture

Credits 3. 3 Lecture Hours. Language and its correlations with other aspects of culture; nature and definition of language; non-technical overview of linguistic science and language as it is related to other behavior. **Prerequisite:** Junior or senior classification.

LING 310/ENGL 310 History of the English Language

Credits 3. 3 Lecture Hours. Phonological, grammatical and lexical history of the English language; brief discussion of some other Indo-European languages; principles of linguistic change, as reflected in English.

Prerequisite: Junior or senior classification. **Cross Listing:** ENGL 310/LING 310.

LING 403 Language and Gender

Credits 3. 3 Lecture Hours. Language and gender from a sociolinguistic perspective; gender in the words and structures of language; gender representation and gendered language use in the media, and a variety of sociocultural contexts; language use in intimate relationships; computer-mediated discourse; language, sexuality, and sexual orientation.

Prerequisite: Junior or senior classification. **Cross Listing:** ENGL 403 and WGST 403.

LING 481 Senior Seminar

Credits 3. 3 Lecture Hours. Seminar on significant figures, movements and issues in linguistics or rhetoric, with special attention to the methods and materials of scholarship. **Prerequisites:** Junior or senior classification; 6 credits in linguistics.

LING 485 Directed Studies

Credits 1 to 3. 1 to 3 Other Hours. Directed individual study of topics in linguistics. May be repeated for credit.

LING 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of linguistics. May be repeated for credit.

LING 491 Research

Credits 1 to 3. 1 to 3 Other Hours. Research conducted under the direction of faculty member in linguistics. May be repeated 2 times for credit. **Prerequisites:** 6 credits of linguistics; junior or senior classification and approval of instructor.

LMAS - Latino/Mex Amer Studies (LMAS)

LMAS 201 Introduction to Latino/Mexican American Studies

Credits 3. 3 Lecture Hours. Introductory survey of the historical presence of U.S. Latinos and Mexican Americans from an interdisciplinary perspective that incorporates the group's global origins; application of critical thinking skills to the study of Latinos and Mexican Americans.

LMAS 285 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Special problems not covered by other courses; course depends upon needs and interest of the student and upon the number of credit hours. May be repeated for credit.

Prerequisites: Freshman or sophomore classification; approval of instructor.

LMAS 289 Special Topics in...

Credits 1 to 4. 1 to 4 Other Hours. Selected topics in an identified area of Latino/a, Mexican-American studies. May be repeated for credit.

Prerequisite: Approval of instructor.

LMAS 291 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in Interdisciplinary Critical Studies faculty or affiliated faculty. May be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisite:** Freshman or sophomore classification.

LMAS 422 Race, Ethnicity, Crime and Justice

Credits 3. 3 Lecture Hours. Racial/ethnic disparities in criminal offending and victimization, as well as different experiences with law enforcement, judicial, and correctional agencies. **Prerequisites:** SOCI 220 or equivalent.

Cross Listing: AFST 422 and SOCI 422.

LMAS 423/COMM 423 Communicating Latinidad

Credits 3. 3 Lecture Hours. Examination of communication by and about Latinos; analysis of critical and historical orientation; topics include social movements, organizational and institutional discourse, and media.

Prerequisite: Junior or senior classification or approval of instructor.

Cross Listing: COMM 423/LMAS 423.

LMAS 468/HIST 468 Latinx Civil Rights Movements

Credits 3. 3 Lecture Hours. Latinx civil rights movements in the twentieth century; Mexican American, Puerto Rican, Cuban, Central American; racism, economic inequality, labor exploitation, segregation, anti-immigrant sentiment, gender discrimination; role of liberalism, multiethnic coalitions, third world liberation movements, revolutionary nationalism, religion; movement philosophies and strategies; contemporary immigrant rights movements. **Prerequisites:** Junior or senior classification or approval of instructor. **Cross Listing:** HIST 468/LMAS 468.

LMAS 484 Internship

Credits 0 to 4. 0 to 4 Other Hours. Directed internship in a public or private organization to provide students with applied experience; opportunity to observe first hand issues and problems covered in Latino/a and Mexican-American Studies courses; designed to enhance and clarify the student's career objectives. May be taken for credit up to six hours. **Prerequisites:** Approval of instructor.

LMAS 485 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Directed individual study of identified topics in Latino/a, Mexican-American studies. May be repeated for credit. **Prerequisites:** Junior or senior classification; approval of Instructor.

LMAS 489 Special Topics in...

Credits 1 to 4. 1 to 4 Other Hours. Selected topics in an identified area of Latino/a, Mexican-American studies. May be repeated for credit. **Prerequisites:** Junior or senior classification; approval of Instructor.

LMAS 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in interdisciplinary critical studies or affiliated faculty. May be repeated for credit. **Prerequisites:** Junior or senior classification; approval of Instructor.

LTPS - Learn Tech & Perf Sys (LTPS)

LTPS 130 Introduction to Learning Technology and Performance Systems

Credits 3. 3 Lecture Hours. . Fundamental understanding of the intersection of technology, organizational performance, and human development; topics include the evolution of learning technologies, data analysis for decision-making, organizational governance and integrated management, instructional design principles, and risk management and IT security; engagement in hands-on projects, case studies, and discussions, laying a strong foundation to navigate the complex landscape of learning technologies and performance systems.

LTPS 210 Introduction to Learning Management Systems

Credits 3. 3 Lecture Hours. . Exploration of open source and commercial systems that facilitate knowledge transfer; evaluation of platform usefulness, understanding options within systems, and managing user accounts.

LTPS 240 Introduction to Instructional Design Systems

Credits 3. 3 Lecture Hours. Development of instructional materials, including multimedia assets, assessments, and interactive activities; utilization of authoring tools and learning management systems (LMS) to create and organize content; seamless integration of various technologies such as LMS, mobile learning platforms, virtual classrooms, and performance support systems; teams approach to practice prototyping while testing to gather feedback and make necessary adjustment. **Prerequisites:** LTPS 210.

LTPS 311 Database Learning Management for Learning Technology and Performance Systems

Credits 3. 3 Lecture Hours. Familiarity with software and database systems used to store, retrieve, and run queries on data in organizations; includes best practices on designing and organizing data using commonly available tools and systems, managing personal data and the associated regulatory frameworks (ex. FERPA, HIPPA), and incorporating emerging technologies to draw both quantitative and qualitative insights from large data sets. **Prerequisites:** Junior or senior classification.

LTPS 312 Use of Information Systems and Networking in Learning Technology and Performance Systems

Credits 3. 3 Lecture Hours. 1 Lab Hour. . Evaluation of hardware for end-user needs by identifying network design fundamentals to help guide technology design and acquisitions to support learning management requirements in various settings; introduction to concepts such as differentiating between public and private cell networks, bandwidth management, IP and MAC addresses, URL, VPN, URLs and Domains, TCP/IP, authentication protocols, wireless and wired connection technologies, and encryption. **Prerequisites:** Junior or senior classification.

LTPS 350 Program Management for Learning Technology and Performance Systems

Credits 3. 3 Lecture Hours. Exploration of leadership strategies that bridge organizational silos, optimize resource allocation, and enhance operational efficiency; understanding the art of stakeholder management such as building strong relationships with clients, partners, and internal teams; exploration of methodologies for aligning business goals with service delivery, measuring, and enhancing customer satisfaction while ensuring sustainable growth and value creation. **Prerequisites:** Junior or senior classification.

LTPS 360 Organizational Governance and Learning Development

Credits 3. 3 Lecture Hours. Analysis and engagement of key internal and external stakeholders for policies and standards; includes governance models, policy development, compliance management, ethical considerations, and organization development practices that align with strategic goals and regulatory standards; examination of case studies that highlight successful and challenged governance initiatives, offering insights into practical applications of theory in enhancing organizational effectiveness and resilience. **Prerequisites:** Junior or senior classification.

LTPS 440 Advanced HRIS and LMS Technology and Instructional Design Integration

Credits 3. 3 Lecture Hours. Instructional design focusing on ways to design and implement effective training programs and performance support systems that integrate seamlessly with Human Resources Information Systems (HRIS) and Learning Management Systems (LMS) Systems. **Prerequisites:** LTPS 130 and LTPS 210.

LTPS 484 Internship

Credits 6. 6 Other Hours. Directed internship in an organization to provide students with a learning experience supervised by professionals in organizational settings appropriate to the student's professional objectives; must be in good standing with the University. Must be taken on a satisfactory/unsatisfactory basis. May be taken up to 12 hours for credit. **Prerequisites:** Grade of C or better in EHRD 481; approval of instructor.

MARA - Maritime Administration (MARA)

MARA 201 Foundations of Maritime Cyber Security

Credits 3. 3 Lecture Hours. Basic terminology, concepts, technology and trends of maritime cybersecurity; foundations of maritime cybersecurity to include cryptography, public key infrastructure, standards and protocols, physical security, network fundamentals; workings of systems, networks, infrastructure; legal and ethical issues in maritime cybersecurity.

MARA 205 Introduction to Ships and Shipping

Credits 3. 3 Lecture Hours. 0 Lab Hours. Introduction to the maritime industry and ships used in transportation of goods and services. Shipboard nomenclature, types and missions of merchant ships, shipbuilding nomenclature and dimensions, shipbuilding materials and methods, modes of cargo handling and their impact on ship design.

MARA 212 Business Law

Credits 3. 3 Lecture Hours. Legal principles of business, legal reasoning, dispute resolution and procedure, contract law, bankruptcy law, property law, Uniform Commercial Code sections concerning contracts, security interests, negotiable instruments and sales.

MARA 285 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Directed study on selected problems in the area of maritime administration not covered in other courses. **Prerequisite:** Approval of MARA department head.

MARA 289 Special Topics

Credits 1 to 4. 1 to 4 Lecture Hours. Study of selected topics in an identified area of maritime administration. **Prerequisite:** Approval of MARA department head.

MARA 301 Ocean Transportation

Credits 3. 3 Lecture Hours. Examination of theory and practice in the management of transportation logistics, labor, rate-making, role of government, international conventions and treaties; exposure to current trends and developments in shipping. **Prerequisites:** Junior or senior classification or approval of department head.

MARA 304 Marine Insurance

Credits 3. 3 Lecture Hours. Marine insurance problems and cases and how they relate directly to a ship's officer; hull, cargo, and personal injury cases are examined from the officers' and insurers' points of view; introduction to Admiralty Law and the court process for seamen's rights and ship owners' privileges; actual hearings and trials are observed to complete the background. **Prerequisite:** Junior or senior classification or approval of department head.

MARA 342 Managerial Maritime Finance

Credits 3. 3 Lecture Hours. Continuation of topics introduced in Business Finance (FINC 341) including risk and return, investment valuation, the selection of risky investment projects, capital structure, dividend policy, and methods of raising long-term capital; applications to the maritime industry are made where appropriate. **Prerequisite:** Junior or senior classification or approval of department head.

MARA 345 Maritime and Marine Entrepreneurship Ventures

Credits 3. 3 Lecture Hours. The attributes that enable entrepreneurs to pursue opportunities in maritime business development; formation of teams to experience each step of entrepreneurial process; exposure to real entrepreneurial operations and businesses. **Prerequisite:** Junior or senior classification or approval of department head.

MARA 346 Maritime and Marine Business Plans

Credits 3. 3 Lecture Hours. Planning described as a mechanism to guide entrepreneurial intentions and behavior; development of formal written plans that allow investors to anticipate future outcomes; discussion of firms from the perspective of nascent entrepreneurs and potential investors. **Prerequisite:** Junior or senior classification or approval of department head.

MARA 347 Launch a Startup

Credits 3. 3 Lecture Hours. Overview of the steps for entrepreneurs to start creating and developing a business plan to launch. **Prerequisite:** Junior or senior classification or approval of department head.

MARA 348 Maritime Service Operations

Credits 3. 3 Lecture Hours. Classical service operations management and contemporary case-by-case based problem-solving in the maritime service sector. **Prerequisites:** Junior or senior classification or approval of department head.

MARA 350 Maritime Business Computer Programming and Security

Credits 3. 3 Lecture Hours. Concepts of computer programming and security utilizing Visual Basic for Applications with emphasis to business and maritime area specifically; includes basic programming logic, programming in VBA, computer security principles and techniques for enhancing computer security. **Prerequisites:** Junior or senior classification or approval of department head.

MARA 360 Maritime Cybersecurity Issues

Credits 3. 3 Lecture Hours. Discussion of risks and cyber incidents; exploration of computer systems architecture and the framework of computer security on vessels. **Prerequisite:** MARA 201; junior or senior classification or approval of department head.

MARA 363 The Management Process

Credits 3. 3 Lecture Hours. Management as an academic discipline; goal setting; planning, controlling and decision-making; models for thinking about organizations; organization design; organization change; models for understanding individual behavior; job performance and job satisfaction; interpersonal behavior, motivation and leadership, behavior in work groups; careers in management, ethics and international management. **Prerequisites:** Junior or senior classification or approval of department head.

MARA 373 Personnel Management

Credits 3. 3 Lecture Hours. Strategic issues in managing human resources; shared responsibilities of line managers and human resource staff for developing and implementing human resource policies and procedures; human resource planning; job design, analysis and evaluation; staffing; compensation; performance appraisal; training and development career management; labor relations; legal, ethical and international issues. **Prerequisite:** Junior or senior classification or approval of department head.

MARA 401 Brokerage and Chartering

Credits 3. 3 Lecture Hours. Operational and legal environment of ship brokerage and chartering; responsibilities of owner and charterer under various charter forms; American, British and Canadian acts governing charters and bills of lading; rules and regulations concerning loading and discharging. **Prerequisites:** Junior or senior classification or approval of department head.

MARA 402 Inland Waterways

Credits 3. 3 Lecture Hours. Development of inland waterways of the U.S. and federal policies relating to them; port and terminal development, competition with other transportation forms, manpower, rates, environmental concerns and the impact of waterway systems on regional economies. **Prerequisites:** Junior or senior classification or approval of department head.

MARA 403 Law and Policy in Cybersecurity

Credits 3. 3 Lecture Hours. Examination of law and policy issues related to cybersecurity for the spectrum of cybersecurity jobs; includes procurement, operations and maintenance, governance and oversight, protection and defense, analysis, intelligence collection and operation and investigation cybersecurity jobs. **Prerequisite:** Junior or senior classification; MARA-403 taught at Galveston campus. **Cross Listing:** CSCE 402 and CYBR 402.

MARA 416 Port Operations, Administration and Economics

Credits 3. 3 Lecture Hours. Concepts of the port and methods of intermodal transfer; port functions divided and analyzed along business lines - economics, management, finance, accounting and marketing; cost studies. **Prerequisites:** Junior or senior classification or approval of department head.

MARA 421 Admiralty Law

Credits 3. 3 Lecture Hours. Essential principles of admiralty, general maritime, and international law as applicable to the marine industry and ocean shipping; evolution and state of the law concerning maritime liens, ship mortgages, rights of seamen and harbor workers, limitation of liability, bills of lading and cargo carriage, collision liability, general average, marine salvage, charter parties, and international rights and responsibilities of ships and shipping. **Prerequisites:** Junior or senior classification or approval of department head.

MARA 424 Intermodal Transportation

Credits 3. 3 Lecture Hours. Historical development, structure, function, and regulation of highway, rail, water, pipeline, and air transportation systems. Application of economic concepts and principles to transportation development and operations. **Prerequisites:** Junior or senior classification or approval of department head.

MARA 435 Labor Law and Policy

Credits 3. 3 Lecture Hours. Federal and state public policy and laws regulating human resource management including National Labor Relations Act, Railway Labor Act, Fair Labor Standards Act, employment discrimination statutes, statutes regarding public sector unionization, and other relevant legal authorities; various forms of dispute settlement including litigation, mediation, fact finding and arbitration; legal ramification of strategic human resource management decision making. **Prerequisites:** Junior or senior classification or approval of department head.

MARA 440 Global Economy and Enterprise Management

Credits 3. 3 Lecture Hours. Economic, political, social and ethical environments of international business including the determinants of trade and investment patterns and the logic of government interventions in both trade and capital markets; structure, strategy and operations of the international firm. **Prerequisites:** Junior or senior classification or approval of department head.

MARA 445 Lean Start Up

Credits 3. 3 Lecture Hours. Project-based hands-on experience; validation of business ideas with an emphasis on the operations aspects of entrepreneurship; focus on advances in globalization and outsourcing. **Prerequisites:** Junior or senior classification or approval of department head.

MARA 446 Entrepreneurship Greenhouse

Credits 3. 3 Lecture Hours. Continuation of project in Lean Start Up course (MARA 445); focus on transitioning business models from mind to market. **Prerequisite:** Grade of C or better in MARA 345, MARA 346, and MARA 445; junior or senior classification or approval of department head.

MARA 450 Maritime Supply Chain Management

Credits 3. 3 Lecture Hours. Introduction to the concepts involved in supply chain management (SCM); SCM encompasses the functional areas of procurement, operations management, inbound/outbound transportation, customer service, and information technologies; emphasizes how these functional areas are integrated to achieve the firm's overall objectives. **Prerequisites:** BUSN 203 and SCMT 364; junior or senior classification or approval of department head.

MARA 461 Disciplined Entrepreneurship

Credits 3. 3 Lecture Hours. Maritime business startup process and fine-tuning of ideas through project-based hands-on entrepreneurship experiences and a project management approach. **Prerequisites:** Junior or senior classification or approval of department head.

MARA 466 Strategic Management

Credits 3. 3 Lecture Hours. Strategic issues facing organizations, including top management decision making and social responsibility; environmental and industry analysis; establishing organizational mission and objectives; corporate, business and functional level strategy formulation; global and multidomestic strategies; strategic implementation and control; integrating operations, finance, marketing and human resource strategies; case analysis. **Prerequisites:** MARA 363, MKTG 321, SCMT 364, and FINC 341; senior classification or approval of department head.

MARA 470 Environmental Law

Credits 3. 3 Lecture Hours. Broad background of basic statutes, regulations and cases dealing with the major issues in international and federal environmental law; focus on pragmatic training in statutory, regulatory and treaty reading and interpretation; analysis of administrative and legislative intent for law. **Prerequisites:** Junior or senior classification or approval of department head.

MARA 475 Business Leadership

Credits 3. 3 Lecture Hours. Focus on theory and practice of leadership; familiarize with components, theory and models of leadership; compare/contrast styles; review leadership/followership relationship as a collaborative activity resulting in achieved goals; analyze cultural and global components and ethical issues associated with leadership. **Prerequisite:** Junior or senior classification or approval of department head.

MARA 484 Management Internship

Credits 0 to 4. 0 to 4 Other Hours. Internship in management; staffing, planning, organizing, leading and controlling. Enrollment is limited to those who have managerial responsibilities for the resources used by a business, non-profit, or other organization. **Prerequisites:** Junior or senior classification; approval of department head.

MARA 485 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Directed study on selected problems in the area of maritime administration not covered in other courses. **Prerequisites:** Junior or senior classification; approval of department head.

MARA 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Study of selected topics in an identified area of maritime administration. **Prerequisite:** Junior or senior classification; approval of department head.

MARA 490 Maritime Interdisciplinary Studies - Business, Law and Policy

Credits 2. 2 Lecture Hours. Emphasis on cultural, economic, political, social and historical aspects of the maritime industry; coverage of different management styles, business practices and regulatory focus. **Prerequisites:** Junior or senior classification or approval of department head.

MARA 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in Maritime Administration. May be repeated 2 times for credit. Please see academic advisor in department. Registration in multiple sections of this course is possible within a given semester provided that the per semester credit hour limit is not exceeded. **Prerequisites:** Junior or senior classification; approval of department head.

MARA 493 International Maritime Management Experience

Credits 3. 3 Lecture Hours. Combination of classroom and two week international travel emphasizing cultural and historic aspects of maritime industry; direct contact with managers and regulators in the international maritime industry; examination of different management styles, business practices and regulatory approaches. **Prerequisite:** Junior or senior classification; approval of department head.

MARB - Marine Biology (MARB)

MARB 101 Succeeding in Science

Credits 3. 2 Lecture Hours. 2 Lab Hours. An orientation of the biological sciences including the nature of science, functions of scientists, and a better understanding of the fundamentals of science; hands-on experiences that provide opportunities to work with faculty, graduate and other undergraduate students.

MARB 214 Evolutionary Biology

Credits 3. 3 Lecture Hours. Conceptual examination of evolutionary theory; not a survey of specific organismal evolutions; evidence for the abiotic origin; discussion of micro-evolutionary (including drift and natural selection) and macro-evolutionary (including evolutionary trends) mechanisms; application of these concepts to human evolution. **Prerequisites:** BIOL 111.

MARB 215 Marine Zoology

Credits 4. 3 Lecture Hours. 3 Lab Hours. The study of multicellular animal life and the traits, adaptations, and ecology of major metazoan groups, emphasizing patterns of evolutionary change. Includes laboratory dissections and exploration of preserved displays to reinforce lecture material and provide supplemental information to the topics discussed in lecture. **Prerequisite:** BIOL 111.

MARB 285 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Special topics and problems in field and/or laboratory work suited to analysis by individuals or small groups concerning aspects of marine biology. Usually requires a report describing techniques and results. Only 3 credit hours may be used in the degree plan curriculum. **Prerequisites:** 2.25 GPR, Approval of instructor.

MARB 289 Special Topics in Marine Biology

Credits 1 to 4. 1 to 4 Lecture Hours. Study of selected topics in an identified area of marine biology. **Prerequisite:** Approval of instructor.

MARB 300 Scientific Methods in Marine Biology

Credits 2. 1 Lecture Hour. 3 Lab Hours. An introduction to field, laboratory and analytical methods, equipment and instruments; field portion includes making proper observations, sampling techniques, and data recording; laboratory portion includes sample analysis methods, use of instruments, introduction to data analysis including elementary statistics, introduction to scientific literature and report writing style. **Prerequisites:** BIOL 112; junior or senior classification or approval of instructor.

MARB 301 Genetics

Credits 4. 3 Lecture Hours. 3 Lab Hours. Fundamental principles of genetics; physical basis of Mendelian inheritance; expression and interaction of genes, linkage, sex linkage, biochemical nature of genetic material, and mutation. **Prerequisite:** BIOL 111.

MARB 302 The Sea World Experience

Credits 3. 2 Lecture Hours. 3 Lab Hours. Exploration of marine organisms, survey topics in vertebrate marine biology and the role that aquatic oriented parks play in education, research and conservation; hands-on experiences by participating in aspects of maintaining aquatic organisms in captivity including animal care and nutrition, physiology, behavior, animal training and water quality; exposure to marine organismal taxonomy, natural history, anatomy and ecology. **Prerequisites:** BIOL 111 with a grade of C or better; GPA greater than 2.00.

MARB 303 Biostatistics

Credits 4. 3 Lecture Hours. 3 Lab Hours. Descriptive statistics, data visualization, probability and probability distribution, parameter estimation, and testing of hypotheses, analysis of variance, correlation and regression, parametric and non-parametric techniques with emphasis on methods applied to biological investigations. **Prerequisite:** MATH 142, MATH 147 or MATH 151.

MARB 310 Introduction to Cell Biology

Credits 4. 3 Lecture Hours. 3 Lab Hours. Cell physiology, the regulation of gene expression, protein structure and function, the aggregation of cells to form tissues, neurons and current paradigms in cell biology. **Prerequisites:** MARB 215 or BIOL 112; CHEM 227.

MARB 311 Ichthyology

Credits 4. 3 Lecture Hours. 3 Lab Hours. Freshwater and marine fishes. Subject will be mainly systematic, but evolution, ecology, life history, and economics of more important species will be treated. **Prerequisite:** BIOL 112 or MARB 215.

MARB 315 Natural History of Vertebrates

Credits 4. 3 Lecture Hours. 3 Lab Hours. Natural history of fishes, amphibians, reptiles, birds, and mammals, with emphasis on coastal Texas vertebrates. **Prerequisite:** BIOL 112 or MARB 215.

MARB 320 Fisheries Techniques

Credits 4. 3 Lecture Hours. 3 Lab Hours. Theory and techniques in fisheries biology and ecology; experience with fisheries equipment and techniques provided in both field and laboratory; practical sampling design, collection and interpretation of data from estuarine, coastal and offshore environments. **Prerequisite:** MARB 311.

MARB 335 Fish Physiology

Credits 3. 3 Lecture Hours. Study of the basic physiology of fishes; examination of fish cardiovascular, renal, digestive, locomotor, reproductive, and central and peripheral nervous systems; discussion of physiological adaptations enhancing survival in a water medium. **Prerequisite:** MARB 215 or BIOL 112; junior or senior classification, or approval of instructor.

MARB 360 Marine Conservation Biology

Credits 4. 3 Lecture Hours. 3 Lab Hours. Lectures and laboratories cover the major principles of conservation biology; a new synthetic field that applies concepts of ecology, systematics and evolution, biogeology, genetics, behavioral sciences, and social sciences to the conservation of marine fisheries resources. Lab exercises include morphometric and genetic variation, GIS, molecular systematics and phylogenetic inference. **Prerequisite:** Junior or senior classification or approval of instructor.

MARB 400 Biology of Marine Mammals

Credits 4. 3 Lecture Hours. 3 Lab Hours. A broad-spectrum course on the taxonomy, evolution, morphology, behavior, and ecology of marine mammals, including sirenians, carnivores, baleen and toothed whales and dolphins. **Prerequisite:** MARB 315.

MARB 401 Physiological Ecology of Marine Mammals

Credits 3. 3 Lecture Hours. 0 Lab Hours. Anatomy, taxonomy, phylogeny and physiological adaptations of marine mammals. **Prerequisite:** MARB 315 or approval of instructor.

MARB 403 Cetacean Behavior and Behavioral Ecology

Credits 3. 3 Lecture Hours. Up to date descriptions of Cetacean behavior and ecology. **Prerequisite:** MARB 315 or approval of instructor.

MARB 405 Marine Parasitology

Credits 3. 3 Lecture Hours. Fundamentals of parasitology, with emphasis on marine applications; survey of major parasites of marine animals and the diseases they cause, especially in ecologically and commercially-important host species. **Prerequisite:** MARB 215 or BIOL 112; junior or senior classification, or approval of instructor.

MARB 406 Life in Extreme Environments

Credits 3. 3 Lecture Hours. Key metabolic and physiological innovations of extremophile organisms; topics include the molecular biology, biochemistry and physiology of organisms living in extreme environments. **Prerequisites:** MARB 315; CHEM 228; junior or senior classification or approval of instructor.

MARB 407 Research and Conservation in Greece-Dolphins, Fisheries and Cultural Heritage

Credits 4. 3 Lecture Hours. 3 Lab Hours. Lectures, readings and labs on the ecology and behavior of the vertebrate fauna of Greece; laboratory hands-on experience of the marine environment from boats, readings, videos, interpretation and select major peer-review scientific papers and books. **Prerequisites:** Junior or senior classification; MARB 315 or approval of instructor.

MARB 408 Marine Botany

Credits 4. 3 Lecture Hours. 3 Lab Hours. Morphology, systematics, ecology, and biochemistry of representative algae, fungi and submarine grasses. **Prerequisites:** BIOL 112 or MARB 215; junior or senior classification, or approval of instructor.

MARB 410 Animal Behavior

Credits 3. 3 Lecture Hours. Examination of ethological concepts; discussion of the development, genetics, physiology and evolution of animal behavior patterns involved in reproduction, territoriality, aggression, communication, population dispersion, sociality and sociobiology of invertebrates and vertebrates. **Prerequisite:** MARB 215 or BIOL 112.

MARB 411 Elasmobranch Ecology

Credits 3. 3 Lecture Hours. Investigation of the ecological processes that shape the life histories and behaviors of sharks, skates and rays, including an introduction to methods used to study elasmobranchs and their applications to conservation and management. **Prerequisite:** MARB 311 or MARB 315; or approval of instructor.

MARB 414 Toxicology

Credits 4. 3 Lecture Hours. 3 Lab Hours. History and scope of toxicology as it applies to mammals; where possible, marine species will be used for examples and assigned papers. **Prerequisites:** MARB 215 or BIOL 112; CHEM 227 and CHEM 228.

MARB 420 Comparative Animal Physiology

Credits 4. 3 Lecture Hours. 3 Lab Hours. Principles of animal physiology are examined using invertebrate and vertebrate model systems; includes osmoregulation in marine versus freshwater versus terrestrial organisms, excretion, fluid circulation, nervous system structure and function, muscle activity, sensory neurobiology and endocrine mediation. **Prerequisites:** BIOL 112 or MARB 215; CHEM 227 and MARB 310.

MARB 421 Community Ecology in the Tropics

Credits 3. 2 Lecture Hours. 3 Lab Hours. Field-based exploration of the connections between producers and consumers in tropical marine ecosystems, including coral reefs, seagrass meadows, and mangrove forests; immersive understanding of symbiotic relationships that shape ecological communities, including mutualism, predation, and competition, with an emphasis on nearshore ecosystems in the tropics. **Prerequisites:** MARB 215; swim test completion; concurrent enrollment in MARB 422.

MARB 422 Tropical Marine Botany

Credits 3. 2 Lecture Hours. 3 Lab Hours. A field-based course exploring the connections between primary producers and organisms that utilize the marine environment; observation, identification, and counting of organisms in tropical marine environments including phytoplankton in coastal waters, coral reefs, seagrass meadows, and mangrove forests. **Prerequisites:** MARB 215; concurrent enrollment in MARB 421; completion of swim test.

MARB 423 Mariculture

Credits 4. 3 Lecture Hours. 3 Lab Hours. Study of factors determining the success of efforts to cultivate estuarine and marine species of economic importance. Mariculture practices used worldwide in the production of algae, mollusks, crustaceans, and fishes will be discussed. **Prerequisite:** Junior or senior classification or approval of instructor.

MARB 425 Marine Ecology

Credits 4. 3 Lecture Hours. 3 Lab Hours. Relationship between various marine environments and their inhabitants; intra- and interspecific relationships between organisms; structure and function among marine communities. Laboratory emphasis is placed on study of living material and natural habitats in the Gulf of Mexico. **Prerequisites:** MARB 315; senior classification or approval of instructor.

MARB 426 Aquatic Animal Nutrition

Credits 3. 3 Lecture Hours. Chemistry, digestion, absorption and intermediary metabolism of nutrient classes with special emphasis on their relationship to warmwater fish nutrition. Determination of nutrient requirements, feed evaluation, feed processing, ration formulation and feeding practices. **Prerequisites:** CHEM 227; junior or senior classification or approval of instructor.

MARB 430 Coastal Plant Ecology

Credits 4. 3 Lecture Hours. 3 Lab Hours. Study of the identification, distribution, production, and ecological importance of estuarine, coastal marsh, and dune vascular plants; the interaction of plants with their abiotic and biotic environments; and techniques of vegetation management and evaluation. **Prerequisite:** BIOL 111; junior or senior classification or approval of instructor.

MARB 433 Applied Bioinformatics

Credits 4. 3 Lecture Hours. 3 Lab Hours. Fundamental concepts and methods in bioinformatics using sequence analysis and practical applications; includes biological databases, sequence and structure alignments, structural bioinformatics, gene prediction and genome analysis; emphasis on understanding and application of these concepts. **Prerequisite:** MARB 301.

MARB 435 Marine Invertebrate Zoology

Credits 4. 3 Lecture Hours. 3 Lab Hours. General biology of marine invertebrate animals; morphology, evolution, and systematics; studies of local fauna in laboratory. **Prerequisite:** BIOL 112 or MARB 215.

MARB 437 Pathology of Marine Animals

Credits 3. 3 Lecture Hours. Examination of changes or loss of physiological function as related to common diseases, viral, bacterial, parasitic, or injury; mechanisms of disease in cells, tissues and organ systems of marine vertebrates; emphasis on marine mammals; fishes and marine reptiles and birds; clinical manifestations, diagnostics and treatments. **Prerequisite:** MARB 315.

MARB 438 Coastal Ornithology

Credits 3. 2 Lecture Hours. 3 Lab Hours. Coastal Ornithology. Field and laboratory studies on the identification, classification, distribution and ecology of birds with special emphasis on birds of the Texas Gulf Coast. Classroom lectures to include anatomy, physiology, behavior and migration. Field trips required. **Prerequisites:** MARB 315. Junior or senior classification or approval of instructor.

MARB 445 Marine Fisheries Management

Credits 3. 3 Lecture Hours. Basic knowledge from marine ichthyology, biology of fishes and biological oceanography related to applied aspects of marine fisheries sciences; emphasis placed on management techniques applicable to tidal-influenced inland water, estuaries, and oceans. **Prerequisite:** Junior or senior classification, or approval of instructor.

MARB 460 Fisheries Population Dynamics

Credits 4. 3 Lecture Hours. 3 Lab Hours. Principles and concepts of population dynamics related to fish; methods of estimating abundance, mortality, recruitment and sustainable harvest levels; introduction to models for population analysis with emphasis on stock assessments and quantitative fisheries; basic computer programming to explore population behavior and interactions. **Prerequisites:** MATH 142, MATH 147, or MATH 151; MARB 311 or approval of instructor.

MARB 484 Undergraduate Internship

Credits 0 to 9. 0 to 9 Other Hours. Supervised study in a research or teaching laboratory remote from TAMUG. Student involvement is to consist of real-life learning or marine biological research, teaching, management, or a combination of these. **Prerequisite:** Junior or senior classification or approval of instructor.

MARB 485 Directed Studies

Credits 1 to 6. 1 to 3 Other Hours. Per Semester. Special topics and problems in field and/or laboratory work suited to analysis by individuals or small groups concerning aspects of marine biology. Usually requires a report describing techniques and results. Only 3 credit hours may be used in the degree plan curriculum. **Prerequisites:** 2.25 GPR. Curriculum sophomore, junior or senior classification or approval of instructor.

MARB 489 Special Topics in Marine Biology

Credits 1 to 4. 1 to 4 Lecture Hours. Study of selected topics in an identified area of marine biology. **Prerequisite:** Junior or senior classification or approval of instructor.

MARB 491 Research in Marine Biology

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in Marine Biology. Please see academic advisor in department. Registration in multiple sections of this course is possible within a given semester provided that the per semester credit hour limit is not exceeded. May be repeated for credit. **Prerequisites:** Junior or senior classification and approval of instructor.

MARE - Marine Engr Technology (MARE)

MARE 100 Marine Engineering Fundamentals

Credits 3. 2 Lecture Hours. 3 Lab Hours. A study of basic marine engineering systems, with emphasis on propulsion plants. Introduction to propulsion plant machinery and shipboard safety practices and equipment; offshore oil production; subsea technologies; petroleum product transport and refinery.

MARE 102 Engine Room Resource Management

Credit 1. 2 Lab Hours. Marine engineering watch standing and operations; safety and security; effective resource management and control of engine room equipment; leadership and managerial skills.

MARE 111 Methods in Engineering Technology

Credits 2. 1 Lecture Hour. 3 Lab Hours. Analytical methods in engineering technology; problem solving, critical thinking, inductive and deductive reasoning, units and conversions, use of computational software, project management; basic calculations in statics, thermodynamics, electric circuits, engineering economics.

MARE 112 Graphics for Engineering Technology

Credits 2. 1 Lecture Hour. 3 Lab Hours. Graphical communication in engineering and engineering technology; lettering, sketching techniques, geometric construction, multi-view drawings, dimensioning and notation, piping and electrical diagrams, use of 2-D and 3-D CAD software, use of parametric software.

MARE 200 Basic Operations

Credits 4. 4 Lecture Hours. Practical application of student's classroom studies while at sea on training ship during sea-training period. Student required to complete several projects relating to engineering plant of ship. **Prerequisite:** Grade of C or better in MART 103.

MARE 202 Marine Thermodynamics

Credits 3. 3 Lecture Hours. Energy Concepts; First and second law of thermodynamics; Carnot and Rankine principles and reversible heat cycles; Properties of processes of vapors; vapor-power cycles and vapor refrigeration cycles. **Prerequisites:** MARE 100 or MARR 101; MATH 152 or MATH 161; or concurrent enrollment.

MARE 205 Engineering Mechanics I

Credits 3. 3 Lecture Hours. Statics, basic vector operations, mechanics of particles and rigid bodies. Center of gravity, analysis of structures, friction, moments of inertia. **Prerequisites:** Grade of C or better in MATH 151; grade of C or better in PHYS 218 or PHYS 206.

MARE 206 Engineering Mechanics II

Credits 3. 3 Lecture Hours. Dynamics; scalar and vector solutions of relative linear velocities and acceleration; kinetics; dynamics of translation and rotation; work; energy; impact; momentum. **Prerequisite:** Grade of C or better in MARE 205.

MARE 207 Electrical Power I

Credits 3. 2 Lecture Hours. 3 Lab Hours. Application of circuit analysis principles to DC and AC circuits having sources and passive inductors, resistors and capacitors; electrical instrumentation; power and voltage/current phase relationships in AC circuits; balanced three-phase AC power circuits; cable sizing. **Prerequisites:** Grade of C or better in MATH 151; grade of C or better in PHYS 208 or PHYS 207.

MARE 209 Mechanics of Materials

Credits 3. 2 Lecture Hours. 3 Lab Hours. Introduction to the study of stresses, strains, and deformation of a solid body which results when static forces are applied. Transformation of stresses and strains, torsion, beam deflection, and combined loadings are discussed. **Prerequisite:** Grade of C or better in MARE 205.

MARE 211 Steam Propulsion Plants

Credits 3. 2 Lecture Hours. 3 Lab Hours. Fossil fuel steam generators, shipboard propulsion turbines and condensers, reduction gears, line shafting, internal fittings and fluid flow paths, automatic controls, regulatory requirements for safety device settings, system tests and inspections, boiler water and feed water test and treatment, turbine and reduction gear lubrication, computer aided heat balances, parametric analysis of plant performance.

MARE 242 Manufacturing Methods I

Credits 2. 1 Lecture Hour. 3 Lab Hours. Introduction to manufacturing methods used in marine industries emphasizing fabrication techniques including oxy-acetylene cutting and welding, brazing, arc welding, pipe welding and sheet metal fabrication. Laboratory exercises will develop the knowledge and skills needed to perform fabrication operations, routine maintenance and emergency repairs of marine engineering structures and systems.

MARE 243 Manufacturing Methods II

Credit 1. 0 Lecture Hours. 3 Lab Hours. Continued introduction to manufacturing methods used in marine industries including machine, foundry and forge work and other manufacturing technologies. Laboratory emphasizes machine shop practices including safety, use and care of machine and hand tools; measuring instruments, layout, gauging, cutting speeds and feeds, drilling, tapping, threading, turning and milling. **Prerequisite:** Approval of Instructor.

MARE 261 Engineering Analysis

Credits 3. 3 Lecture Hours. Review of mathematical concepts previously studied (e.g., complex quantities, vectors and calculus), coupled with study of advanced concepts (e.g., differential equations, Laplace Transforms, statistics and numerical methods) with a view to emphasize applications in nuclear engineering, electrical engineering, thermodynamics, heat transfer and turbine theory. **Prerequisite:** MATH 152 or MATH 161.

MARE 285 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Special problems in marine engineering technology not covered by any other course in the curriculum; work may be in either theory or laboratory. **Prerequisite:** Approval of department head.

MARE 289 Special Topics

Credits 1 to 5. 0 to 5 Lecture Hours. 3 to 5 Lab Hours. Selected topics in an identified area of marine engineering technology. May be repeated for credit. **Prerequisite:** Approval of instructor.

MARE 291 Research

Credits 0 to 3. 0 to 3 Other Hours. Research conducted under the direction of faculty member in marine engineering technology. May be taken two times for credit. Please see an academic advisor in the department. **Prerequisites:** Freshman or sophomore classification; approval of instructor and department head.

MARE 300 Intermediate Operations

Credits 4. 4 Lecture Hours. Training program for second sea-training period. Sea project required of each student under supervision of officer-instructors. Lifeboat and safety training. **Prerequisites:** Grade of C or better in MARE 100, MARE 200, and MART 103; junior or senior classification or approval of MARR and MART department heads.

MARE 301 Digital Fundamentals for Marine Engineers

Credits 3. 2 Lecture Hours. 3 Lab Hours. Marine digital systems and applications including logic and devices that enable these applications throughout many industries; fundamentals and basic concepts of number systems, Boolean algebra, logic gates, combinatorial and sequential logic design, and digital electronics; examination of modern digital devices used for computing, automation, system monitoring, and control. **Prerequisites:** Grade of C or better in MARE 207, ECEN 215, or ESET 210, or concurrent enrollment; junior or senior classification or approval of instructor.

MARE 305 Fluid Mechanics Theory

Credits 4. 3 Lecture Hours. 2 Lab Hours. Theory of incompressible and compressible fluid flow, introduction to fluid power systems and controls, and dynamics of turbomachinery. Mathematical analysis of piping systems to determine pump head, system resistance, and pipe sizing optimization. Topics include physical properties of fluids, continuity equation, Bernoulli's Equation, Darcy's Equation, series and parallel flow, relative roughness, friction factors, dimensional analysis, and laws of similitude. **Prerequisite:** Junior or senior classification or approval of instructor.

MARE 306 Electrical Power II

Credits 3. 2 Lecture Hours. 3 Lab Hours. Electrical power generation and distribution; AC and DC rotating machinery; transformers; controllers and safety devices; operation, maintenance and repair procedures and practices; static converters AC/DC and DC/AC that are used in modern electric propulsion systems. **Prerequisite:** Grade of C or better in MARE 207.

MARE 307 Marine Electronics

Credits 3. 2 Lecture Hours. 3 Lab Hours. Introduction to the theory of electronic circuits. Fundamentals and basic concepts of semiconductors; solid-state components; power supplies; amplifiers; inverters; rectifiers; oscillators; digital and analog integrated circuits. Application in automation, motor controllers, battery-charging systems, communications; and propulsion plant monitoring systems. **Prerequisite:** Grade of C or better in MARE 207.

MARE 309 Marine Construction Materials

Credits 3. 2 Lecture Hours. 3 Lab Hours. Introduction to materials science and engineering, structural, property relationships; advanced manufacturing techniques from the point of view of marine applications such as subsea pipelines, ship hulls, etc.; corrosion and biofouling. Laboratory includes experimental testing of materials properties, materials syntheses and heat treatment techniques. **Prerequisite:** CHEM 107 and CHEM 117.

MARE 312 Diesel Propulsion Plants

Credits 3. 2 Lecture Hours. 3 Lab Hours. Comprehensive study of diesel engines, thermodynamics of air standard cycles, actual compression ignition engine cycles, emissions and emission controls, fuel injection systems and turbo charging systems, engine material properties, operational parameters including forces and temperatures resulting from combustion and inertial dynamics. Laboratory includes computer-aided parametric analysis of engine performance and use of low-speed diesel propulsion plant simulator. Junior or senior classification or approval of instructor. **Prerequisites:** CHEM 107; grade of C or better in MARE 202.

MARE 313 Heat Transfer

Credits 3. 3 Lecture Hours. Fundamentals of heat transfer modes and different solution techniques; 1-D and 2-D heat conduction in transient and steady state conditions; convection heat transfer under different flow conditions; forced convection in internal and external flows; analysis and selection of heat exchangers; and, thermal radiation heat transfer. **Prerequisite:** MARE 261; MARE 305 or concurrent enrollment; grade of C or better in MARE 202.

MARE 315 Thermodynamics for Technologists

Credits 4. 3 Lecture Hours. 2 Lab Hours. Thermal and mechanical energy transformations; relationships applied to flow and non-flow processes in power and refrigeration cycles; devices include compressors, turbines, heat exchangers, nozzles, diffusers, pumps and piston-cylinder models; computer modeling. **Prerequisites:** Grade of C or better in PHYS 206 or PHYS 218.

MARE 316 Marine Auxiliary Systems

Credits 3. 2 Lecture Hours. 2 Lab Hours. Study of the principal shipboard auxiliary systems, including auxiliary fired-boilers, sea water service, ballast, freshwater service, lubricating oil, fuel oil storage and transfer, distilling, refrigeration and steering systems; major components, operation and maintenance, and interrelationship with other auxiliary systems. **Prerequisites:** MARE 100, or MARR 101 with a grade of C or better.

MARE 325 Shipboard Networking Systems

Credits 3. 2 Lecture Hours. 3 Lab Hours. Design, operation, application and management of shipboard LANs and WANs; topologies, protocols, bridges, routers, hubs, switches, security; media and transport systems; Internet and TCP/IP topics including the protocol stack, router and bridge operation and addressing issues pertinent to shipboard systems. **Prerequisite:** Grade of C or better in MARE 301.

MARE 327 Data Science for Marine Cybersecurity

Credits 3. 2 Lecture Hours. 3 Lab Hours. Examination of cybersecurity fundamentals and the concept of network security; analysis of the cybersecurity conditions in the maritime domain and the countermeasures deployed against these cyberattacks by using data science tools; survey of data science programming and approaches adopted in the cybersecurity domain to eliminate malware and perform network traffic analysis; development and utilization of data analytic tools for assessing the cybersecurity risks of the maritime sector. **Prerequisites:** Sophomore classification.

MARE 335 Power Electronics for Shipboard Applications

Credits 3. 2 Lecture Hours. 3 Lab Hours. Power electronics design principles and applications in the marine environment; DC/DC converter theory and electrical inverter/converter concept of operation, design, and applications in dynamic shipboard operations and system control; rectification of utility input concepts. **Prerequisite:** MARE 207 or ESET 210 or ECEN 215 with a grade of C or better.

MARE 345 High Voltage Technology for Marine Engineers

Credits 3. 2 Lecture Hours. 3 Lab Hours. Study of High Voltage (HV) electrical systems which includes construction and operating parameters; HV generation, start-up procedures, maintenance and testing; electrical safety of HV equipment; protective relaying in HV systems; electrostatic field and breakdown strength in dielectrics and design consideration of HV equipment; response and control of overvoltage and surges in HV systems to include operator safety and system protective devices. **Prerequisite:** Grade of C or better in MARE 207 or ECEN 215 or ESET 210.

MARE 350 Commercial Cruise Internship

Credits 4. 4 Other Hours. Training program for second sea-training period; sea project required of each student under supervision of officer-instructors; lifeboat and safety training. **Prerequisites:** MARE 100, MARE 200, MART 103. Junior or senior classification or permission of MARR and MART department heads.

MARE 377 Engineering Risk Management in Maritime Construction and Shipbuilding

Credits 3. 3 Lecture Hours. Identification, classification, assessment and prioritization of risks in a maritime maintenance, repair or new build project; evaluation and determination of project risk using modern modeling techniques; knowledge and skill required to construct and justify the project management risk register; examination of project resources; diverse project team synthesis, development, management and leadership as a means of risk avoidance. **Prerequisites:** MARE 100 or MARR 101; MARE 209 and MATH 150; or approval of instructor.

MARE 396 Nuclear Engineering for Marine Engineers

Credits 3. 3 Lecture Hours. Analysis and design of nuclear power plants and their marine applications, nuclear physics, plant operations including startup/shutdown and criticality, subsystems, applications, costs, efficiency and cycles, and radiation health; modular design advancements, reactor safety, and case studies applicable to marine propulsion. **Prerequisites:** Grade of C or better in MARE 211, CHEM 107, and PHYS 207; junior or senior classification, or approval of advisor.

MARE 399 High Impact Experience in Marine Engineering Technology

Credits 0. 0 Lecture Hours. 0 Lab Hours. 0 Other Hours. Participation in an approved high-impact learning practice; reflection on professional outcomes from engineering body of knowledge; documentation and self-assessment of learning experience at mid-curriculum point. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisite:** Junior or senior classification.

MARE 400 Advanced Operations

Credits 4. 4 Lecture Hours. Training program for third sea-training period. At the end of this period each student will have achieved the knowledge and will have demonstrated the ability to take complete charge of a modern marine power plant while underway at sea. **Prerequisites:** Grade of C or better in MARE 100, MARE 200, MART 103, and MARE 300 or MARE 350, or equivalents; junior or senior classification or approval of MARR and MART department heads.

MARE 402 Shipboard Automation and Control

Credits 3. 2 Lecture Hours. 3 Lab Hours. Study of automation in marine power plants; including electronic and pneumatic proportional, integral and derivative control elements; applications in boiler combustion and water level control; engine speed control; remote sensing and performance monitoring systems. **Prerequisites:** MARE 307.

MARE 405 Fundamentals of Naval Architecture

Credits 3. 2 Lecture Hours. 3 Lab Hours. Ship geometry and arrangement; ship-form calculations; intact and damaged stability; ships' structure; fundamentals of resistance and propulsion; ship motion, maneuverability, and control; introduction to ship design, construction, and overhaul. **Prerequisites:** Junior or senior classification or approval of instructor.

MARE 410 Marine Engine, Energy, and Electrical Resource Management

Credits 3. 2 Lecture Hours. 3 Lab Hours. Advanced level Engine room Watchkeeping; includes the integration of Engine room and personnel Management (ERM), Management of Electronic and Electrical Systems (MEECES), Leadership and Managerial Skills (LMS), and Shipboard Energy Efficiency Planning (SEEMP); knowledge and understanding of the complexities of watchstanding directly impact the ability of a seafarer to operate a safe and efficient marine propulsion plant; training required under the International Convention on the Standards for Training and Certification of Watchkeepers, using simulator-based teaching techniques. **Prerequisites:** Grade of C or better in MARE 200, MARE 211, and MARE 312.

MARE 424 Gas Turbine Power Generation

Credits 3. 2 Lecture Hours. 3 Lab Hours. Application of the Brayton cycle to gas turbine power cycles, including ideal gas cycle analysis, compressor design and construction, gas turbine construction, operation and maintenance for marine and industrial installations. **Prerequisite:** Grade of C or better in MARE 202 and MARE 205; MARE 309 or concurrent enrollment and approval of instructor.

MARE 434 Offshore Energy, Oil, and Gas Production

Credits 3. 3 Lecture Hours. Orientation to the offshore and gas industry; petroleum exploration, production, and marketing; platform and floating production facilities; operations; classification of production systems; economics and risk management. **Prerequisite:** Junior or senior classification or approval of instructor.

MARE 441 Engineering Economics and Project Management

Credits 3. 3 Lecture Hours. Analysis of engineering economics and management, using costs and benefits of various engineering options. Topics include time value of money, cash flows, analysis techniques, interests rates, inflation, depreciation, optimization, statistics, network analysis and critical path programming. **Prerequisite:** Junior or senior classification or advisor approval.

MARE 442 Advanced Manufacturing Processes

Credits 3. 3 Lecture Hours. . Non-traditional manufacturing processes including ultrasonic machining, abrasive jet machining, water jet cutting, electro-mechanical machining, electric discharge machining, plasma arc machining and chemical milling that are used to optimize production in the manufacturing and shipbuilding industries. **Prerequisite:** MARE 242 and MARE 243.

MARE 443 Lean Sigma-Six Methodology

Credits 3. 3 Lecture Hours. History of lean and six sigma philosophies, their principles and implementation methodologies for creating a world class enterprise; topics in lean include five s, value stream mapping, cellular manufacturing, pull system, performance metrics, lean supplier network, lean product development, lean implementation models and impact of these technologies on the society. **Prerequisite:** MARE 242 and MARE 243.

MARE 445 Marine Navigation Systems

Credits 3. 2 Lecture Hours. 3 Lab Hours. Overview of Shipboard Navigation system components, electronics and electrical diagrams; examination of the fundamentals and basic concepts of communication systems such as Global Maritime Distress Safety System (GMDSS), Single Sideband Radio (SSB), and Emergency Position-Indicating Radio Beacon (EPIRBs), positioning systems such as Global Positioning Systems (GPS), hyperbolic long range radio navigation (Loran-C) and chart plotters; topics include radar, auto-pilot systems, and the design, maintenance and troubleshooting of the Shipboard Navigation Station and its power supplies both alternating current (AC) and direct current (DC). **Prerequisites:** Grade of C or better in MARE 235 and MARE 325.

MARE 451 Senior Design Project I

Credits 2. 1 Lecture Hour. 3 Lab Hours. Design, modeling, testing and validation processes; design of equipment, components or systems for marine and related power generation applications; complete design process including definition of the problem, research for existing designs and related technologies, conceptualization and evaluation of alternatives, development of preliminary design, refining and generation of final design and documents. **Prerequisites:** MARE 206, MARE 209, MARE 305, MARE 306, MARE 307, MARE 309 and MARE 313, or concurrent enrollment; senior classification.

MARE 452 Senior Design Project II

Credits 2. 1 Lecture Hour. 3 Lab Hours. This course is a continuation of MARE 451. Development of theoretical, computational or experimental models using the design developed in MARE 451. Formulation, construction and/or fabrication work. Refining, experimenting and testing of models considering alternatives. Analyzing results and preparing and submitting design documents including a project report. **Prerequisite:** MARE 451 or MARR 451.

MARE 467 Applied Marine Liquefied Gas Systems for Marine Engineers

Credits 3. 2 Lecture Hours. 2 Lab Hours. Theory, regulations and operation of modern engineering shipboard plants and shoreside facilities which are using dual and tri-fuel engines to generate power. Fuels include Liquefied Gas (LG), Liquid Fuels, Marine Gas Oil and Heavy Fuel Oil. The course will present varying engine operational characteristics. LG safety and risk assessments. The development of Floating Storage Regasification Units (FSRUs). The economic and environmental impact of tri-fuel vessels. **Prerequisites:** Grade of C or better in MARE 100 or MARR 101; grade of C or better in MARE 202 or concurrent enrollment.

MARE 481 Seminar

Credit 1. 1 Other Hour. Preparation of Engineering licensure; ethics and professional practice; safety, health, and the environment; review of engineering mathematics, probability and statistics; review of statics, dynamics, strength of materials, fluid mechanics and materials science; review of heat and mass transport processes; review of electricity, power, magnetism, instrumentation and data. **Prerequisite:** Senior classification.

MARE 482 License Preparation Seminar

Credit 1. 1 Other Hour. Preparation for United States Coast Guard (USCG) 3rd Assistant Engineer examination; review of marine engineering safety; review of motor plants; overview of steam plants; review of electricity and electrical control systems; review of refrigeration systems and general subjects. **Prerequisites:** Senior classification; enrollment in marine engineering technology license option program.

MARE 484 Undergraduate Internship

Credits 0 to 6. 0 to 6 Other Hours. Supervised study with an approved power generator, either electrical, mechanical, or thermal power. Alternatively, studies can be with a research, manufacturing or repair facility whose primary mission is to support power generation. May be taken for credit up to 6 hours. **Prerequisites:** 2.5 GPR and completion of 300 level courses.

MARE 485 Directed Studies

Credits 1 to 8. 1 to 8 Other Hours. Special problems in marine engineering technology not covered by any other course in the curriculum. Work may be in either theory or laboratory. **Prerequisites:** Approval of department head. Junior or senior classification or approval of instructor.

MARE 489 Special Topics

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of marine engineering technology. May be repeated for credit. **Prerequisites:** Junior or senior classification or approval of instructor.

MARE 491 Research in Marine Engineering Technology

Credits 1 to 4. 1 to 4 Other Hours. Research in Engineering Technology. Research conducted under the direction of faculty member in Marine Engineering Technology. May be repeated 2 times for credit. Please see academic advisor in department. Registration in multiple sections of this course is possible within a given semester provided that the per semester credit hour limit is not exceeded. **Prerequisites:** Junior or senior classification and approval of instructor.

MARR - Marine Engr Technology (MARR)

MARR 102 Engine Room Resource Management and Dynamics

Credit 1. 0 Lecture Hours. 2 Lab Hours. Marine engineering watch standing and operations, safety and security, effective resource management and control of engine room equipment, leadership and managerial skills.

MARS - Marine Science (MARS)

MARS 102 Earth and Ocean Science

Credits 4. 3 Lecture Hours. 3 Lab Hours. Introduction to earth systems analysis, plate tectonic framework; earth and ocean structure and chemistry, ocean and atmospheric circulation; global carbon and hydrologic cycles; focus on earth systems interactions in the coastal zone; primary productivity and oceanic life; human modification and dependence on earth system components; climate change analysis.

MARS 210 Marine Geography

Credits 3. 3 Lecture Hours. Introduction to the physical and cultural patterns of the coastal zones of the world. Interrelationships between the physical forms and processes and the cultural patterns are used to analyze human use and abuse of the sea.

MARS 252 Introductory Marine Science Laboratory

Credit 1. 3 Lab Hours. Overview of the global ocean environment and the interrelated sub-disciplines; the important of the ocean for the earth's ecosystems and human impact on the ocean; field work and boat trip, water and benthic sediment collection and analysis; navigation chart work. **Prerequisite:** OCNG 251 or concurrent enrollment.

MARS 280 Coastal and Ocean Resources

Credits 3. 3 Lecture Hours. Coastal and Ocean Resources. Resources from the ocean including food, minerals, transportation and recreation. Methods of recovery and utilization of resources from the ocean, efficiency and cost effectiveness. Provides a foundation for understanding the wealth of resources available from the ocean and its margins, to include the impact of human activity on these resources.

MARS 281 Sophomore Seminar in Marine Sciences

Credit 1. 1 Lecture Hour. Compilation and discussions of literature pertaining to topics in marine sciences. Emphasis placed upon preparation and presentation of a written report. **Prerequisite:** Sophomore standing or approval of instructor.

MARS 285 Directed Studies

Credits 1 to 6. 1 to 6 Other Hours. Special topics and problems suited to analysis by individuals or small groups concerning special aspects of marine sciences. **Prerequisite:** Approval of department head.

MARS 289 Special Topics in Marine Sciences

Credits 1 to 4. 1 to 4 Lecture Hours. Study of selected topics in an identified area of marine sciences. **Prerequisite:** Approval of instructor.

MARS 303 Computing and Data Display

Credits 3. 2 Lecture Hours. 3 Lab Hours. Programming with big ocean data in Python environment; basic to advanced Python programming; extensive practice on data analysis and visualization. **Prerequisites:** Junior or senior classification or approval of instructor.

MARS 305 Environmental Micropaleontology

Credits 4. 3 Lecture Hours. 3 Lab Hours. Major animal, plant and protist microfossils groups, ecology, biostratigraphy, paleoenvironmental and paleoclimatic utility, primary preparation techniques, basic microscopy, research design and dissemination; coastal foraminifera, thecamoebians and ostracods emphasized; field trips required. **Prerequisites:** MARS 102.

MARS 306 Coastal Sedimentary Geology

Credits 4. 3 Lecture Hours. 3 Lab Hours. A survey of modern coastal sedimentary systems, including principles of sedimentology and sediment analysis; laboratory includes a large group field projects; local field trips required. **Prerequisites:** GEOL 101 and GEOL 102.

MARS 310 Field Methods in Marine Sciences

Credits 3. 1 Lecture Hour. 6 Lab Hours. Techniques of documenting collected materials, the methods of reconnaissance and the mapping of traverses in the major coastal environments; sampling and recording techniques, interview procedures and the use of maps and remotely sensed imagery. **Prerequisites:** CHEM 120; PHYS 202, PHYS 208, or PHYS 207, and PHYS 217/ENGR 217; GEOL 101; GEOL 102.

MARS 325 Introduction to GIS for Marine Sciences

Credits 3. 2 Lecture Hours. 2 Lab Hours. Geographic Information Systems (GIS) are introduced for marine sciences and management. Basic use of software including creation of GIS models is covered. Creating, editing and querying GIS shape files is treated utilizing one of the standard GIS software packages such as ArcGis. **Prerequisite:** Junior or senior classification or approval of instructor.

MARS 330 Petroleum Geology

Credits 3. 3 Lecture Hours. Origin, migration and accumulation of petroleum; reservoir rock, traps, accumulation and conditions, and subsurface methods. **Prerequisites:** GEOL 101 and GEOL 102.

MARS 336 Integrated Marine Geohazards Assessment

Credits 3. 3 Lecture Hours. Implications of past failures and ongoing significance to operational safety and the environment of offshore operations; integration of geology, geophysics, and geotechnical and soil properties; exploration of integrated marine site investigation and its support to the delivery of the energy transition. **Prerequisite:** GEOL 101 and GEOL 102, or MARS 102.

MARS 342 Ancient Sea Monsters

Credits 3. 3 Lecture Hours. Examination of prehistoric marine reptile groups including ichthyosaurs, plesiosaurs, plesiosaurs, and mosasaurs; fundamental principles of vertebrate paleontology, evolution, and extinction; evaluation of the geological history of these sea reptile groups with the origins and history of the Western Interior Sea. **Prerequisites:** MARS 102 or approval of instructor.

MARS 350 Advanced Computer Applications

Credits 2. 1 Lecture Hour. 2 Lab Hours. Data manipulation, merging, selection, filtering and querying in Microsoft Office primarily using large real data sets. Introduction to GIS, MatLab and other software relevant to science and/or business applications. Discussion of algorithm development in structured and object oriented programming languages.

MARS 358 Coastal Disasters

Credits 3. 3 Lecture Hours. A survey of natural disasters resulting from seismic activity, severe weather, or other natural processes with special focus on disasters affecting coastal regions; discussion of how these phenomena occur as well as coastal mitigation strategies for each. **Prerequisites:** GEOL 101, MARS 102, or equivalent.

MARS 365 Integrated Marine Sciences Laboratory

Credits 3. 1 Lecture Hour. 6 Lab Hours. Integrated lectures, field and laboratory exercises for data collection and analysis of physical, chemical, biological and geological measurements in ocean, coastal and estuarine environments. **Prerequisites:** MATH 142 or 152, PHYS 202 or PHYS 208, OCNG 251, MARS 252, CHEM 102 and CHEM 112, BIOL 112 and GEOL 101 and GEOL 102, junior or senior classification or approval of instructor.

MARS 370/GEOG 370 Coastal Processes

Credits 3. 3 Lecture Hours. Introduction to the coastal system, waves and wave dominated coasts, shoreline morphodynamics, tidal and lake coasts, long term coastal development, sea level changes, subtidal and beach ecosystems, coastal dunes and wetlands, structures and organizations, coastal management and coastal hazards. **Cross Listing:** GEOG 370/MARS 370.

MARS 408 Estuarine and Coastal Hydrodynamics

Credits 3. 3 Lecture Hours. Physical processes in estuarine and coastal environments in various time scales: turbulent, tidal and residual (subtidal); study of salts, suspended solids, nutrients and heat affected by water movement; physical, biogeochemical processes and mass transport. **Prerequisites:** MATH 251, PHYS 218, junior or senior classification or approval of instructor.

MARS 410 Physical Oceanography

Credits 3. 2 Lecture Hours. 3 Lab Hours. Elements of the physics of the ocean; descriptive aspects and theoretical explanations of circulation, characteristic structure and waves. **Prerequisites:** MATH 152, MATH 150, or MATH 148; PHYS 207 and PHYS 217/ENGR 217, or PHYS 202 or ENGR 217/PHYS 217; junior or senior classification or approval of instructor.

MARS 412 Remote Field Investigations in Marine Sciences

Credits 1 to 6. 1 to 6 Lecture Hours. An overview of marine sciences in remote locations varying by instructor and selected topics; lectures on recent scientific papers, methods and concepts related to field area; individual projects; data collection; data analysis and presentation. **Prerequisite:** Junior or senior classification or approval of instructor.

MARS 415 Remote Sensing Technology

Credits 3. 3 Lecture Hours. An introduction to the uses of remote sensing technology in the marine sciences, including electromagnetic, acoustic, and seismic methods. Generation, transmission, and reception methods. Active and passive systems, multispectral techniques, and signal analysis systems. **Prerequisites:** PHYS 202 or 208, BIOL 112. Junior or senior classification or approval of instructor.

MARS 420 Biological Oceanography

Credits 3. 2 Lecture Hours. 3 Lab Hours. Study of biological and biogeochemical processes in the marine environment; discussion of the role of phytoplankton, zooplankton, bacteria, vertebrates and their benthic counterparts in the oceanic food web and how they relate to the earth system and climate change. **Prerequisite:** BIOL 112, OCNG 251, or MARS 102.

MARS 425 Coastal Wetlands Management

Credits 3. 3 Lecture Hours. Wetlands management laws, regulations, wetland delineation and applications of Geographic Information System (GIS) to wetlands management; biological species in wetlands delineation; basic biogeochemical cycles and interactions in wetlands. **Prerequisites:** BIOL 112, GEOL 101, and GEOL 102; concurrent enrollment in MARS 426 or approval of instructor.

MARS 426 Coastal Wetlands Delineation Laboratory

Credit 1. 3 Lab Hours. Coastal wetlands delineation, including mapping techniques, Geographic Information System (GIS) and theodolite; biological species and biogeochemical factors in wetlands delineation. **Prerequisites:** BIOL 112, GEOL 101, and GEOL 102; concurrent enrollment in MARS 425 or approval of instructor.

MARS 430 Marine Geology

Credits 4. 3 Lecture Hours. 3 Lab Hours. Geological and physical processes that controls the formation and evolution of ocean basins and passive and active continental margins. **Prerequisite:** GEOL 101 and GEOL 102, or MARS 102.

MARS 431 Geological Oceanography-Earth's Climate

Credits 3. 3 Lecture Hours. Understanding the complex interactions of the earth system and the critical role that geological oceanography plays in these interactions, specifically the paleoceanographic/climate change aspects of geological oceanography. **Prerequisites:** GEOL 101, OCNG 251, junior or senior classification or approval of instructor.

MARS 432 Peak Oil, Global Warming and Resource Scarcity

Credits 3. 3 Lecture Hours. The concept of peak oil, resource depletion, and human-induced climate change and the broad consequences for food and water supplies, mortality rates, conflict, migration, and political stability; scientific/social/political debates surrounding these issues, and the individual/local/national/global options for living in a globally-warmed world with declining natural resources. **Prerequisites:** Any two from GEOL 101, GEOL 102, OCNG 251, MARS 280, or approval of instructor.

MARS 440 Chemical Oceanography

Credits 3. 2 Lecture Hours. 3 Lab Hours. Chemical and biogeochemical processes in the marine environment and how they relate to the earth system; topics include the role of chemical oceanography in earth system science and global change, interactions of the ocean with the atmosphere, continents and the seafloor; the physical and chemical composition of sea water; chemical speciation; biogeochemical cycles of major, minor, nutrient, trace elements and gases in the oceans; marine organic and isotope geochemistry; sedimentary chemistry and diagenesis. **Prerequisite:** CHEM 120.

MARS 454 Coastal Hydrology

Credits 3. 3 Lecture Hours. Coastal hydrological cycle; surface water and groundwater flow, direction, and movement in coastal environments; types of coastal morphology and its implication to water flow; land to ocean contaminant transport via river and groundwater; introduction to field techniques for measuring surface water and groundwater fluxes; numerical methods for solving hydrological processes and problems; the impact of anthropogenic activities and hydroclimate extremes on coastal hydrology and water resources. **Prerequisites:** MATH 147 and MARS 102; junior or senior classification or approval of instructor.

MARS 456 Coastal Water Policy

Credits 3. 3 Lecture Hours. History, past and present legislation, the government entities and agencies molding the policies affecting coastal water policy in Texas. **Prerequisite:** Junior or senior classification or approval of instructor.

MARS 460 Capstone Undergraduate Research Experience I

Credit 1. 1 Lecture Hour. Methodology for research outlines, organization and strategies; research ethics, writing and presentation of results. **Prerequisites:** MARS 491 or concurrent enrollment, senior classification or approval of instructor.

MARS 461 Capstone Undergraduate Research Experience II

Credit 1. 1 Lecture Hour. Research and scientific communications; development of a scientific abstract, poster presentation, oral presentation or written scientific paper. **Prerequisites:** MARS 491 or concurrent enrollment, senior classification or approval of instructor.

MARS 470 Eco-Environmental Modeling

Credits 3. 3 Lecture Hours. Biological components are in chemical and physical environments which are influenced by the bio-system and flows of energy, water and chemical species. Coupling to the complex atmospheric, aquatic and terrestrial systems is important. Modeling entails mathematical tools and the underlying science, focusing on scientific models, from the simplest to the elaborate. **Prerequisites:** CHEM 102, BIOL 112 and MATH 151 or approval of instructor.

MARS 481 Seminar

Credit 1. 1 Lecture Hour. Problem-oriented discussion session. Topics and reports selected for current relevance. May be repeated once only for credit. **Prerequisite:** Junior or senior classification or approval of instructor.

MARS 484 Undergraduate Internship

Credits 0 to 6. 0 to 6 Other Hours. Supervised study in a research or teaching laboratory within or outside of the Texas A&M University System. Student involvement is to consist of real-life learning or marine sciences research, teaching, management or a combination of these.

Prerequisites: Junior or senior classification or approval of instructor. Approval of the department head.

MARS 485 Directed Studies

Credits 1 to 6. 1 to 6 Other Hours. Special topics and problems suited to analysis by individuals or small groups concerning special aspects of marine sciences. **Prerequisites:** Junior or senior classification or approval of instructor. Approval of department head.

MARS 489 Special Topics in Marine Sciences

Credits 1 to 4. 1 to 4 Lecture Hours. Study of selected topics in an identified area of marine sciences. **Prerequisite:** Junior or senior classification or approval of instructor.

MARS 491 Research in Marine Sciences

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in Marine Sciences. May be repeated 2 times for credit. Please see academic advisor in department. Registration in multiple sections of this course is possible within a given semester provided that the per semester credit hour limit is not exceeded.

Prerequisites: Junior or senior classification and approval of instructor.

MART - Marine Transportation (MART)

MART 103 Basic Safety and Lifeboatman Training

Credits 3. 2 Lecture Hours. 3 Lab Hours. Introduction to lifesaving equipment and apparatus, personal survival techniques, personal social and environmental responsibility and introductory medical first aid and CPR; practical lifeboat and survival training for the U.S. Coast Guard certification as life boatman. **Prerequisite:** Admission to license option program.

MART 104 Maritime Shipboard Leadership

Credits 3. 3 Lecture Hours. Principles of leadership and management aboard merchant vessels; outline global and organizational duties and responsibilities of various departments found aboard merchant vessels; development of an understanding of social responsibilities of merchant marine ship's officer in regard to laws, regulations, and management; engagement in critical thinking of decision making during daily operations aboard merchant vessels. **Prerequisites:** Admission to deck license option program.

MART 115 Seamanship I

Credits 3. 2 Lecture Hours. 3 Lab Hours. (STCW). Theory and application of traditional seamanship, such as handling of natural fiber, synthetic and wire ropes, block and tackle and marlinespike; introduction to competencies of the deck department, including safe systems of work, inspections and maintenance, anchoring, mooring operations, ladder use, crane operations and duties of the lookout and quartermaster.

Prerequisite: Admission to deck license option program.

MART 130 Introduction to Maritime Law

Credit 1. 1 Lecture Hour. Introduction to the various statutes which govern the operation of watercraft subject to U.S. jurisdiction; emphasis on the International Navigational Rules Act of 1977 which implemented the 72COLREGS, the regulations resulting from the 1972 Convention on International Regulations for Preventing Collisions at Sea. **Prerequisites:** Admission to Deck License Option program; freshman classification.

MART 200 Deck Sea Training I: Basic Communications, Navigation and Seamanship

Credits 4. 4 Other Hours. Practical application of shoreside studies aboard training ship during first training cruise; basic projects in communications, navigation, seamanship and rules of the road.

Prerequisites: Grade of C or better in MART 103, MART 115 or MART 203, MART 201, and MART 204, or concurrent enrollment, or approval of MART department head; admission into Deck License Option Program.

MART 201 Vessel Structure and Ship Knowledge

Credits 3. 2 Lecture Hours. 2 Lab Hours. Introduction to ship nomenclature and design, types and methods of ship construction, admeasurement and typical outfitting of various types of commercial vessels; classification societies, shipbuilding materials and methods, structural components and appurtenances of vessels. **Prerequisite:** Admission to deck license option program.

MART 202 Ship Stability and Trim

Credits 3. 2 Lecture Hours. 2 Lab Hours. Principles of flotation and buoyancy; inclining experiments; free surface; transverse and longitudinal stability; trim; motion of ship in waves and seaways; application of stability, trim and stress tables; effect of center of gravity on seaworthiness and stability; actions in event of partial loss of intact buoyancy; fundamentals of watertight integrity. **Prerequisites:** Grade of C or better in MART 103, MART 115, MART 200, MART 201, and MART 204; and grade of D or better in PHYS 201, or approval of MART department head.

MART 204 Terrestrial Navigation I

Credits 3. 2 Lecture Hours. 2 Lab Hours. (STCW). Technical and practical concepts of terrestrial navigation; includes fundamentals of terrestrial coordinates, piloting, chart construction and development, aids to navigation, useful publications, compass corrections, and the use of sailings to determine rhumb line course and distances. **Prerequisites:** Admission to deck license option program; MATH 140 or concurrent enrollment.

MART 205 Marine Surveying

Credits 3. 3 Lecture Hours. Fundamentals of marine surveying using the various types of maritime surveys; writing survey reports by meeting regulatory and industry standards for submission to maritime clients. **Prerequisites:** Grade of C or better in MART 115, MART 201, MART 202, MART 212, MART 215 (MART Majors); or MARE 205 (MARE Majors); or MARE 100 (MARE Majors); or approval of department head.

MART 208 Maritime Meteorology

Credits 3. 3 Lecture Hours. Weather and forecasting techniques used by merchant mariners to determine cloud formation, precipitation, visibility, atmospheric pressure, fronts, ocean currents, weather and voyage routing and ship maneuvering based upon ship's technology and reporting equipment; ocean passage planning. **Prerequisites:** Grade of C or better in MART 225 and MART 300 or MART 350, or approval of department head.

MART 210 Integrated Navigation I: RADAR/ARPA/ECDIS

Credits 4. 3 Lecture Hours. 3 Lab Hours. Theory, operation and interpretation of marine radar and automatic radar plotting aids (ARPA) and Electronic Chart Display Systems (ECDIS); introductory level watchkeeping, including applied use of radar, ARPA and ECDIS; U.S. Coast Guard Certification as "RADAR Observer" and Standards of Training, Certification and Watchkeeping (STCW) Radar and ARPA endorsements. **Prerequisites:** Grade of C or better in MART 200 and MART 225 or approval of department head.

MART 212 Marine Dry Cargo Operations

Credits 3. 3 Lecture Hours. Modern dry cargo principles associated with handling of general cargo, refrigerated cargo, dangerous cargo, containers, roll-on roll-off; cargo ventilation, securing of cargo, stability and trim, cargo gear stresses and heavy lift operations; documentation required for cargo operations, along with practical stowage problems. **Prerequisites:** Grade of C or better in MART 200; concurrent enrollment in MART 202; or approval of department head.

MART 213 Liquefied Gas Tankers

Credits 3. 2 Lecture Hours. 2 Lab Hours. Preparation as cargo officer for loading, discharging and transit of liquefied gas cargoes; emphasis on physical and chemical properties, operations, safety, firefighting and pollution prevention; completion required for registration in a MART 350 LNG commercial assignment. **Prerequisites:** MART majors - Grade of C or better in MART 200; or approval of department head; MARE majors - Grade of C or better in MARE 200 or MART 200, or approval of MART department head. Completion of this course is required for assignment to a MART 350 oil or chemical tanker commercial internship.

MART 215 Seamanship II

Credits 3. 2 Lecture Hours. 3 Lab Hours. Topics include mechanical appliances aboard ship, accident prevention, vessel sanitation, vessel operations, United States marine inspection laws and regulations, communication, ship's business, and International Conventions and Codes. **Prerequisites:** Grade of C or better in MART 200 or approval of department head.

MART 225 Terrestrial Navigation II

Credits 3. 3 Lecture Hours. (STCW). Builds upon MART 204; includes in-depth analysis of the earth's magnetic field, the ship's magnetic field, magnetic compass adjustment, and the sailings; introduction to propeller slip, ocean voyage planning, tide and tidal current theory, current sailing and major ocean circulation; discussion concerning the knowledge of the principles of magnetic compasses; required for Deck License Option. May be taken two times for credit. **Prerequisites:** Grade of C or better in MART 200 and MART 204; MATH 142, or approval of department head.

MART 265 Introduction to Dynamic Positioning OSVDPA Phase I

Credits 3. 2 Lecture Hours. 3 Lab Hours. Basic understanding and operation of Dynamic Positioning technology; theory and nomenclature of Dynamic Positioning principles and equipment; practical training utilizing Class C simulators; operating, maneuvering and familiarization with simulated DP vessels; satisfactory completion of this course provides the student entry in to the Off Shore Service Vessel Dynamic Positioning Authority (OSVDPA) scheme. **Prerequisites:** Grade of C or better in MART 201, MART 204, and MART 200; sophomore or junior classification.

MART 285 Directed Studies

Credits 1 to 4. 1 to 4 Lecture Hours. Directed study in problems in marine transportation not covered by other courses in the department. **Prerequisite:** Approval of department head.

MART 289 Special Topics in Marine Transportation

Credits 1 to 4. 1 to 4 Lecture Hours. Study of selected topics in an identified area of marine transportation or nautical science. **Prerequisite:** Approval of department head.

MART 300 Deck Sea Training II: Intermediate Communications, Navigation and Seamanship

Credits 4. 4 Other Hours. Practical application of shoreside studies aboard training ship during second training cruise; intermediate projects in communications, navigation, seamanship and rules of the road. **Prerequisites:** Grade of C or better in MART 200 or NAUT 200; grade of C or better in MART 202, MART 210 or MART 306, MART 212 or MART 312, MART 215 or MART 301, MART 303 and MART 321, or concurrent enrollment; junior or senior classification or approval of MART department head.

MART 303 Celestial Navigation

Credits 3. 2 Lecture Hours. 3 Lab Hours. Full range of celestial navigation; survey of nautical astronomy, sight reduction, sextants, compass error determination, and solutions of the navigational triangle by various methods. **Prerequisites:** Grade of C or better in MART 200, MART 204, and MART 225, or approval of MART department head, and junior or senior classification.

MART 307 Global Maritime Distress Safety System

Credits 3. 2 Lecture Hours. 3 Lab Hours. Requirements, regulations, equipment, principles and hands-on operating procedures of each Global Maritime Distress Safety System subsystem, including: SARTS, EPIRBs, NAVTEX, INMARSAT, SAFETYNET, VHF Survival Craft Transceivers, DSC, and HF Radio telephone; USCG and FCC certification as GMDSS Operator; minimum passing grade 75%. **Prerequisites:** Grade of C or better in MART 300 or MART 350.

MART 308 Fast Rescue Craft

Credits 3. 2 Lecture Hours. 3 Lab Hours. Search and rescue techniques through fast rescue craft maneuvers and team management; description of various rescue craft and U.S. Coast Guard "Fast Rescue Craft" Standard of Watchkeeping endorsement. **Prerequisites:** MART majors - Grade of C or better in MART 200 or NAUT 200; grade of C or better in MART 103, MART 115 or MART 203, MART 201 and MART 204, or concurrent enrollment or approval of department head; MARE majors - Grade of C or better in MARE 200 or MARR 200; grade of C or better in MART 103.

MART 310 Integrated Navigation II: Electronic Navigation

Credits 3. 2 Lecture Hours. 3 Lab Hours. Theory, operation and application of marine electronic navigation systems and aids; includes marine gyrocompass, vessel steering systems, hydrosonic systems, satellite navigation systems, AIS and VDR; intermediate level watchkeeping, including applied use of radar, ARPA and ECDIS. **Prerequisites:** Grade of C or better in MART 300 or MART 350; concurrent enrollment and grade of C or better in MART 321; or approval of department head.

MART 311 Tug and Towing Operations

Credits 3. 2 Lecture Hours. 3 Lab Hours. Knowledge associated with the safe, efficient operation of towing vessels through classroom discussion and through underway, hands-on vessel training aboard the T/V Ranger and barges. **Prerequisites:** Grade of C or better in MART 200 or concurrent enrollment; junior or senior classification.

MART 313 Marine Liquid Cargo Operations

Credits 3. 2 Lecture Hours. 2 Lab Hours. Principles and practice of bulk liquid, gas handling and carriage by water craft; theoretical and practical problems involved in loading, stowing and discharging of petroleum, chemical, elevated temperature and cryogenic cargoes; marine pollution abatement, personnel safety and firefighting techniques and systems; completion of course required for assignment to a MART 350 oil or chemical tanker commercial internship. **Prerequisites:** MART majors - Grade of C or better in MART 200; or approval of department head; MARE majors - Grade of C or better in MARE 200 or MART 200, or approval of MART department head.

MART 315 Integrated Navigation III - Shiphandling for the Mariner

Credits 2. 1 Lecture Hour. 3 Lab Hours. Principles and methods of propulsion and steering of ships including hull, propeller and rudder design; ship handling at sea, in narrow channels, docking, undocking, mooring; study of the principles of hydrodynamics that govern ship movement. **Prerequisites:** Grade of C or better in MART 300 or MART 350, and in MART 321, or approval of MART department head.

MART 321 Navigation Rules - International and Inland

Credits 2. 2 Lecture Hours. Purpose, application and knowledge of the International Regulations for Preventing Collision at Sea (COLREGS) and the Inland Navigation Rules and Regulations (Inland Rules). **Prerequisites:** Grade of C or better in MART 300 or MART 350; and grade of C or better in MART 130; or approval of department head.

MART 350 Deck Sea Training II – Commercial Internship

Credits 4. 4 Other Hours. Practical application of shoreside studies aboard an assigned merchant vessel during second training cruise; intermediate projects in communications, navigation, seamanship, rules for the road and other subjects pertaining to the maritime industry. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** Grade of C or better in MART 200 or NAUT 200, MART 202, MART 210 or MART 306, MART 212 or MART 312, MART 215 or MART 301, MART 303, and MART 321, or concurrent enrollment; junior or senior classification or approval of MART department head.

MART 400 Deck Sea Training III: Advanced Communications, Navigation and Seamanship

Credits 4. 4 Other Hours. Practical application of shoreside studies aboard training ship during third training cruise; advanced projects in communications, navigation, seamanship and rules of the road. **Prerequisites:** Grade of C or better in MART 300, MART 350, or NAUT 300; grade of C or better in MART 307, MART 310 or MART 304, and MART 313 or MART 406, or concurrent enrollment; junior or senior classification or approval of MART department head.

MART 401 Maritime Security

Credits 3. 3 Lecture Hours. Presentation and analysis of historical and current maritime security issues, leading to the understanding of, and proficiency in, security-related duties and responsibilities of licensed Deck Officers aboard ship and of maritime industry personnel ashore. **Prerequisites:** Grade of C or better in MART 300 or 350, senior classification, or approval of MART department head.

MART 403 Advanced Topics in Shipboard Operations

Credits 3. 3 Lecture Hours. Advanced shipboard operations focuses on the expectations of the Third Mate, AGT, Oceans as a bridge watchstander or cargo officer on various types of vessels; emphasis on refreshing knowledge covering navigation, cargo handling and stowage, emergency response and onboard ship operations to prepare for immediate employment on board and for USCG examination; links to publications to help with additional knowledge and gain a deeper understanding of each topic; recommended to be taken concurrently with MART 404 during the semester prior to scheduling USCG Examinations. **Prerequisites:** MART 400, or concurrent enrollment or approval of department head.

MART 404 The Navigator

Credits 2. 1 Lecture Hour. 3 Lab Hours. Final advanced navigation course, reviewing and testing in terrestrial, celestial, and electronic navigation in preparation for the Third Mate's License; registration requirement and only permitted in the term immediately prior to taking the USCG License exams. **Prerequisites:** Grade of C or better in MART 400; Senior classification, or approval of MART department head.

MART 410 Bridge Resource Management

Credits 2. 1 Lecture Hour. 3 Lab Hours. Advanced level Bridge Watchkeeping; integration of navigation, communications and seamanship in Bridge Resource Management (BRM) training required under the International Convention on the Standards for Training and Certification of Watchkeepers, using simulator-based teaching techniques. **Prerequisites:** Grade of C or better in MART 300, MART 350, or NAUT 300; grade of C or better in MART 321, MART 210 or MART 306, and MART 310 or MART 304, or concurrent enrollment or approval of MART department head.

MART 420 Advanced Towing

Credits 3. 2 Lecture Hours. 3 Lab Hours. Building upon the technical and practical concepts of basic towing covered in MART 311 by completing the required practical USCG Assessments to qualify for the Near Coastal/Oceans Towing Officer Assessment Record (TOAR); successful completion of the TOAR enables graduation with a Mate of Towing endorsement on the USCG Merchant Mariners Credential (MMC) - Third Mate Unlimited license. **Prerequisites:** Grade of C or better in MART 311; junior or senior classification.

MART 430 Combined Basic & Advanced Training for Personnel on Vessels Subject to the IGF Code

Credits 3. 3 Lecture Hours. Combined Basic & Advanced Training for Personnel on Vessels Subject to the IGF Code. Safety duties associated with the care, use or in emergency response to the fuel on board ships subject to the IGF Code; care and use of fuels and fuel systems on ships subject to the IGF Code, the knowledge, understanding and proficiency (KUPs) required to demonstrate competence in safety for ships using gases or other low flashpoint fuels. **Prerequisites:** Grade of C or better in MART 200; grade of C or better in MART 213 or MART 313, or concurrent enrollment; or approval of department head.

MART 484 Internship

Credits 0 to 6. 0 to 6 Other Hours. Special topics and problems in field and/or laboratory work suited to analysis by individuals or small groups concerning internships of marine transportation; may require a report describing techniques and results. May be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** Junior or senior classification or approval of department head.

MART 485 Directed Studies

Credits 1 to 4. 1 to 4 Lecture Hours. Directed study in problems in marine transportation not covered by other courses in the department. **Prerequisite:** Senior classification or approval of department head.

MART 489 Special Topics in Marine Transportation

Credits 1 to 3. 1 to 3 Lecture Hours. 0 to 3 Lab Hours. Study of selected topics in an identified area of marine transportation or nautical science. **Prerequisites:** Approval of MART department head. Junior or senior classification or approval of instructor.

MART 491 Research in Marine Transportation

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in Marine Transportation. May be repeated 2 times for credit. See academic advisor in department. Registration in multiple sections of this course is possible within a given semester provided that the per semester credit hour limit is not exceeded. **Prerequisites:** Junior or senior classification and approval of instructor.

MART 498 Maritime Medical Care Provider

Credits 2. 1 Lecture Hour. 3 Lab Hours. Basic and advanced training for medical care of the sick and injured in the maritime environment; fundamentals of identification and assessment of and appropriate interventions for life-threats and other medical or trauma related conditions commonly encountered at sea; must complete course within one year of graduation. **Prerequisites:** MART majors - Grade of C or better in MART 300, MART 350, or NAUT 300, or concurrent enrollment or approval of MART department head; MARE majors - Grade of C or better in MARR 300, MARE 300, or MARE 350, or concurrent enrollment or approval of MART department head.

MASC - Integrated Math & Sci (MASC)

MASC 320 Inquiries in Physical Science

Credits 3. 3 Lecture Hours. Integration and connections among topics in physical sciences—matter, energy, force, motion, scientific cycles; focuses on inquiry emphasizing experimental design, data analysis and collection, and use of models in the physical sciences. **Prerequisites:** Junior or senior classification.

MASC 351 Problem Solving in Mathematics

Credits 3. 3 Lecture Hours. Problem solving strategies in math and science; evaluate conjectures and arguments; writing and collaborating on problem solutions; posing problems and conjectures; constructing knowledge from data; developing relationships from empirical evidence; connecting mathematics concepts; readings, discussions, and analyses will model and illustrate mathematics problems solving and proofs. **Prerequisite:** Junior or senior classification.

MASC 420 Inquiries in Life and Earth Sciences

Credits 3. 3 Lecture Hours. Integration and connections among topics in the life and earth sciences—diversity, natural selection, ecosystem development, earth's features, and weather systems; inquiry emphasizing experimental design, data analysis and collection; use of models in the life and earth sciences. **Prerequisites:** Junior or senior classification.

MASC 450 Integrated Mathematics

Credits 3. 3 Lecture Hours. Integration and connections among topics and ideas in mathematics and other disciplines; connections between algebra and geometry and statistics and probability; focus for integration with authentic problems requiring various branches of mathematics. **Prerequisite:** Admission to teacher education; junior or senior classification.

MASC 489 Special Topics in...

Credits 0 to 4. 0 to 4 Other Hours. Study of selected topics in an identified area of integrated math and science. May be repeated for credit.

Prerequisites: Junior or senior classification; approval of department head.

MASE - Maritime Systems Engr (MASE)

MASE 400 Introduction to Coastal Engineering

Credits 3. 3 Lecture Hours. Mechanics of shallow water wave motion; wave diffraction, refraction and reflection; wave forecasting; water level fluctuations; coastal processes and geomorphology; erosion control and shoreline stabilization; coastal structures; beach nourishment; dredging; introduction to physical and computer models and modeling techniques; design in coastal engineering. **Prerequisites:** OCEN 300; senior classification or approval of instructor. Enrollment in OCSE major degree sequence.

MASE 401 Underwater Acoustics

Credits 3. 3 Lecture Hours. Fundamentals of underwater acoustics, SONAR equations, propagation of underwater sound, acoustic transducers and arrays, noise in the ocean environment, design and prediction of SONAR systems, ocean engineering applications of underwater sound. **Prerequisites:** CVEN 311/EVEN 311, CVEN 336. Junior or senior classification or approval of instructor. Enrollment in OCSE major degree sequence.

MASE 407 Capstone Design II

Credits 3. 6 Lab Hours. Design of a major engineered system based on a proposal developed in MASE 406 completed as a group project; realistic application of engineering skills and tools, experience managing a significant engineering-design effort. This is a writing-intensive course including a major report and weekly one-page written reports. **Prerequisites:** MASE 406. Enrollment in OCSE major degree sequence.

MASE 410 Measurements in the Ocean Laboratory

Credit 1. 3 Lab Hours. Fundamental techniques and instrumentation for field and laboratory measurements pertaining to coastal and ocean engineering (e.g., currents, wave height, wave/sediment interaction, mass transport, surveying, etc.); experiment planning; data analysis and presentation; written reports on methodology, analysis, and results of experiments. **Prerequisites:** OCEN 300, MASE 400. Junior or senior classification or approval of instructor. Enrollment in OCSE major degree sequence.

MASE 485 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Directed study on selected current problems in the ocean and/or maritime industry. Offered to enable individuals or groups to undertake and complete with credit some specialized investigation not covered by other courses. **Prerequisites:** Approval of department head. Junior or senior classification or approval of instructor. Enrollment in OCSE major degree sequence.

MASE 489 Special Topics

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in a identified area of maritime systems engineering. May be repeated for credit. **Prerequisite:** Junior or senior classification or approval of instructor. Enrollment in OCSE major degree sequence.

MASE 491 Research in Maritime Systems Engineering

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in Maritime Systems Engineering. May be repeated 2 times for credit. Please see academic advisor in department. Registration in multiple sections of this course is possible within a given semester provided that the per semester credit hour limit is not exceeded. **Prerequisites:** Junior or senior classification and approval of instructor. Enrollment in OCSE major degree sequence.

MAST - Maritime Studies (MAST)

MAST 101 Connections

Credit 1. 1 Lecture Hour. A first year experience seminar to explore the connections between academics disciplines to develop creative and critical thinking strategies which will increase abilities to implement solutions, refine information literacy skills, and identify the resources available for a successful transition from high school to the university environment.

MAST 220 Introduction to Museums and Conservation

Credits 3. 3 Lecture Hours. Introduction to museums, cultural heritage and collections care; best practice for non-profit institutions, public engagement, and the collection, preservation and exhibition of material culture; emphasis on archaeological, ethnographic and historical collections, or other collections of cultural significance.

MAST 226 Museums, Law and Ethics

Credits 3. 3 Lecture Hours. Exploration of museum law and ethics; interdisciplinary topics.

MAST 230 Maritime Folklore

Credits 3. 3 Lecture Hours. Maritime folklore tales and myths; monsters and mysteries of the sea.

MAST 240 Introduction to Maritime Studies

Credits 3. 3 Lecture Hours. First year experience; exploration of Maritime Studies; interdisciplinary topics.

MAST 252 Crafts of the Maritime World

Credits 3. 3 Lecture Hours. An exploration of various crafts, skills and aesthetic/design used in and supporting the maritime world; hands-on activities and practical experience of various skills and processes, using traditional tools required to put a ship to sea; from carpentry to rope-making, sewing canvas sails to making blocks.

MAST 265 Elissa Sail Training

Credits 3. 3 Lecture Hours. Fundamentals of seamanship on a late 19th century square-rigged sailing vessel; train in sailing and maintenance of the 1877 barque ELISSA (owned and operated by the Texas Seaport Museum); lectures and activities in maritime life and seafaring history.

MAST 270 Historic Seafaring and Maritime Heritage

Credits 3. 3 Lecture Hours. Fundamentals of traditional seamanship and an exploration of the cultures and technologies of seafaring people throughout history and in various geographical locations.

MAST 289 Special Topics In...

Credits 1 to 3. 1 to 3 Lecture Hours. Selected topics in a identified area of maritime studies. May be repeated for credit.

MAST 333 Viking Archaeology and Norse Mythology

Credits 3. 3 Lecture Hours. Overview of Viking Age (ca. 800 to 1100 C.E.) in Northern Europe; topics include Norse seafaring, world-view, society, archaeology, religion and cosmology as know from the archaeological and literary record. **Prerequisite:** Junior or senior classification or approval of instructor.

MAST 336 Maritime Foreign Policy

Credits 3. 3 Lecture Hours. Strategies used by governments to guide international actions; objectives of state leaders in decision making; sources, processes, objectives and outcomes of maritime policy choices. **Prerequisite:** Junior or senior classification or approval of instructor.

MAST 345 Texas Maritime Culture and History

Credits 3. 3 Lecture Hours. The coastal peoples, maritime history and culture of the Texas Gulf Coast ranging from pre-historic times to the present day; geography's influence on exploration, resources utilization, development and inland access; Texas ports historic and modern; shipwreck sites and historical texts; La Salle's La Belle, Texas Navy, Mexican War logistics; Civil War Naval actions, Texas Fisheries, tourism and recreation. **Prerequisite:** Junior or senior classification.

MAST 350 A History of Wooden Ship Construction

Credits 3. 3 Lecture Hours. This course is designed to give undergraduate students an overview of ship construction and possible cultural factors that may influence how a shipwright builds a vessel. **Prerequisites:** Junior or senior classification or approval of instructor.

MAST 354 Ancient Egyptian Seafaring

Credits 3. 3 Lecture Hours. Archaeology, iconography and written records of ancient Egypt as they relate to local and international trade by land, river and sea, beginning in Neolithic times (c. 5000 B.C.) to the end of the New Kingdom (c. 1069 B.C.). **Prerequisites:** ANTH 316; junior or senior classification or approval of instructor.

MAST 365 Material Culture

Credits 3. 3 Lecture Hours. Examination of material evidence of human life, from cradles to graves, churches to forts, teapots to landscapes; material culture artifacts, the processes and technologies used to create them and their use in every day life; application to archaeology, museum studies and basic engineering. **Prerequisites:** Junior or senior classification or approval of instructor.

MAST 369 Collections Care and Management

Credits 3. 3 Lecture Hours. Managing collections in libraries, archives and museums; media and collections storage; digitization and metadata processes; use of writing styles and citations. **Prerequisites:** MAST 220; junior or senior classification or approval of instructor.

MAST 371 Archaeology of the Pacific

Credits 3. 3 Lecture Hours. Overview of the archaeology, history and cultures of the Pacific Rim; emphasizing the cultures of Polynesia, Melanesia, and Micronesia. **Prerequisite:** Junior or senior classification or approval of instructor.

MAST 411 International Maritime Culture

Credits 3. 3 Lecture Hours. Strategies used in the exploitation of marine, coastal, and island habitats throughout human evolutionary history and the variety and complexity of adaptations in such environments; lectures and group discussions with occasional slide or movie presentations. **Prerequisites:** Junior or senior classification.

MAST 425 Thesis and Technical Writing

Credits 3. 3 Lecture Hours. Rhetorical techniques for professional expository prose; intertextual argumentation and analysis. **Prerequisite:** Junior or senior classification; ENGL 104 and ENGL 203 or ENGL 210.

MAST 441 Maritime Piracy

Credits 3. 3 Lecture Hours. Research of social, economic, political and cultural aspects of piracy from ancient to modern times; presentation of findings; understanding modern perception of pirates through modern art, literature and movies. **Prerequisites:** Junior or senior classification and approval of instructor.

MAST 470 Advanced Museum Studies

Credits 3. 3 Lecture Hours. Exploration of advanced topics in museum programs; preservation, research, education, outreach; development and implementation; emphasis on historical contexts, disciplinary intersections, ethical obligations and professional responsibilities; service to community, state and national interest and advancement of sciences. **Prerequisite:** MAST 220; junior or senior classification.

MAST 480 Honors Seminar in Service Learning

Credit 1. 1 Lecture Hour. Opportunities for community service through active community participation; includes structured time for reflection; use of skills and knowledge in real-life situations; extend learning beyond the classroom; foster a sense of caring for others. **Prerequisites:** Junior or senior classification or permission from the instructor and must be a member of the Honors Program.

MAST 481 Seminar in Maritime Studies

Credit 1. 1 Lecture Hour. This course is intended to provide students with the opportunity to conduct in-depth research on a particular issue, event, period, or people in maritime studies. **Prerequisite:** This one-credit hour course is open to senior maritime studies majors or approval of instructor.

MAST 484 Undergraduate Internship

Credits 0 to 6. 0 to 6 Other Hours. Supervised study in a research or teaching laboratory remote from TAMUG. Student involvement is to consist of real-life learning or research, teaching, management, or a combination of these. May be repeated two times for credit. **Prerequisite:** Junior or senior classification or approval of instructor.

MAST 485 Directed Studies

Credits 1 to 4. 1 to 4 Lecture Hours. Individually supervised research or advanced study on restricted area not covered in regular courses. **Prerequisite:** Junior or senior classification or approval of instructor.

MAST 489 Special Topics

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in a identified area of maritime studies. May be repeated for credit. **Prerequisite:** Junior or senior classification or approval of instructor.

MAST 491 Research in Maritime Studies

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in Maritime Studies. May be repeated 2 times for credit. Please see academic advisor in department. Registration in multiple sections of this course is possible within a given semester provided that the per semester credit hour limit is not exceeded. **Prerequisites:** Junior or senior classification and approval of instructor.

MATH - Mathematics (MATH)

MATH 102 Algebra

Credits 3. 3 Lecture Hours. (MATH 1314, 1414) Algebra. Sets, structure of number system; absolute values, solution sets of linear and nonlinear equations, of systems of equations, and of inequalities; relations and functions, graphical representations, graphical representations, progressions, mathematical induction, determinants; also taught at Galveston campus.

MATH 135 Mathematics for Teachers I

Credits 3. 3 Lecture Hours. (MATH 1350) Mathematics for Teachers I. Concepts of sets, logic, numeration systems, elementary number theory, and properties of the various number systems with an emphasis on problem solving and critical thinking. **Prerequisites:** High school algebra I and II and geometry.

MATH 136 Mathematics for Teachers II

Credits 3. 3 Lecture Hours. (MATH 1351) Mathematics for Teachers II. Concepts of Euclidean geometry, measurement, probability, and statistics with an emphasis on problem solving and critical thinking. **Prerequisites:** High school algebra I and II and geometry.

MATH 140 Mathematics for Business and Social Sciences

Credits 3. 3 Lecture Hours. (MATH 1324) Mathematics for Business and Social Sciences. Application of common algebraic functions, including polynomial, exponential, logarithmic and rational, to problems in business, economics and the social sciences; includes mathematics of finance, including simple and compound interest and annuities; systems of linear equations; matrices; linear programming; and probability, including expected value. Only one of the following will satisfy the requirements for a degree: MATH 140 or MATH 168. **Prerequisites:** High school algebra I and II and geometry; not open to senior classification; also taught at Galveston campus.

MATH 142 Business Calculus

Credits 3. 3 Lecture Hours. (MATH 1325) Business Calculus. Limits and continuity; techniques and applications of derivatives including curve sketching and optimization; techniques and applications of integrals; emphasis on applications in business, economics, and social sciences. Only one of the following will satisfy the requirements for a degree: MATH 142, MATH 147, MATH 151 or MATH 171. **Prerequisites:** Grade of C or better in MATH 140 or MATH 150, or equivalent or acceptable score on Texas A&M University math placement exam; not open to senior classification; also taught at Galveston campus.

MATH 147 Calculus I for Biological Sciences

Credits 4. 3 Lecture Hours. 2 Lab Hours. Introduction to differential calculus in a context that emphasizes applications in the biological sciences. Only one of the following will satisfy the requirements for a degree: MATH 142, MATH 147, MATH 151 or MATH 171. **Prerequisite:** Grade of C or better in MATH 150 or equivalent or acceptable score on TAMU Math Placement Exam; also taught at Galveston campus.

MATH 148 Calculus II for Biological Sciences

Credits 4. 3 Lecture Hours. 2 Lab Hours. Introduction to integral calculus in a context that emphasizes applications in the biological sciences; ordinary differential equations and analytical geometry. Only one of the following will satisfy the requirements for a degree: MATH 148, MATH 152 or MATH 172. **Prerequisite:** MATH 147, MATH 151 or approval of instructor; also taught at Galveston campus.

MATH 150 Functions, Trigonometry and Linear Systems

Credits 4. 3 Lecture Hours. 2 Lab Hours. (MATH 2412) Functions, Trigonometry and Linear Systems. Graphs, functions, college algebra and trigonometry, linear systems and vectors; also taught at Galveston and Qatar campuses.

MATH 151 Engineering Mathematics I

Credits 4. 3 Lecture Hours. 2 Lab Hours. (MATH 2413) Engineering Mathematics I. Rectangular coordinates, vectors, analytic geometry, functions, limits, derivatives of functions, applications, integration, computer algebra. MATH 171 designed to be a more demanding version of this course. Only one of the following will satisfy the requirements for a degree: MATH 131, MATH 142, MATH 147, MATH 151 or MATH 171. **Prerequisite:** Grade of C or better in MATH 150 or equivalent or acceptable score on TAMU Math Placement Exam; also taught at Galveston and Qatar campuses.

MATH 152 Engineering Mathematics II

Credits 4. 3 Lecture Hours. 2 Lab Hours. (MATH 2414) Engineering Mathematics II. Differentiation and integration techniques and their applications (area, volumes, work), improper integrals, approximate integration, analytic geometry, vectors, infinite series, power series, Taylor series, computer algebra. MATH 172 designed to be a more demanding version of this course. Only one of the following will satisfy the requirements for a degree: MATH 148, MATH 152 or MATH 172. **Prerequisite:** Grade of C or better in MATH 151 or equivalent; also taught at Galveston and Qatar campuses.

MATH 167 Explorations in Mathematics

Credits 3. 3 Lecture Hours. Application of mathematics to topics of contemporary societal importance using quantitative methods; may include elements of management science (optimal routes, planning or scheduling), logic, sets, counting techniques (combinations and permutations), probability, statistics, cryptography, fairness (apportionment or voting), or patterns. **Prerequisites:** High school algebra I and II.

MATH 168 Finite Mathematics

Credits 3. 3 Lecture Hours. Linear equations and applications; systems of linear equations, matrix algebra and applications, linear programming, probability and applications, statistics. Only one of the following will satisfy the requirements for a degree: MATH 140 or MATH 168.

Prerequisites: High school algebra I and II and geometry; also taught at Galveston campus.

MATH 170 Freshman Mathematics Laboratory

Credit 1. 2 Lab Hours. Computing and problem solving laboratory; introduction to the various mathematical disciplines; development of skills in mathematical problem solving and skills in teamwork. May be taken two times for credit. **Prerequisites:** Concurrent enrollment in MATH 150, MATH 171, or MATH 172; admission to College of Science.

MATH 171 Calculus I

Credits 4. 4 Lecture Hours. Vectors, functions, limits, derivatives, Mean Value Theorem, applications of derivatives, integrals, Fundamental Theorem of Calculus. Designed to be more demanding than MATH 151. Only one of the following will satisfy the requirements for a degree: MATH 131, MATH 142, MATH 147, MATH 151, or MATH 171. **Prerequisite:** Grade of C or better in MATH 150 or equivalent or acceptable score on TAMU Math Placement Exam.

MATH 172 Calculus II

Credits 4. 4 Lecture Hours. Techniques of integration, applications of integrals, improper integrals, sequences, infinite series, vector algebra and solid analytic geometry. Designed to be more demanding than MATH 152. Only one of the following will satisfy the requirements for a degree: MATH 148, MATH 152, or MATH 172. **Prerequisite:** Grade of C or better in MATH 147, MATH 151 or MATH 171 or equivalent.

MATH 200 Horizons of Mathematics

Credit 1. 1 Lecture Hour. Overview of different areas and topics of mathematics including logic, infinite sets, elements of topology, elements of history of mathematics; introduction to future courses in math degree plans and to some areas of research done by mathematics department faculty; topics may vary at the discretion of the instructor. **Prerequisites:** MATH and APMS majors; freshmen or sophomore classification; approval of instructor.

MATH 221 Several Variable Calculus

Credits 4. 4 Lecture Hours. Vector algebra and solid analytic geometry; calculus of functions of several variables; Lagrange multipliers; multiple integration, theory, methods and application; line and surface integrals, Green's and Stokes' theorems; Jacobians. Designed to be more demanding than MATH 251 and MATH 253. Only one of the following will satisfy the requirements for a degree: MATH 221, MATH 251, or MATH 253. **Prerequisite:** Grade of C or better in MATH 148, MATH 152, or MATH 172, or equivalent.

MATH 225 Advanced Spreadsheet Techniques

Credit 1. 1 Lecture Hour. Advanced commands, formatting and functionality of spreadsheets, with Excel being the particular example.

Prerequisite: MATH or APMS major.

MATH 251 Engineering Mathematics III

Credits 3. 3 Lecture Hours. (MATH 2315) Engineering Mathematics III. Vector algebra, calculus of functions of several variables, partial derivatives, directional derivatives, gradient, multiple integration, line and surface integrals, Green's and Stokes' theorems. MATH 221 designed to be a more demanding version of this course. Only one of the following will satisfy the requirements for a degree: MATH 221, MATH 251, or MATH 253. **Prerequisite:** MATH 148, MATH 152, or MATH 172; also taught at Galveston and Qatar campuses.

MATH 253 Engineering Mathematics III

Credits 4. 3 Lecture Hours. 2 Lab Hours. (MATH 2415) Engineering Mathematics III. Vector algebra; calculus of functions of several variables, partial derivatives, directional derivatives, gradient, multiple integration, line and surface integrals, Green's and Stokes' theorems, computer algebra. MATH 221 designed to be a more demanding version of this course. Only one of the following will satisfy the requirements for a degree: MATH 221, MATH 251, or MATH 253. **Prerequisite:** MATH 148, MATH 152, or MATH 172.

MATH 281 Seminar in Mathematics

Credit 1. 1 Lecture Hour. Designed to familiarize students with mathematics pertaining to real world applications in such areas as biology, signal processing, quantum computation and robotics. May be taken four times for credit.

MATH 285 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Special problems not covered by any other lower-division course in the curriculum; intended for freshman and sophomore students. **Prerequisite:** Approval of department head.

MATH 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of mathematics. May be repeated for credit. **Prerequisite:** Approval of instructor.

MATH 291 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in mathematics. May be repeated 2 times for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

MATH 300 Foundations of Mathematics

Credits 3. 3 Lecture Hours. Foundations of mathematics including logic, set theory, combinatorics, and number theory. **Prerequisite:** Grade of C or better in MATH 148, MATH 152 or MATH 172, or equivalent.

MATH 302 Discrete Mathematics

Credits 3. 3 Lecture Hours. Formal structures for describing data, algorithms and computing devices; theory and applications of sets, graphs and algebraic structures. **Prerequisite:** MATH 148, MATH 152, or MATH 172.

MATH 304 Linear Algebra

Credits 3. 3 Lecture Hours. Introductory course in linear algebra covering abstract ideas of vector space and linear transformation as well as models and applications of these concepts, such as systems of linear equations, matrices and determinants; MATH 323 designed to be a more demanding version of this course. Only one of the following will satisfy the requirements for a degree: MATH 304, MATH 307, MATH 309, MATH 311, or MATH 323. **Prerequisite:** MATH 148, MATH 152, or MATH 172; junior or senior classification; also taught at Galveston campus.

MATH 307 Mathematical Methods for Material Scientists and Engineers

Credits 3. 3 Lecture Hours. Elementary ordinary differential equations and their solutions; series solutions of ordinary differential equations; linear algebra concepts covering systems of linear equations, matrices, determinants and eigenvalue problems; applications of the above topics in materials sciences and engineering. Only one of the following will satisfy the requirements for a degree: MATH 307 or MATH 308; MATH 304, MATH 307, MATH 309, MATH 311, or MATH 323. **Prerequisite:** MATH 221, MATH 251, or MATH 253, or concurrent enrollment.

MATH 308 Differential Equations

Credits 3. 3 Lecture Hours. Ordinary differential equations, solutions in series, solutions using Laplace transforms, systems of differential equations. Only one of the following will satisfy the requirements for a degree: MATH 307 or MATH 308. **Prerequisite:** MATH 221, MATH 251, or MATH 253, or concurrent enrollment; knowledge of computer algebra system; also taught at Galveston and Qatar campuses.

MATH 309 Linear Algebra for Differential Equations

Credits 3. 3 Lecture Hours. Systems of linear equations, matrices, determinants, vector spaces, linear transformations, eigenvalues and eigenvectors, diagonalization, inner product spaces, orthogonal functions, separation of variables, Fourier series, Bessel functions. Only one of the following will satisfy the requirements for a degree: MATH 304, MATH 307, MATH 309, MATH 311, or MATH 323. **Prerequisites:** MATH 221, MATH 251, or MATH 253; MATH 308 or concurrent enrollment; junior or senior classification or approval of instructor.

MATH 311 Topics in Applied Mathematics I

Credits 3. 3 Lecture Hours. Systems of linear equations, matrices, determinants, vector spaces, linear transformations, eigenvalues and eigenvectors, diagonalization, inner product spaces, orthogonal functions; vector analysis, including gradient, divergence, curl, line and surface integrals, Gauss', Green's and Stokes' theorems. Only one of the following will satisfy the requirements for a degree: MATH 304, MATH 307, MATH 309, MATH 311, or MATH 323. **Prerequisites:** MATH 221, MATH 251, or MATH 253; MATH 308 or concurrent enrollment; junior or senior classification or approval of instructor; also taught at Galveston and Qatar campuses.

MATH 323 Linear Algebra

Credits 3. 3 Lecture Hours. Linear equations and matrices; real vector spaces, linear transformations, change of bases, determinants, eigenvalues and eigenvectors, diagonalization, inner products; designed to include more theory and be more demanding than MATH 304. Only one of the following will satisfy the requirements for a degree: MATH 304, MATH 307, MATH 309, MATH 311, or MATH 323. **Prerequisites:** MATH 148, MATH 152 or MATH 172; MATH 300; junior or senior classification or approval of instructor.

MATH 325 The Mathematics of Interest

Credits 3. 3 Lecture Hours. The mathematical theory associated with interest; annuities; sinking funds and amortization; coupon bonds; valuation of noncallable bonds; yield to maturity; yield curve; spot rates and forward rates; internal rate of return; duration and convexity; portfolio immunization. **Prerequisite:** MATH 152 or MATH 172.

MATH 365 Structure of Mathematics I

Credits 3. 3 Lecture Hours. Logic, sets, relations, functions, whole numbers, numeration systems, integers, number theory, rational numbers, real numbers, and algebraic topics with an emphasis on problem solving, critical thinking, and mathematical communication; intended primarily for EC-8 teacher certification. **Prerequisites:** Grade of C or better in MATH 135 and MATH 136, or equivalents, or approval of instructor.

MATH 366 Structure of Mathematics II

Credits 3. 3 Lecture Hours. Euclidean geometry, measurement, coordinate geometry, and trigonometry with an emphasis on problem solving, critical thinking, and mathematical communication; intended primarily for EC-8 teacher certification. **Prerequisites:** Grade of C or better in MATH 365 or approval of instructor.

MATH 367 Structure of Mathematics III

Credits 3. 3 Lecture Hours. Euclidean geometry, coordinate geometry, and elementary calculus concepts with an emphasis on problem solving, critical thinking, proofs, and mathematical communication; intended primarily for 4-8 teacher certification. **Prerequisites:** Grade of C or better in MATH 366 or approval of instructor.

MATH 375 Intermediate Real Analysis

Credits 3. 3 Lecture Hours. Development of the real numbers, limits, foundations and major theorems of calculus. Designed primarily for mathematics teacher certification. Others must have consent of instructor. **Prerequisite:** MATH 300 or equivalent.

MATH 376 Intermediate Abstract Algebra

Credits 3. 3 Lecture Hours. Relations, functions, binary operators, rings, homomorphisms, integral domains and fields. Designed primarily for mathematics teacher certification. Others must have consent of instructor. **Prerequisites:** MATH 300 or MATH 302; MATH 304 or equivalent.

MATH 396 Communications in Mathematics

Credit 1. 1 Lecture Hour. Electronic, written, and oral communications in mathematics. **Prerequisites:** MATH 300, junior or senior classification, and mathematics major.

MATH 401 Advanced Engineering Mathematics

Credits 3. 3 Lecture Hours. Engineering mathematics including Perturbation Theory, Fourier series and partial differential equations. Designed primarily for engineering majors. Others must have consent of instructor. **Prerequisite:** MATH 308; also taught at Galveston campus.

MATH 403 Mathematics and Technology

Credits 3. 3 Lecture Hours. Mathematical problem-solving and communication through the use of various technologies (both hardware and software). Intended primarily, but not limited to, students working toward teacher certification. **Prerequisite:** Grade of C or better in MATH 467.

MATH 407 Complex Variables

Credits 3. 3 Lecture Hours. Fundamental theory of analytic functions, including residues and their applications. **Prerequisite:** MATH 221, MATH 251, or MATH 253.

MATH 409 Analysis on the Real Line

Credits 3. 3 Lecture Hours. Cardinality; properties of the real numbers; the completeness axiom; sequences and series; continuity and uniform continuity; differentiation; the Riemann integral. **Prerequisites:** MATH 300; MATH 221, MATH 251 or MATH 253.

MATH 410 Multivariate Real Analysis

Credits 3. 3 Lecture Hours. Differential and integral calculus of functions defined on $\mathbb{R}^m$ including inverse and implicit function theorems and change of variable formulas for integration; uniform convergence. **Prerequisites:** MATH 304 or MATH 323; grade of C or better in MATH 409.

MATH 411 Mathematical Probability

Credits 3. 3 Lecture Hours. Probability spaces, discrete and continuous random variables, special distributions, joint distributions, expectations, law of large numbers, the central limit theorem. **Prerequisite:** MATH 221, MATH 251, or MATH 253.

MATH 412 Theory of Partial Differential Equations

Credits 3. 3 Lecture Hours. Formulation and solution of partial differential equations of mathematical physics; Fourier series and transform methods, complex variable methods, methods of characteristics and first order equations. **Prerequisite:** MATH 308 or approval of instructor.

MATH 414 Fourier Series and Wavelets

Credits 3. 3 Lecture Hours. Fourier series and wavelets with applications to data compression and signal processing. **Prerequisite:** MATH 304, MATH 309, MATH 311, or MATH 323; also taught at Qatar campus.

MATH 415 Modern Algebra I

Credits 3. 3 Lecture Hours. A study of groups, rings, fields with emphasis on the theoretical aspects and proofs. **Prerequisite:** MATH 300; MATH 304, MATH 309, MATH 311, or MATH 323.

MATH 416 Modern Algebra II

Credits 3. 3 Lecture Hours. Continuation of topics introduced in MATH 415 including Galois Theory and the Sylow Theorems with emphasis on the theoretical aspects. **Prerequisite:** MATH 415; junior or senior classification.

MATH 417 Numerical Methods

Credits 4. 3 Lecture Hours. 3 Lab Hours. Numerical methods for applications; qualitative discussion of convergence and stability properties; computer implementation; interpolation and quadrature, initial value problems, matrix decompositions, interactive solution of linear and non-linear systems, least squares approximation, boundary value problems for ordinary differential equations. Only one of the following will satisfy the requirements for a degree: MATH 417 or MATH 437. **Prerequisites:** MATH 304, MATH 309, MATH 311, or MATH 323; MATH 308; ability to program; junior or senior classification.

MATH 419 Applications of Actuarial Science

Credits 3. 3 Lecture Hours. Applications of actuarial science using mathematical and statistical methods to assess risk in the insurance and finance industries; emphasis on probability, statistics, finance and economics; focus on using probabilistic models in the estimation of insurance premiums. **Prerequisite:** MATH 411 or STAT 414 or approval of math advisor.

MATH 420 Application of Actuarial Science II

Credits 2. 2 Lecture Hours. Use of mathematical and statistical methods to price various financial instruments, such as bonds; understanding how the term structure of interest rates affect the price of these instruments. **Prerequisite:** MATH 325 or concurrent enrollment, or approval of instructor.

MATH 423 Linear Algebra II

Credits 3. 3 Lecture Hours. Eigenvalues, similarity and canonical forms, advanced topics to be chosen by the instructor. **Prerequisites:** MATH 300 or CSCE 222/ECEN 222; MATH 304 or MATH 323, or approval of instructor.

MATH 424/STAT 424 Probability and Computing

Credits 3. 3 Lecture Hours. Applications of modern probability in data science, with an emphasis on randomization and the role of probabilistic techniques in computing; discrete random variables and expectation; deviation inequalities and applications to randomized algorithms; probabilistic methods and satisfiability; Monte Carlo method; sample complexity; combinatorial dimension. **Prerequisites:** MATH 304, MATH 309, MATH 311, or MATH 323; MATH 411 or STAT 414. **Cross Listing:** STAT 424/MATH 424.

MATH 425 The Mathematics of Contingent Claims

Credits 3. 3 Lecture Hours. The mathematical theory associated with asset price dynamics; binomial pricing models; Black-Scholes analysis; hedging; volatility smile; implied volatility trees; implied binomial trees. **Prerequisites:** MATH 308; MATH 411, STAT 211 or STAT 414.

MATH 427 Introduction to Number Theory

Credits 3. 3 Lecture Hours. Prime and composite integers; Euclidean algorithm; modular arithmetic; Chinese remainder theorem; unique factorization; quadratic reciprocity; Riemann zeta function; representation of numbers as a sum of squares. **Prerequisites:** MATH 300; MATH 304 or MATH 323.

MATH 431 Structures and Methods of Combinatorics

Credits 3. 3 Lecture Hours. Enumerative techniques generating functions, partially ordered sets, elementary graph theory, elementary Ramsey theory. **Prerequisite:** MATH 300 or MATH 302 or approval of instructor; also taught at Galveston.

MATH 433 Applied Algebra

Credits 3. 3 Lecture Hours. An introduction to groups, rings, fields with emphasis on modular arithmetic; applications to number theory, coding theory, and other areas. **Prerequisites:** MATH 300 or MATH 302; MATH 304 or MATH 323.

MATH 436 Introduction to Topology

Credits 3. 3 Lecture Hours. Metric spaces; continuity of metric spaces; topological spaces; basic notions; separation axioms; compactness; local compactness; connectedness; basic notions in homotopy theory; quotient spaces, paracompactness and topological manifolds. **Prerequisite:** MATH 409.

MATH 437 Principles of Numerical Analysis

Credits 4. 3 Lecture Hours. 3 Lab Hours. Mathematical principles of numerical analysis and their application to the study of particular methods; fixed-point iteration, Newton's method; normed vector spaces and operators, Schur decomposition, convergent matrices, minimization methods, conjugate gradient method; polynomial interpolation of Lagrange and Hermite; best approximation, Bernstein and Weierstrass Theorems, numerical quadrature. Only one of the following will satisfy the requirements for a degree: MATH 417 or MATH 437. **Prerequisites:** MATH 304, MATH 309, MATH 311, or MATH 323; MATH 308; grade of C or better in MATH 409; ability to program; junior or senior classification.

MATH 439 Differential Geometry of Curves and Surfaces

Credits 3. 3 Lecture Hours. Local and global theory of parameterized curves; regular surfaces, local coordinates, first fundamental form, orientation, area; Gauss map, second fundamental form; Gauss Bonnet theorem; additional topics to be selected by the instructor. **Prerequisites:** MATH 308; MATH 304 or MATH 323.

MATH 442 Mathematical Modeling

Credits 3. 3 Lecture Hours. The construction of mathematical models from areas such as economics, game theory, integer programming, mathematical biology and mathematical physics. **Prerequisites:** MATH 304, MATH 309, MATH 311, or MATH 323; MATH 308 or equivalent.

MATH 446 Analysis on Metric Spaces

Credits 3. 3 Lecture Hours. Review of analysis on the real line; topology of metric spaces; completeness; compact and connected spaces; properties of the space of continuous functions; convergence and approximation; other topics may include the Baire Category theorem, the Stone-Weierstrass theorem, or Fourier series. **Prerequisites:** MATH 304, MATH 309, MATH 311, or MATH 323; grade of C or better in MATH 409; junior or senior classification.

MATH 447 Integration and Measure Theory

Credits 3. 3 Lecture Hours. Functions of bounded variation; Riemann-Stieltjes integration; Lebesgue measure and measurable functions; Lebesgue integration and L^p spaces; convergence of Fourier series; other topics may include the Stone-Weierstrass theorem and convergence in measure. **Prerequisites:** MATH 304, MATH 309, MATH 311, or MATH 323; MATH 446, or MATH 410 and MATH 436.

MATH 460 Tensors and General Relativity

Credits 3. 3 Lecture Hours. Vectors and tensors in special relativity, curvature, manifolds, covariant differentiation, Einstein field equations, Schwarzschild geometry and black holes, cosmology, gauge field theories. **Prerequisites:** MATH 308; PHYS 331 or MATH 323 or MATH 311; junior or senior classification.

MATH 467 Modern Geometry

Credits 3. 3 Lecture Hours. Modern development of Euclidean geometry (Hilbert axioms) with historical and philosophical context; independence of the parallel postulate; models of hyperbolic non-Euclidean geometry. **Prerequisite:** Grade of C or better in MATH 304, MATH 309, MATH 311, MATH 300 or MATH 323.

MATH 469 Introduction to Mathematical Biology

Credits 3. 3 Lecture Hours. Introduction to mathematical modeling techniques in the biological sciences; continuous versus discrete models; deterministic versus stochastic models; includes population dynamics and ecology, spread of infectious diseases, population genetics and evolution, spatial pattern formation. **Prerequisites:** MATH 304 or MATH 323; MATH 308 or equivalent.

MATH 470 Communications and Cryptography

Credits 3. 3 Lecture Hours. Introduction to coded communications, digital signatures, secret sharing, one-way functions, authentication, error control and data compression. **Prerequisites:** MATH 304, MATH 309, MATH 311, or MATH 323; CSCE 110, CSCE 111, CSCE 120, CSCE 206, ENGR 102, or ENGR 112; approval of instructor.

MATH 471 Communications and Cryptography II

Credits 3. 3 Lecture Hours. Additional topics in coded communications; information and entropy, elliptical curves, error corrections, quantum methods. **Prerequisites:** MATH 470 or consent of instructor.

MATH 472 Elliptic Curve Cryptography

Credits 3. 3 Lecture Hours. Theory of the group law on elliptic curves with applications to problems in cryptography; elliptic curves over finite fields, rational numbers, real and complex numbers; elliptic curve based cryptosystems, digital signatures, and factorization methods. **Prerequisites:** MATH 415 or MATH 433.

MATH 478 Topological Data Analysis

Credits 3. 3 Lecture Hours. Topological Data Analysis with a view toward persistent homology of point clouds for applications to data analysis; homology of simplicial complexes over a field; functorial clustering methods; persistent homology; real-world applications to data analysis. **Prerequisites:** MATH 304, MATH 309, MATH 311, or MATH 323.

MATH 482 Research Seminar

Credits 3. 3 Lecture Hours. Problems, methods and recent developments in mathematics, with emphasis on projects, and written and oral presentations. **Prerequisites:** MATH 409 or MATH 415 ; MATH 304, MATH 309, MATH 311 or MATH 323; junior or senior classification; approval of instructor.

MATH 485 Directed Studies

Credits 1 to 8. 1 to 8 Other Hours. Special problems in mathematics not covered by any other course in the curriculum. Work may be in either theory or laboratory. **Prerequisite:** Approval of department head; also taught at Galveston campus.

MATH 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of mathematics. May be repeated for credit. **Prerequisite:** Approval of instructor; also taught at Galveston campus.

MATH 490 The Putnam Challenge

Credit 1. 1 Lecture Hour. Intensive individualized training for preparation for the Putnam Exam, a national contest for mathematics majors. May be taken four times for credit. **Prerequisites:** Approval of instructor; junior or senior classification.

MATH 491 Research

Credits 0 to 3. 0 to 3 Other Hours. Active research of basic nature under supervision of Department of Mathematics or affiliated department graduate faculty member; a maximum of 6 hours of credit can be used in degree plans. Registration in multiple sections of this course is possible within a given semester provided that the per semester credit hour limit is not exceeded. **Prerequisites:** Mathematics or applied mathematical sciences major or minor; junior or senior classification or approval of mathematics advisor; also taught at Galveston campus.

MEEN - Mechanical Engineering (MEEN)

MEEN 210 Geometric Modeling for Mechanical Design

Credits 2. 1 Lecture Hour. 2 Lab Hours. Foundations of geometric modeling as applied to mechanical design through use of modern computer-aided design (CAD) and physical prototyping tools; basics of systematic design methodology; geometric visualization concepts: multiview orthographic, isometric, oblique, perspective; three-dimensional representations, surface and solid modeling; dimensioning and tolerancing; rapid prototyping using 3D printing. **Prerequisite:** Mechanical engineering major; grade of C or better in ENGR 102.

MEEN 221 Statics and Particle Dynamics

Credits 3. 3 Lecture Hours. Application of the fundamental principles of Newtonian mechanics to the statics and dynamics of particles; equilibrium of trusses, frames, beams and other rigid bodies. **Prerequisites:** For non-mechanical engineering majors; admission to an engineering major; Grade of C or better in PHYS 206 or PHYS 218; grade of C or better in MATH 251 or MATH 253, or concurrent enrollment.

MEEN 222/MSEN 222 Materials Science

Credits 3. 3 Lecture Hours. Mechanical, optical, thermal, magnetic and electrical properties of solids; differences in properties of metals, polymers, ceramics and composite materials in terms of bonding and crystal structure. **Prerequisites:** Grade of C or better in CHEM 107 or CHEM 119; grade of C or better in PHYS 206. **Cross Listing:** MSEN 222/MEEN 222.

MEEN 223 Principles of Materials and Manufacturing

Credits 2. 2 Lecture Hours. Structures of metals, polymers and ceramics, including structure-mechanical property relationships; defects and diffusion in materials; basic machining theory and processes, including geometric dimensioning and tolerancing (GD&T); overview of manufacturing processes for metals and polymers, including additive technologies. **Prerequisite:** Grade of C or better in CHEM 120, or CHEM 107 and CHEM 117; grade of C or better in PHYS 206.

MEEN 225 Engineering Mechanics

Credits 3. 3 Lecture Hours. Application of the laws of classical mechanics to simplified, plausibly real world problems or interest to mechanical engineering, including the analysis of cables, frames, trusses, beams, machines and mechanisms. **Prerequisite:** Mechanical engineering major; grade of C or better in PHYS 206; grade of C or better in MATH 251 or MATH 253, or concurrent enrollment.

MEEN 260 Mechanical Measurements

Credits 3. 2 Lecture Hours. 3 Lab Hours. Introduction to the basic principles of engineering experimentation including: instrumentation and measurement techniques, signal processing and data acquisition, statistical data analysis, and interpretation and reporting of results. **Prerequisite:** Grade of C or better in STAT 211; Grade of C or better in ECEN 215, MATH 308 and MEEN 315, or concurrent enrollment.

MEEN 285 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Directed studies in specific problem areas of mechanical engineering. **Prerequisites:** MEEN classification; approval by instructor and department head or delegate.

MEEN 289 Special Topics in...

Credits 0 to 4. 0 to 4 Other Hours. Selected topics in an identified area of mechanical engineering. May be repeated for credit. **Prerequisite:** Approval of instructor.

MEEN 291 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of faculty member in mechanical engineering. May be repeated 2 times for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

MEEN 305 Solid Mechanics

Credits 3. 3 Lecture Hours. Applications of stress and deformation relationships for deformable bodies and mechanical elements relevant to mechanical engineers; to include axially loaded members, stability of columns, torsional members and beams, failure theories, combined loadings; introduction to structural design. **Prerequisite:** Grade of C or better in MEEN 225; grade of C or better in MEEN 210 or concurrent enrollment.

MEEN 315 Principles of Thermodynamics

Credits 3. 3 Lecture Hours. Theory and application of energy methods in engineering; conservation of mass and energy; energy transfer by heat, work and mass; thermodynamic properties; analysis of open and closed systems; the second law of thermodynamics and entropy; gas, vapor and refrigeration cycles. **Prerequisite:** Grade of a C or better in MEEN 221 or MEEN 225; grade of a C or better in MATH 251 or MATH 253.

MEEN 344 Fluid Mechanics

Credits 3. 3 Lecture Hours. Application of laws of statics, buoyancy, stability, energy and momentum to behavior of ideal and real fluids; dimensional analysis and similitude and their application to flow through ducts and piping; lift and drag and related problems. **Prerequisite:** Grade of C or better in MEEN 315 and MATH 308.

MEEN 345 Fluid Mechanics Laboratory

Credit 1. 3 Lab Hours. Introduction to basic fluid mechanics instrumentation; experimental verification and reinforcement of the analytical concepts introduced in MEEN 344. **Prerequisites:** Grade of C or better in MEEN 260; grade of C or better in MEEN 344 or concurrent enrollment.

MEEN 357 Engineering Analysis for Mechanical Engineers

Credits 3. 3 Lecture Hours. Practical foundation for the use of numerical methods to solve engineering problems; error estimation, Taylor series, numerical solution of linear and non-linear algebraic and differential equations; introduction to engineering optimization. **Prerequisite:** Grade of C or better in MATH 308.

MEEN 360 Materials and Manufacturing Selection in Design

Credits 3. 3 Lecture Hours. Selecting materials and manufacturing processes in design; emphasis on mechanical properties of materials; microstructure production and control; manufacturing processes for producing various classes of materials. **Prerequisite:** Grade of C or better in MEEN 223 and MEEN 260.

MEEN 361 Materials and Manufacturing in Design Laboratory

Credit 1. 3 Lab Hours. Experiments in materials characterization and manufacturing processes; emphasis on material mechanical properties; microstructure production and control; manufacturing processes for producing various shapes for components and structures. **Prerequisite:** Grade of C or better in MEEN 210 and MEEN 260; grade of C or better in MEEN 360 or concurrent enrollment.

MEEN 363 Dynamics and Vibrations

Credits 3. 2 Lecture Hours. 2 Lab Hours. Application of Newtonian and energy methods to model dynamic systems (particles and rigid bodies) with ordinary differential equations; solution of models using analytical and numerical approaches; interpreting solutions; linear vibrations. **Prerequisite:** Grade of C or better in MEEN 225 or MEEN 221, and MATH 308; grade of a C or better in MEEN 357 and MEEN 305, or concurrent enrollment.

MEEN 364 Dynamic Systems and Controls

Credits 3. 3 Lecture Hours. Mathematical modeling and analysis of different types of dynamic systems; introduction to feedback control, time and frequency domain analysis of control systems, stability, PID control, root locus; design of computer-based controllers. **Prerequisite:** Grade of C or better in MEEN 260, MEEN 363, and ECEN 215.

MEEN 365 Dynamic Systems and Controls Lab

Credit 1. 0 Lecture Hours. 3 Lab Hours. Introduction to basic control systems instrumentation; experimental verification of control system concepts; implementation of computer-based controllers; data acquisition and analysis. **Prerequisite:** Grade of C or better in MEEN 260, MEEN 363, and ECEN 215; grade of C or better in MEEN 364, or concurrent enrollment.

MEEN 368 Solid Mechanics in Mechanical Design

Credits 3. 2 Lecture Hours. 2 Lab Hours. Design of structural/mechanical members for stiffness, strength and stability under a variety of loading conditions; use of Static and Fatigue Failure Theories to estimate life of components. **Prerequisite:** Grade of a C or better in MEEN 305; grade of C or better in MEEN 210, or concurrent enrollment.

MEEN 381 Seminar

Credit 1. 2 Other Hours. Presentations by practicing engineers and faculty addressing: effective communications, engineering practices, professional registration, ethics, career-long competence, contemporary issues, impact of technology on society and being informed; preparation of a resume, a lifelong learning plan, two papers, two oral presentations and complete an online assessment of the mechanical engineering program. **Prerequisite:** Major in mechanical engineering.

MEEN 399 High Impact Experience for Mechanical Engineers

Credits 0. 0 Other Hours. Participation in an approved high-impact learning practice; reflection on professional outcomes from engineering body of knowledge; documentation and self-assessment of learning experience at mid-curriculum point. **Prerequisite:** Junior or senior classification.

MEEN 401 Introduction to Mechanical Engineering Design

Credits 3. 2 Lecture Hours. 3 Lab Hours. The design innovation process; need definition, functional analysis, performance requirements and evaluation criteria, conceptual design evaluation, down-selected to an embodiment; introduction to systems and concurrent engineering; parametric and risk analysis, failure mode analysis, material selection, and manufacturability; cost and life cycle issues, project management. **Prerequisite:** Grade of C or better in MEEN 360, MEEN 361; grade of C or better in MEEN 364, MEEN 365, MEEN 368, MEEN 461, and MEEN 464, or concurrent enrollment.

MEEN 402 Intermediate Design

Credits 3. 2 Lecture Hours. 3 Lab Hours. Product detail design and development process including case studies; project management, marketing considerations, manufacturing, detailed design specifications; failure modes, application of codes and standards, selection of design margins; product (component) development guidelines; intellectual property, product liability and ethical responsibility. **Prerequisite:** Grade of C or better in MEEN 401.

MEEN 404 Engineering Laboratory

Credits 3. 2 Lecture Hours. 3 Lab Hours. Systematic design of experimental investigations; student teams identify topics and develop experiment designs including: establishing the need; functional decomposition; requirements; conducting the experiment; analyzing and interpreting the results and written and oral reports documenting the objectives, procedure, analysis, and results and conclusion of two or three experiments. **Prerequisites:** Grade of C or better in MEEN 360, MEEN 361, MEEN 364 and MEEN 461; grade of C or better in MEEN 401 or concurrent enrollment.

MEEN 406 Energy Management in Industry

Credits 3. 3 Lecture Hours. Energy systems and components frequently encountered in industrial environments; application of basic principles of thermodynamics, heat transfer, fluid mechanics and electrical machinery to the analysis and design of industrial system components and systems; improved energy utilization. **Prerequisites:** Grade of C or better in MEEN 260 and MEEN 315.

MEEN 407/AERO 438 Intuitive and Counter-Intuitive Mechanisms

Credits 3. 2 Lecture Hours. 2 Lab Hours. Spatial descriptions and transformations; forward and inverse kinematics of mechanical manipulators; manipulation; dexterity and manipulability; principles of manipulator-mechanism design; mobility; motion planning; control, reachability and complexity measures; workspace analysis. **Prerequisites:** Senior classification. **Cross Listing:** AERO 438/MEEN 407.

MEEN 408 Mechanics of Robotic Manipulators

Credits 3. 3 Lecture Hours. Forward and inverse kinematics and differential kinematics of robot manipulators, path planning, motion planning, dynamics of robot manipulators and control algorithms; PD/PID control, computed torque algorithm. **Prerequisites:** MEEN 364 or equivalent; junior or senior classification.

MEEN 410 Internal Combustion Engines

Credits 3. 3 Lecture Hours. Thermodynamics of cycles for internal combustion engines and gas turbines, including fuels and combustion; performance characteristics of various types of engines. **Prerequisite:** MEEN 344 or equivalent.

MEEN 411 Mechanical Controls

Credits 3. 3 Lecture Hours. Application of classical and modern control theory techniques to modeling, analysis and synthesis of linear, mechanical control systems. **Prerequisites:** Grade of C or better in MEEN 364.

MEEN 417/NUEN 417 Basics of Plasma Engineering and Applications

Credits 3. 3 Lecture Hours. Basic plasma properties and confinement techniques; single particle orbits in electric and magnetic fields, moments of Boltzmann equation and introduction to fluid theory; wave phenomena in plasmas and introduction to plasma kinetic theory; analysis of laboratory plasmas and plasma applications including fusion, electric propulsion, materials processing and plasmas enhanced chemistry. **Prerequisites:** Grade of C or better in PHYS 207 or equivalent; senior classification in nuclear, mechanical or aerospace engineering, or physics. **Cross Listing:** NUEN 417/MEEN 417.

MEEN 421 Thermal-Fluids Analysis and Design

Credits 3. 3 Lecture Hours. Integration of thermodynamics, fluid mechanics and heat transfer through application to the design of various thermal systems comprised of several components requiring individual analyses; analysis of the entire system; representative applications of thermal-fluids analysis with a design approach. **Prerequisite:** Grade of C or better in MEEN 461.

MEEN 423 Machine Learning for Mechanical Engineers

Credits 3. 3 Lecture Hours. Machine learning techniques with applications to the analysis and design of mechanical, fluid, thermal, material and multidisciplinary systems; linear and kernel support vector machines; neural networks; Bayesian techniques; decision trees and random forests; dimension reduction and model selection; data management and learner validation strategies; tools and application studies. **Prerequisite:** Grade of C or better in MEEN 357.

MEEN 431 Advanced System Dynamics and Controls

Credits 3. 3 Lecture Hours. Unified framework for modeling, analysis, synthesis, design and simulation of mechanical systems with energy exchange across multiple domains; study of mechanical, electrical, hydraulic and thermal subsystems; Newtonian mechanics, rigid body dynamics, multiple degrees of freedom vibrations and control system design. **Prerequisites:** MEEN 364; junior or senior classification.

MEEN 432 Automotive Engineering

Credits 3. 3 Lecture Hours. Introduction to vehicle dynamics; application of engineering mechanics principles to analysis of acceleration and braking, cornering and handling; analysis and design of drive train, suspension, brakes, and tires to achieve desired performance. **Prerequisite:** MEEN 363.

MEEN 433 Mechatronics

Credits 3. 2 Lecture Hours. 3 Lab Hours. Basic principles of digital logic and analog circuits in mechanical systems; electrical-mechanical interfacing; sensors and actuators; digital control implementation; precision design and system integration. **Prerequisite:** MEEN 364 or equivalent.

MEEN 434 Dynamics and Modeling of Mechatronic System

Credits 3. 3 Lecture Hours. Mechatronic interactions in lumped parameter and continuum systems; review of integral and differential electromagnetic laws, including motions; lumped elements and dynamic equations of motion; linear and nonlinear actuators and transducers; field transformation and moving media; electromagnetic force densities and stress tensors. **Prerequisite:** MEEN 364.

MEEN 435 Compressed Air Systems

Credits 3. 3 Lecture Hours. Basic principles, thermodynamics, and performance of compressed air systems including various components, such as compressors, reciprocating, rotary, centrifugal, and axial, prime movers, coolers, intercoolers, aftercoolers, dryers, heat recovery, receivers, separators, filters, regulators, fault detectors, controllers etc.; exploration of performance and analysis and operating principles for both systems and components, energy consumption and economic analysis for system design and operation. **Prerequisite:** Grade of C or better in MEEN 315 or equivalent; junior or senior classification.

MEEN 436 Principles of Heating, Ventilating and Air Conditioning

Credits 3. 3 Lecture Hours. Application of thermodynamics fluid mechanics, and heat transfer to the design of HVAC equipment; selection of equipment, piping and duct layouts. **Prerequisite:** Grade of a C or better in MEEN 344 or equivalent.

MEEN 437 Principles of Building Energy Analysis

Credits 3. 3 Lecture Hours. Analysis of building energy use by applying thermodynamics and heat transfer to building heating and cooling load calculations; heat balance and radiant time series calculation methods; psychometric analysis, indoor air quality, effect of solar radiation on heating and cooling of buildings; required design project. **Prerequisites:** MEEN 315 or equivalent; junior or senior classification.

MEEN 439 Solar Energy Engineering

Credits 3. 3 Lecture Hours. Solar energy; solar angles and radiation; solar thermal systems; solar water heating and space heating; concentrated solar power; energy storage; solar photovoltaics; solar cell manufacturing; other solar energy technologies. **Prerequisite:** MEEN 315.

MEEN 440 Bio-inspired Engineering Design

Credits 3. 3 Lecture Hours. Expand design space available to engineering by developing and understanding of how nature solves problems; study of effective bio-inspired design and biomimetic applications to draw solutions from nature; enhance concept generation through the use of bio-inspired design; use current state of the art methods in bioinspired design; view nature's solutions to different problems from an engineering perspective. **Prerequisite:** MEEN 368, BMEN 361, or BAEN 375.

MEEN 441 Design of Mechanical Components and Systems

Credits 3. 3 Lecture Hours. Design of machine elements, characteristics of prime movers, loads and power transmission elements as related to mechanical engineering design. **Prerequisite:** MEEN 368.

MEEN 442 Computer Aided Engineering

Credits 3. 3 Lecture Hours. Effective and efficient use of modern computer hardware and software in modeling, design, and manufacturing; simulation of a broad spectrum of mechanical engineering problems. **Prerequisites:** Grade of C or better in MEEN 363 and MEEN 368.

MEEN 444 Finite Element Analysis in Mechanical Engineering

Credits 3. 3 Lecture Hours. Introduction to basic theory and techniques; one- and two-dimensional formulations for solid mechanics applications; direct and general approaches; broader aspects for field problems; element equations, assembly and solution schemes; computer implementation, programming and projects; error sources and application consideration. **Prerequisites:** MEEN 357 and 368 or equivalents.

MEEN 445 Mechanics of Compliant Materials

Credits 3. 3 Lecture Hours. Study of mechanics; three-dimensional analysis tools and techniques needed to model linear behavior of fluids and solids in response to imposed loads and deformations. **Prerequisite:** Grade of C or better in MEEN 344.

MEEN 451 Viscoelastic Materials

Credits 3. 3 Lecture Hours. Mechanical and mathematical basis for modeling linear viscoelastic materials which focus on polymeric solid materials; characterization of viscoelastic material properties from experimental tests; applications of stress and deformation relationships for viscoelastic structural members subjected to axial, torsional, and bending loads. **Prerequisites:** Grade of C or better in MEEN 368.

MEEN 453 Additive and Subtractive Processes in Custom Manufacturing

Credits 3. 3 Lecture Hours. Machining theory; traditional and non-traditional machining processes; CNC machines and tools; geometric dimensioning and tolerance (GD&T); additive manufacturing systems and processes; materials in additive manufacturing. **Prerequisites:** Grade of C or better in MEEN 360 and MEEN 361, or equivalent.

MEEN 454 Tribology-Mechanical Interface Design

Credits 3. 3 Lecture Hours. History and significance of tribology, rough surfaces, hertzian contact, rough surfaces in contact, friction of surfaces in contact, surface failures/wear, boundary lubrication, fluid properties, thick film lubrication, thin film lubrication, micro- and nano-tribology. **Prerequisites:** Grade of C or better in MEEN 344 and MEEN 368.

MEEN 455 Engineering with Plastics

Credits 3. 3 Lecture Hours. Polymer structure, processing, property characterization at the molecular, microscopic and macroscopic dimensional levels for thermosets, thermoplastics, elastomers, fibers and advanced fibrous nonparticle filled composites and smart multi-performance structures. **Prerequisite:** Grade of C or better in MEEN 360 or MSEN 222/MEEN 222.

MEEN 458 Processing and Characterization of Polymers

Credits 3. 3 Lecture Hours. Introduction of flow behavior in polymers; structure-property-process relationship; mixing rules for polymer blends; mechanical properties; laboratory demonstrations: injection molding, extrusion, melt mixing, and study of morphology using OM, SEM, and TEM. **Prerequisite:** Grade of C or better in PHYS 206, CHEM 120, or CHEM 107.

MEEN 459 Sound and Vibration Measurements

Credits 3. 3 Lecture Hours. Basic acoustics, review of vibration theory, wave propagation in vibrating systems, sound radiation from vibrating systems, sound and vibration sensors and instrumentation, data acquisition systems, measurement techniques, spectral analysis, spatial FFT analysis, design of experiments with vibro-acoustic systems, applications. **Prerequisites:** MEEN 363; MATH 308.

MEEN 460 Corrosion Engineering

Credits 3. 3 Lecture Hours. Basic corrosion phenomena are described, including mixed potential theory, types of corrosion, experimental methods, and prevention techniques. **Prerequisite:** MEEN 360 and MEEN 361, or equivalent.

MEEN 461 Heat Transfer

Credits 3. 3 Lecture Hours. Heat transfer by conduction, convection and radiation: steady and transient conduction, forced and natural convection, and blackbody and gray body radiation; multi-mode heat transfer; boiling and condensation; heat exchangers. **Prerequisite:** Grade of C or better in MEEN 344.

MEEN 464 Heat Transfer Laboratory

Credit 1. 3 Lab Hours. Basic measurement techniques in conduction, convection, and radiation heat transfer; experimental verification of theoretical and semi-empirical results; uncertainty analysis. **Prerequisites:** Grade of C or better in MEEN 345; grade of C or better or MEEN 461 or concurrent enrollment.

MEEN 467 Mechanical Behavior of Materials

Credits 3. 3 Lecture Hours. Fundamentals of flow and fracture in metals, emphasizing safe design by anticipating response of materials to complex stress and environmental service conditions; micromechanisms of flow, fatigue, creep and fracture; fracture mechanics approach to design; special emphasis given to microstructure-mechanical property relationship and damage tolerant design. **Prerequisite:** MEEN 360 and MEEN 361.

MEEN 469 Alternative Energy Conversion

Credits 3. 3 Lecture Hours. Design and analysis of alternative energy conversion processes and systems that are based on converting energy directly (e.g., fuel cells, photovoltaics), utilizing non-combustible heat sources (e.g., geothermal, ocean gradients, solar and nuclear fission and fusion) and obtaining energy from the environment (e.g., wind, hydroelectric, ocean tides and waves). **Prerequisite:** MEEN 315.

MEEN 471 Elements of Composite Materials

Credits 3. 3 Lecture Hours. Fundamentals concerned with relating structure of multiphase materials to physical properties; plastic, metallic and ceramic matrices reinforced with continuous and discontinuous fibers, whiskers and particulates. **Prerequisites:** Grade of C or better in MEEN 360, MEEN 361, and MEEN 368.

MEEN 472 Gas Dynamics

Credits 3. 3 Lecture Hours. Fundamental analysis of compressible flows and its application to supersonic airfoils/projectiles, jet and rocket nozzles, normal and oblique shock waves, explosion waves, shock tubes, supersonic wind tunnels, and compressible pipe flows. **Prerequisite:** MEEN 344.

MEEN 475 Materials in Design

Credits 3. 3 Lecture Hours. The heuristics of synthesis of material properties, configuration and processing in the optimization of material selection in the design process; product design and development overview, failure mode effects analysis, design margin establishment; role of the generic failure modes and codes and standards; fundamental characteristics of process methods. **Prerequisites:** Grade of C or better in MEEN 360 and MEEN 361.

MEEN 477/BAEN 477 Air Pollution Engineering

Credits 3. 3 Lecture Hours. Design of air pollution abatement equipment and systems to include cyclones, bag filters and scrubbers; air pollution regulations; permitting; dispersion modeling; National Ambient Air Quality Standards. **Prerequisite:** Grade of C or better in BAEN 340, CVEN 311/ EVEN 311, EVEN 311/CVEN 311, or MEEN 344. **Cross Listing:** BAEN 477/ MEEN 477.

MEEN 483 Optical Techniques for Engineers

Credits 3. 3 Lecture Hours. Basics of geometrical and physical optics with an emphasis on topics that often arise in multidisciplinary engineering applications such as high-speed imaging, flow visualization, particle diagnostics, chemical sensing, materials characterization, precision measurements, and a host of other applications involving cameras and lasers; related fundamentals covered in-depth, while selected set of applications discussed to outline the depth and breadth of the field. **Prerequisites:** PHYS 206 or equivalent; senior classification.

MEEN 484 Internship

Credits 0 to 4. 0 to 4 Other Hours. Professional internship with a private entity, governmental agency, research institute, higher education institute, or other organizations that provide work or research experience related to mechanical engineering. **Prerequisites:** Junior or senior classification; approval of internship provider and instructor.

MEEN 485 Directed Studies

Credits 1 to 6. 1 to 6 Other Hours. Special problems relating to a specific project in some phase of mechanical engineering; a commitment of two semesters with 6 hours 485 credit is required. **Prerequisites:** Approval of department head and senior classification.

MEEN 489 Special Topics in...

Credits 1 to 4. 0 to 4 Lab Hours. 1 to 4 Other Hours. Selected topics in an identified area of mechanical engineering. **Prerequisite:** Approval of instructor.

MEEN 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in mechanical engineering. May be repeated 2 times for credit. Registration in multiple sections of this course is possible within a given semester provided that the per semester credit hour limit is not exceeded. **Prerequisites:** Junior or senior classification and approval of instructor.

MEEN 496 Laser Material Processing for Manufacturing

Credits 3. 3 Lecture Hours. Fundamentals on laser and thermal processing of materials, laser absorption and reflection, optical and radiative property of materials, thermal and non-thermal processes, numerical simulation of lasermaterial processing, applications in semiconductor manufacturing, additive manufacturing, and micro/nanomanufacturing. **Prerequisites:** Grade of C or better in MEEN 315.

MEEN 497 Innovation Mindset for Design and Research

Credits 3. 3 Lecture Hours. Exploration of the key behaviors of innovators and how to increase innovativeness in one's work; exploration of additional learning orientations, including Design Thinking and Lean experimentation, and Leadership practices to increase innovation in teams. **Prerequisite:** Junior or senior classification.

MEEN 498 Computational Fluid Dynamics for Engineering and Biological Applications

Credits 3. 3 Lecture Hours. Numerical techniques for solving engineering and biological problems; survey of relevant governing equations such as Navier-Stokes and biochemical and species transport equations, and methods to solve them; introduction of rigorous methods for analysis of the methods and their results; broad view of CFD. **Prerequisites:** Grade of C or better in MEEN 344 and MEEN 357.

MEFB - Mid Grds Ed Field Based (MEFB)

MEFB 351 Introduction to Middle Grades: Adolescent Development, Philosophy and Organization

Credits 3. 2 Lecture Hours. 6 Lab Hours. Study of young adolescents in domains of physical, social, emotional, cognitive, interpersonal, moral growth and development; organizational structure of middle schools supporting development of young adolescents through teaming and interdisciplinary work; investigates roles and responsibilities of middle level teachers. **Prerequisite:** Junior classification.

MEFB 450 Social Studies Methods in the Middle Grades

Credits 3. 2 Lecture Hours. 6 Other Hours. Trends and issues related to middle grades curriculum development and instruction in social studies and humanities; integration of content, planning, teaching-learning experiences; evaluation of teaching and learning in social studies.

Prerequisites: Concurrent enrollment in RDNG 470, RDNG 490, and MEFB 452; admission to teacher education; senior classification.

MEFB 452 Curriculum and Instruction for Middle Grades

Credits 3. 2 Lecture Hours. 6 Other Hours. (2-6). Study of educational theory and instructional strategies appropriate to middle grades education including planning and development of interdisciplinary and multidisciplinary curricula; student centered learning and methodologies.

Prerequisite: Admission to teacher education; junior or senior classification; concurrent enrollment in MEFB 450, RDNG 470, and RDNG 490 or MEFB 460, MEFB 470, and RDNG 490.

MEFB 460 Math Methods in Middle Grades

Credits 3. 2 Lecture Hours. 6 Other Hours. Examines theories, provides practice in teaching methods essential to successful mathematics learning; focuses on content and criteria central to teaching mathematics for understanding, skill development, and problem solving; readings, discussions, analyses; modeling and practicing mathematics teaching and learning. **Prerequisites:** MASC 351 and MASC 450; admission to teacher education; senior classification. **Corequisites:** MEFB 452, MEFB 470, RDNG 490.

MEFB 470 Science Methods in Middle Grades

Credits 3. 2 Lecture Hours. 6 Other Hours. Problems-based-learning course integrating science content, scientific inquiry skills and field-based instruction; technology-mediated teaching, learning, and assessment.

Prerequisites: Grade of C or better in MASC 320, MASC 420; concurrent enrollment in MEFB 460, MEFB 452, and RDNG 490; admission to teacher education; senior classification.

MEFB 497 Supervised Clinical Teaching

Credits 6. 30 Other Hours. Culmination of teaching education program; integration and application of knowledge and skills learned from program of study while clinical teaching in accredited schools with university supervision. Must be taken on a satisfactory/ unsatisfactory basis.

Prerequisites: Admission and retention in teacher education program; successful completion of all coursework; senior classification.

MEPS - Molecular & Env Plant Sci (MEPS)

MEPS 291 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of faculty member in molecular and environmental plant sciences. May be repeated 3 times for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

MEPS 485 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Individual problems or research not covered by other coursework. Report required. **Prerequisites:** Junior or senior classification and prior approval of instructor or department head.

MEPS 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of plant physiology. May be repeated for credit.

MEPS 491 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of faculty member in molecular and environmental plant sciences. May be repeated 3 times for credit. Registration in multiple sections of this course are possible within a given semester provided that the per semester credit hour limit is not exceeded. **Prerequisites:** Junior or senior classification and approval of instructor.

MGMT - Management (MGMT)

MGMT 209 Principles of Business Regulations and Law

Credits 3. 3 Lecture Hours. (BUSI 2301) Principles of Business Regulations and Law. Foundational information about the U.S. legal system and dispute resolution, and their impact on business; includes general principles of law, the relationship of business and the U.S. Constitution, state and federal legal systems, the relationship between law and ethics, contracts, sales, torts, agency law, intellectual property and business law in the global context. May not be used to satisfy degree requirements for majors in business. **Prerequisite:** Sophomore classification; for students other than business and agribusiness majors.

MGMT 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of business and management. May be repeated for credit. **Prerequisite:** Approval of instructor.

MGMT 309 Survey of Management

Credits 3. 3 Lecture Hours. Survey for non-business majors of the basic functions and responsibilities of managers; includes the environmental context of management, planning and decision making, organization structure and design, leading and managing people, and the controlling process; issues of globalization, ethics, quality and diversity integrated throughout the course. May not be used to satisfy degree requirements for majors in business. **Prerequisites:** Junior classification; for students other than business and agribusiness majors.

MGMT 311 Legal and Social Environment of Business

Credits 3. 3 Lecture Hours. Examination of legal and regulatory processes in the US and the effects of the governing process on the business world; critical evaluation of legal and social aspects of the business environment; analysis of legal and ethical principles and concepts from substantive and procedural areas of law; includes business entities, interaction of laws, constitutional law, contracts, agency law, consumer law, advertising, environmental law, anti-trust laws, employment relationships, diversity and discrimination, torts, alternate dispute resolution, trial procedures, international law. **Prerequisite:** Admission to upper division in Mays Business School, Agribusiness, or Maritime Business Administration; also taught at Galveston campus.

MGMT 312 Commercial Law for Accountants and Managers

Credits 3. 3 Lecture Hours. Continued examination of legal and regulatory laws affecting the business world; critical evaluation and analysis of legal and ethical principles and concepts in the areas of agency and employment law, business entities including all forms of partnerships, corporations and corporate governance, securities regulation, contract law, bankruptcy, property law, creditor collection laws and Uniform Commercial Code sections concerning contracts, security interests and negotiable instruments. **Prerequisite:** MGMT 311.

MGMT 363 Managing People in Organizations

Credits 3. 3 Lecture Hours. The role and importance of human behavior in organizations; models for understanding individual, group, and team dynamics, including individual differences, motivation, and leadership; managing organizational change; ethical issues in organizations; cross-cultural issues in managing people in organizations; the organizational context as determined by human resource management and organization design. **Prerequisites:** Admission to upper division in Mays Business School or Agribusiness.

MGMT 372 Advanced Concepts in Organizational Behavior

Credits 3. 3 Lecture Hours. Builds on the survey of organizational behavior in MGMT 363; review of core concepts and their application in organizational settings; includes personality and individual differences, job design, group and team dynamics, leadership and decision-making, conflict and cooperation, cross-cultural aspects of behavior in organizations. **Prerequisite:** MGMT 363.

MGMT 373 Managing Human Resources

Credits 3. 3 Lecture Hours. Strategic issues in managing human resources; shared responsibilities of line managers and human resource staff for developing and implementing human resource policies and procedures; human resource planning; job design, analysis and evaluation; staffing; compensation; performance appraisal; training and development; career management; labor relations; legal, ethical and international issues. **Prerequisite:** MGMT 363.

MGMT 376/SOCI 376 Entrepreneurial Perspectives

Credits 3. 3 Lecture Hours. Entrepreneurship as a career choice and its impact on society and economy; definitions of entrepreneurship; discovery of entrepreneurial opportunities and start-up funding; innovation and entrepreneurship theories for analyzing and predicting success of start-up and established entrepreneurial organizations. **Prerequisite:** Admission to upper division in Mays Business School. **Cross Listing:** SOCI 376/MGMT 376.

MGMT 421 Management Data Analytics and Visualization

Credits 3. 3 Lecture Hours. Exploration of organization, analysis, and evaluation of functional and strategic business data, including that related to employee recruitment and retention, individual and team performance, compensation, business processes, stakeholder impact, resource allocation and the like, using technology and communication of audience-focused, actionable insights through data storytelling; incorporation of advanced Excel and other tools applied to workplace issues and managerial decision-making, and enhances critical thinking, oral and written communication, and a technological skill set for combining data, narratives and visuals and engaging a defined audience in a story about the data. **Prerequisite:** MGMT 363.

MGMT 422 Management Consulting

Credits 3. 3 Lecture Hours. The field of management consulting from the perspective of both the individual consultant and the consulting firm; fundamentals of diagnosing situations, planning and executing assignments, client management, common mistakes and ethical issues in consulting including a variety of diagnostic and problem-solving methodologies. **Prerequisite:** MGMT 363.

MGMT 424 Organizational Design, Change and Development

Credits 3. 3 Lecture Hours. Aspects of effectively planning for and introducing changes in organizational structures and procedures based on environmental demands; examination of the successful management of organizational and behavioral changes, focusing on planned and unplanned changes, and emphasizing development of change strategies and measurement of change effectiveness. **Prerequisite:** MGMT 363.

MGMT 425 Human Resource Selection

Credits 3. 3 Lecture Hours. Theory and application of methods for the recruitment and selection of managerial, non-professional and professional employees; exposure to scientific issues such as reliability and validity, legal issues such as equal opportunity and affirmative action, and selection techniques such as interviews and testing. **Prerequisite:** MGMT 373.

MGMT 427 Human Resource Compensation

Credits 3. 3 Lecture Hours. Theories and techniques of designing and managing programs of direct compensation and benefits, including the role of rewards in motivation, job evaluation, pay discrimination and comparable worth, internal and external equity comparisons and benefit plans. **Prerequisite:** MGMT 373.

MGMT 430/WGST 430 Employment Discrimination Law

Credits 3. 3 Lecture Hours. Legal issues surrounding employment discrimination, including disparate treatment and impact; intent; affirmative action; sexual harassment; pregnancy, sex, race, religious, salary, disability, age, and ethnic discrimination; policy issues and perspectives to aid human resource specialists and managers. **Prerequisites:** Admission to upper division in Mays Business School and senior classification. **Cross Listing:** WGST 430/MGMT 430.

MGMT 432 Managing the Nonprofit Organization

Credits 3. 3 Lecture Hours. Broad trends shaping the nonprofit sector, a primary driver of social change and key player in society and the economy that provides an array of goods and services; complex management challenges that confront nonprofits as they balance their mission and values against the requirements of effective management with limited resources. **Prerequisite:** MGMT 363.

MGMT 435 Labor Law and Policy

Credits 3. 3 Lecture Hours. Federal and state public policy and laws regulating human resource management including National Labor Relations Act, Railway Labor Act, Fair Labor Standards Act, employment discrimination statutes, statutes regarding public sector unionization, and other relevant legal authorities; various forms of dispute settlement including litigation, mediation, fact finding and arbitration; legal ramifications of strategic human resource management decision making. **Prerequisites:** Admission to upper division in Mays Business School and senior classification.

MGMT 439 Negotiations

Credits 3. 3 Lecture Hours. Overview of the various theories and processes of negotiation relevant to the broad spectrum of negotiation problems faced by employees and managers, and in situations outside of organizations; discovery of optimal solutions to problems and means to implement solutions through classroom simulations, role playing and case studies. **Prerequisite:** MGMT 363.

MGMT 440 Creativity and Innovation in Business

Credits 3. 3 Lecture Hours. Examines factors that may foster or stifle individual, team, organizational creative performance; presents techniques that may improve creative thinking skills. **Prerequisite:** MGMT 363.

MGMT 450/IBUS 450 International Environment of Business

Credits 3. 3 Lecture Hours. Broad survey of international business issues; analyzes the environment in which international businesses operate; examines international economic issues including trade theory, investment theory, foreign exchange and capital markets, and balance of payments; introduces multinational enterprises, global competition, international organizations, treaties and international law, national trade policies and the determinants of competitiveness of firms in international markets. **Prerequisite:** Admission to upper division in Mays Business School. **Cross Listing:** IBUS 450/MGMT 450.

MGMT 452/IBUS 452 International Management

Credits 3. 3 Lecture Hours. An overview of international management to include international dimensions of organizational behavior, theory, strategy and human resource management; application of theoretical ideas to real-world situations through case analyses, presentations, projects and interactive class discussion. **Prerequisite:** MGMT 450/IBUS 450 or IBUS 450/MGMT 450, or concurrent enrollment. **Cross Listing:** IBUS 452/MGMT 452.

MGMT 457/IBUS 457 Global Entrepreneurship

Credits 3. 3 Lecture Hours. Practical issues associated with taking small- and medium-size business global; includes importing and exporting, developing global strategies, evaluating market opportunities, regional impact on economies and people. **Prerequisite:** Admission to upper division in Mays Business School. **Cross Listing:** IBUS 457/MGMT 457.

MGMT 460 Managing Projects

Credits 3. 3 Lecture Hours. Application of management processes to complex interdisciplinary organizational environments through the study of program and project management; adoptions of traditional management theories to the project environment; master typical project management microcomputer software for project planning; resource allocation; project budgeting; and control of project cost, schedule and performance. **Prerequisite:** MGMT 363.

MGMT 464 The Political Environment of Business

Credits 3. 3 Lecture Hours. Role of business in contemporary society; the large corporation and its external environment; ownership and control controversy; private and collective choice processes; role of regulation; social issues including pollution, discrimination, consumer protection, corporate social and ethical responsibilities, corporate political activity; international business relations. **Prerequisites:** MGMT 363 and senior classification.

MGMT 465 Corporate Governance

Credits 3. 3 Lecture Hours. Overview of the theories and practice of corporate governance; history of corporations, role and relationship of boards of directors, shareholders and management; concepts of agency cost, shareholder activism, executive compensation and international corporate governance in globalized markets; ethical issues and corporate social responsibility. **Prerequisite:** MGMT 363.

MGMT 466 Strategic Management

Credits 3. 3 Lecture Hours. Strategic issues facing organizations, including top management decision making and social responsibility; environmental and industry analysis; establishing organizational mission and objectives; corporate, business and functional level strategy formulation; global and multidomestic strategies; strategic implementation and control; integrating operations, finance, marketing and human resource strategies; case analysis. **Prerequisite:** MGMT 311; MGMT 363; FINC 341; SCMT 364; MKTG 321; senior classification.

MGMT 470 Entrepreneurial Small Business

Credits 3. 3 Lecture Hours. Exploration of practical approaches to growing a small business, evaluating and projecting financial performance, raising capital, legal formations and issues, human resource management, business plan development, franchising and family business; networking opportunities with local business leaders, successful former student entrepreneurs and current student entrepreneurs operating at the student incubator. **Prerequisites:** Admission to upper division in Mays Business School and senior classification.

MGMT 475 Leadership Development

Credits 3. 3 Lecture Hours. Explores the evolution of leadership theory and practice with an emphasis on effective and ineffective leaders' traits, behaviors, and styles in profit and not-for-profit work organizations; reviews critical aspects of leader role behavior from theoretical and practical perspectives; examines leader effectiveness at the individual, group, and strategic level. **Prerequisite:** MGMT 363.

MGMT 476/SOCI 476 Entrepreneurship Practice

Credits 3. 3 Lecture Hours. Practical skills for creating new businesses; evaluating, planning and operational strategy, including assessing the technology; product and service markets, value creation model; financing strategies; legal, regulatory, socio-economic drivers, risks; leadership to develop management team, advisory board; go-to-market strategy; develop own entrepreneurial opportunities or those of faculty and entrepreneurs. **Cross Listing:** SOCI 476/MGMT 476.

MGMT 477 Entrepreneurship: The Lean Startup Approach

Credits 3. 3 Lecture Hours. Application of current lean startup methodologies working directly with existing student entrepreneurs and mentors in preparing for the launch of a real business at the student incubator (Startup Aggieland); act as advocates and consultants assisting with organizational structure, marketing and market validation, financial analysis and risk assessment. **Prerequisites:** Junior or senior classification and approval of instructor.

MGMT 478 Social Entrepreneurship

Credits 3. 3 Lecture Hours. Applying business principles and practices to solve social, economic and environmental problems; social entrepreneurship concepts and issues in scaling social enterprise ventures including management tools, organization structures, funding sources, impact measurement; experience in opportunity recognition, designing, planning, pitching social mission ventures; build social capital with social enterprise founders. **Prerequisites:** Junior or senior classification. **Cross Listing:** SOCI 450 and PSAA 465.

MGMT 479/SOCI 432 Technology Commercialization

Credits 3. 3 Lecture Hours. Examination of the process of introducing to the marketplace new products or services based upon scientific and technological innovations; practical skills for assessing the technology, identifying potential products and services, and quantifying market demand; focuses on value creation, financing, intellectual property law, regulatory, and socio-economic drivers. **Prerequisite:** Junior or senior classification or admission to upper division in Mays Business School; SOCI 376/MGMT 376 or MGMT 376/SOCI 376 and SOCI 476/MGMT 476 or MGMT 476/SOCI 476 recommended. **Cross Listing:** SOCI 432/MGMT 479.

MGMT 481 Seminar in Management

Credit 1. 1 Other Hour. Discussions and observation of current management practice in the public and private sectors of the nation; reading and discussion of current events and changes taking place in management theory and/or its application and practice in actual business and government situations. May be repeated for credit. **Prerequisites:** Admission to upper division in Mays Business School or admission to Maritime Administration, or approval of instructor; also taught at Galveston campus.

MGMT 484 Management Internship

Credits 1 to 4. 1 to 4 Other Hours. Internship in management: staffing; planning; organizing; leading and controlling. Enrollment is limited to those who have managerial responsibilities for the resources used by a business firm or the like. **Prerequisites:** Management major; MGMT 363; approval of instructor prior to internship.

MGMT 485 Directed Studies

Credits 1 to 6. 1 to 6 Other Hours. Directed study on selected problems in the area of management not covered in other courses. **Prerequisite:** Admission to upper division in Mays Business School; senior classification and approval of department head.

MGMT 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of management. Consult the professor offering a particular special topics course for details. May be repeated for credit. **Prerequisites:** Admission to upper division in Mays Business School and approval of instructor.

MICR - Microbiology (MICR)

MICR 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of microbiology. May be repeated for credit. **Prerequisite:** Approval of instructor.

MICR 291 Research

Credits 1 to 4. 1 to 4 Other Hours. Active research of basic nature under the supervision of a Department of Biology faculty member. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

MICR 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of microbiology. May be repeated once for credit.

MICR 491 Research

Credits 1 to 4. 1 to 4 Other Hours. Active research of basic nature under the supervision of a Department of Biology faculty member. **Prerequisites:** Junior or senior classification and approval of instructor.

MKTG - Marketing (MKTG)

MKTG 289 Special topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of marketing. May be repeated for credit.

MKTG 299 Marketing Professional Organization Involvement

Credits 0. 0 Other Hours. Participation in an approved professional marketing organization. May be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis.

MKTG 321 Marketing

Credits 3. 3 Lecture Hours. Exploration of the activities and managerial decisions involved in the provision of products to customers; includes strategic marketing fundamentals, buyer behavior, market segmentation, managerial issues related to the marketing mix (product, pricing, distribution, and promotion) decision variables, and social and ethical issues. **Prerequisites:** Admission to upper division in Mays Business School, Agribusiness, or Maritime Business Administration; also taught at Galveston campus.

MKTG 322 Consumer Behavior

Credits 3. 3 Lecture Hours. Application of behavioral science to understand and predict consumer behavior; management of experiment design and execution; creation of solutions to real-world marketing problems in both business to business and business to consumer environments. **Prerequisite:** MKTG 321.

MKTG 323 Marketing Research

Credits 3. 3 Lecture Hours. Nature and uses of marketing research in business; methods of collecting, analyzing and interpreting data needed for business decisions, with specific application to problems in marketing. **Prerequisites:** MKTG 321; BUSN 203 or STAT 211.

MKTG 325 Foundations in Retailing and Services

Credits 3. 3 Lecture Hours. Retail strategies around the marketing mix such as channels of distribution, private labels, customer service levels, visual presentation, and pricing that influence a retail business model; including how service organizations require a distinctive approach to marketing strategy in development and execution. **Prerequisite:** MKTG 321.

MKTG 326 Innovations in Retailing

Credits 3. 3 Lecture Hours. Retail strategies such as channels of distribution, private labels, customer service levels, visual presentation, pricing, and marketing mix that influence a retail business model. **Prerequisite:** MKTG 321.

MKTG 335 Professional Selling

Credits 3. 3 Lecture Hours. Exploration of professional selling concepts including relationship-building, problem-solving, critical thinking and effective communication; application through role-playing. **Prerequisite:** MKTG 321.

MKTG 336 Managing Business to Business Relationships

Credits 3. 3 Lecture Hours. Exploration of customer relationship management concepts and tools; organizational buyer behavior, sales technology, sales tactics and value creating strategies to succeed in marketing roles in business-to-business organizations. **Prerequisite:** MKTG 321.

MKTG 337 Selling Financial Products and Services

Credits 3. 3 Lecture Hours. Exploration of financial products and services specific to the banking industry; study of marketing and sales skills to represent major banking products and services to clients and prospects of commercial banks; marketing and sales strategies and processes of commercial banks that result in successful positioning of the bank in its trade territory; application of consultative sales process, identification of personality styles/temperaments and effective presentation skills.

Prerequisite: MKTG 321.

MKTG 345 Social Media Strategy

Credits 3. 3 Lecture Hours. Marketing and promotional strategy related to social media, interactive media, and related technologies. **Prerequisite:** MKTG 321.

MKTG 347 Advertising and Creative Marketing Communications

Credits 3. 3 Lecture Hours. Advertising and integrated marketing communications; market segmentation and targeting; development of multi-media campaigns; emphasis on enhancing creativity, critical thinking, and communication skills. **Prerequisite:** MKTG 321.

MKTG 401/IBUS 401 Global Marketing

Credits 3. 3 Lecture Hours. Survey of the aspects involved in marketing goods and services in a global marketplace; social, political, legal and economic issues associated with conducting business globally.

Prerequisite: MKTG 321. **Cross Listing:** IBUS 401/MKTG 401.

MKTG 402/IBUS 402 International Marketing: Study Abroad

Credits 3. 3 Lecture Hours. Introduction to the facets of doing business in an international setting; provides exposure to a variety of foreign cultures; facilitates understanding of the international marketplace in which these students will function. **Prerequisites:** MKTG 321 or MKTG 409; junior classification; 2.5 GPR overall. **Cross Listing:** IBUS 402/MKTG 402.

MKTG 403/IBUS 403 International Market Entry Strategies

Credits 3. 3 Lecture Hours. A research-based course in which students prepare an analysis of a country, or region outside the U.S., and use it in the preparation of a marketing plan for a good or service to be introduced and marketed in that country. **Prerequisites:** MKTG 321 or MKTG 409; concurrent registration in IBUS 402/MKTG 402 or MKTG 402/IBUS 402; junior or senior classification. **Cross Listing:** IBUS 403/MKTG 403.

MKTG 404 Data Visualization for Marketers

Credits 3. 3 Lecture Hours. Summarization, analysis, and interpretation of complex data using graphical representation to inform and drive business decisions; use of data and design principles to effectively explore data and communicate insights from data using visualization techniques.

Prerequisites: MKTG 321.

MKTG 409 Principles of Marketing

Credits 3. 3 Lecture Hours. Survey of the activities and managerial decisions involved in creating and communicating value to customers; topics include strategic marketing, social and ethical issues, buyer behavior, marketing research, market segmentation and managerial issues related to the marketing mix, product, price, distribution and promotion. May not be used to satisfy degree requirements for a major in business. **Prerequisite:** Junior classification; for students other than business and agribusiness majors.

MKTG 425 Retail Merchandising

Credits 3. 3 Lecture Hours. Theories, concepts and practices relating to the merchandising of products for enhancing sales and profit growth of retail businesses; emphasis on retail math, purchasing decisions, vendor negotiations, communications skills, assortment planning and competitive analysis. **Prerequisite:** MKTG 321.

MKTG 426 Digital Merchandising

Credits 3. 3 Lecture Hours. Theories, concepts, and practices relating to the successful merchandising of products & services for a digital retail enterprise on a website, web analytics, mobile app, and mobile-optimized website. **Prerequisites:** MKTG 321.

MKTG 427 Retail Capstone

Credits 3. 3 Lecture Hours. Problems and opportunities faced by retail buying organizations; development of effective strategies through application-oriented activities, researching industry trends, development of buy plans, product assortment planning, competitor analysis, and the buyer's role in product development. **Prerequisite:** MKTG 321.

MKTG 430 Marketing Consulting

Credits 3. 3 Lecture Hours. Consulting tools and techniques, managing client relationships, preparing reports and presentations, problem-solving processes; semester-long client project. **Prerequisites:** MKTG 323.

MKTG 431 Marketing Analytics

Credits 3. 3 Lecture Hours. . Data driven marketing strategy, data handling and management techniques, use of statistical software to estimate marketing models, project based course focused on marketing decision making. **Prerequisite:** MKTG 321.

MKTG 435 Advanced Selling

Credits 3. 3 Lecture Hours. Exploration of in-depth strategic account planning, extensive role-play and team selling exercises, sales analytics, networking and prospecting, strategic goal setting and time management. **Prerequisites:** MKTG 335.

MKTG 436 Sales Leadership

Credits 3. 3 Lecture Hours. Exploration of characteristics of exceptional sales managers and managing a sales force; career and time management, recruitment, selection, training, motivating, and coaching for high-performance. **Prerequisite:** MKTG 335.

MKTG 437 Sales Analytics

Credits 3. 3 Lecture Hours. Application of the principles of data-driven decision-making in a sales context in both consumer and industrial markets, use various tools for generating insights from data in such areas as sales prediction, customer value analysis, sales training, and incentive design. **Prerequisite:** MKTG 335.

MKTG 438 Strategic Digital Marketing

Credits 3. 3 Lecture Hours. Implications of the internet and related digital technologies for marketing; evolution of the digital marketplace and impact on firms' marketing mix decisions; competitive advantage; public policy issues; future trends and developments. **Prerequisite:** MKTG 321.

MKTG 440 Services Marketing

Credits 3. 3 Lecture Hours. Focuses on the unique challenges of managing a service-based business; delivering quality service to customers and building strong customer relationships; applicable to for-profit and not-for-profit organizations that depend on service excellence for competitive advantage. **Prerequisite:** MKTG 321.

MKTG 441 Improving Healthcare Service

Credits 3. 3 Lecture Hours. Preparation for a career in healthcare leadership by focusing on opportunities to improve the service experience of patients, providers, and other stakeholders; improvement of population health; and enhancement of the efficient and effective use of healthcare resources. **Prerequisite:** MKTG 321.

MKTG 442 Innovation and Product Management

Credits 3. 3 Lecture Hours. Opportunity identification, concept generation, concept and program evaluation, development and launch of the various types of new products; specific topics include creativity, design, launch and management of new products. **Prerequisite:** MKTG 321.

MKTG 443/PHLT 426 The Business of Healthcare

Credits 3. 3 Lecture Hours. Preparation for contributing to the healthcare system by gaining an understanding of selected business of healthcare topics such as the role of healthcare in the economy, the cost of healthcare, the patient experience, technology and ethics. **Prerequisites:** Business and Public Health majors; junior or senior classification; approval of instructor. **Cross Listing:** PHLT 426/MKTG 443.

MKTG 444 HealthTech for Improving Customer Care

Credits 3. 3 Lecture Hours. Contemporary examination of the development, marketing and co-created value-in-use aspects of technology products (e.g., databases, applications, mobiles, wearables) in the health industry used to improve the delivery, payment and consumption of care. **Prerequisite:** MKTG 321.

MKTG 445 Account Planning and Research

Credits 3. 3 Lecture Hours. Concepts in account planning; gathering and analyzing data (database analysis, focus groups, interviews, surveys); compilation of research into a situation analysis and creative brief for use in a national advertising case competition. **Prerequisites:** MKTG 321, approval of instructor.

MKTG 447 Advanced Advertising: Case Competition

Credits 3. 3 Lecture Hours. Development of a fully integrated, multi-million dollar budgeted advertising campaign plan; participation in a national case competition. **Prerequisite:** MKTG 321; approval of instructor.

MKTG 448 Marketing Strategy

Credits 3. 3 Lecture Hours. Integrated perspective of marketing strategy and decision-making; creation, communication and delivery of value to customers; integration of elements of the marketing mix; determination and evaluation of alternative marketing strategies. **Prerequisite:** MKTG 323; graduating marketing senior.

MKTG 451 Healthcare Marketing Analytics

Credits 3. 3 Lecture Hours. Data-driven marketing strategy for healthcare industries, data handling and management techniques; use of statistical software to estimate marketing models; project-based course focused on healthcare industries to improve quality of health. **Prerequisites:** MKTG 321.

MKTG 484 Marketing Internship

Credits 3. 3 Other Hours. Directed internship of at least 300 hours of work under the supervision of a marketing professional providing students with on-the-job training that advances their career objectives; emphasis on business communication and personal professional development. **Prerequisites:** Marketing major; MKTG 321; approval of instructor prior to internship.

MKTG 485 Directed Studies

Credits 1 to 3. 1 to 3 Other Hours. Directed study of selected problems in the area of marketing not covered in other courses. **Prerequisites:** MKTG 321; approval of department head; 2.5 GPR in major and overall.

MKTG 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of marketing. May be repeated once for credit. **Prerequisites:** Admission to upper division in Mays Business School and approval of instructor.

MLSC - Military Science (MLSC)

MLSC 121 Introduction to the United States Army I

Credits 2. 1 Lecture Hour. 3 Lab Hours. Introduction to the United States Army and the Army Reserve Officer Training Corps (ROTC); its purpose in the Army and its advantages; Army customs, courtesies, traditions, and Army values; Army history and individual soldier skills with an emphasis on leadership; includes a leadership laboratory.

MLSC 122 Introduction to the United States Army II

Credits 2. 1 Lecture Hour. 3 Lab Hours. The second half of an introductory two-semester survey of the United States Army; principles of leadership, Army history, management theory and individual soldier skills; emphasis on critical thinking and problem solving skills; foundation for tactical and leadership concepts; includes a leadership laboratory.

MLSC 221 Tactics and Leadership Theory I

Credits 3. 2 Lecture Hours. 3 Lab Hours. Dimensions of creative and innovative leadership strategies through team dynamics and leadership theories that form the basis of the Army leadership framework (trait and behavior theories); infantry tactics, techniques and procedures; includes a leadership laboratory.

MLSC 222 Tactics and Leadership Theory II

Credits 3. 2 Lecture Hours. 3 Lab Hours. The second half of a two-semester survey on leadership theory and infantry tactics; emphasis on leading tactical teams in a complex environment; Army planning and orders process; adaptive leadership styles in the context of military operations; case studies on the importance of teamwork and tactics in real-world scenarios; includes a leadership laboratory.

MLSC 321 Adaptive Leadership and Tactical Operations I

Credits 3. 3 Lecture Hours. 1 Lab Hour. Theoretical and practical application of adaptive leadership as it relates to planning, executing and evaluating complex tactical operations; ability to assess risk, ethical decision-making, managing people and critical thinking skills in a tactical environment; includes a leadership laboratory.

MLSC 322 Adaptive Leadership and Tactical Operations II

Credits 3. 3 Lecture Hours. 1 Lab Hour. The second half of a two-semester survey on adaptive leadership and tactical operations; ethical decision-making, planning, executing and evaluating military operations at a tactical level; preparation to attend the Leadership, Development and Assessment Course (LDAC) for the Army's commissioning process; includes a leadership laboratory.

MLSC 421 The Army Officer and the Profession of Arms I

Credits 3. 3 Lecture Hours. 1 Lab Hour. Advanced study, research and practical application of Army training, operations and doctrine; the military as a profession, functioning as a member of a staff, and officership; law of land warfare, principles of war, and rules of engagement and their application; duties and responsibilities of a Second Lieutenant in the United States Army; includes a leadership laboratory.

MLSC 422 The Army Officer and the Profession of Arms II

Credits 3. 3 Lecture Hours. 1 Lab Hour. Dynamics of leadership in a complex world; cultural awareness, terrorism, non-governmental organizations, and operational security; off-site battlefield analysis and application of military concepts; maintaining an ethical climate in an organization, military support structures, and equal opportunity; duties and responsibilities of a Second Lieutenant in the United States Army; includes a leadership laboratory.

MLSC 485 Directed Studies

Credits 1 to 3. 1 to 3 Other Hours. Directed study of problems in the field of military science. **Prerequisite:** Junior or senior classification with approval of department head.

MLSC 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified field of military science. May be repeated for credit.

MLSC 491 Research

Credits 1 to 4. 1 to 4 Lecture Hours. Research conducted under the direction of a faculty member in military science. May be taken three times for credit. **Prerequisite:** Junior or senior classification or approval of instructor.

MMET - Mfg & Mech Engr Tech (MMET)

MMET 105 Engineering Graphics

Credits 2. 1 Lecture Hour. 3 Lab Hours. (ENGR 1204, ENGR 1304) Engineering Graphics. Graphical approach to the engineering design process as applied to products; methods of graphical communications, three-dimensional geometry, working drawings, data analysis, computer graphics, introduction to team dynamics and creative problem solving.

MMET 181 Manufacturing and Assembly Processes I

Credits 3. 2 Lecture Hours. 3 Lab Hours. A survey of metal manufacturing processes; traditional machining, non-traditional machining, welding, fabrication, casting and assembly. **Prerequisite:** Grade of C or better in MMET 105, ENGR 102, or ENGR 111, or concurrent enrollment.

MMET 201 Manufacturing and Materials

Credits 4. 3 Lecture Hours. 2 Lab Hours. Survey of metallic and non-metallic materials; selection and applications of materials; introduction to traditional and non-traditional manufacturing processes, assembly processes, and metrology. **Prerequisite:** Grade of C or better in ENGR 102 or ENGR 111; grade of C or better in CHEM 107 and CHEM 117 or CHEM 120; industrial distribution major.

MMET 206 Nonmetallic Materials

Credits 3. 2 Lecture Hours. 3 Lab Hours. Introduction to structure, properties, processing and application of forest products, plastics, ceramics and composites; laboratory includes processing, physical and mechanical testing, applications, surface treatment and material identification. **Prerequisite:** Grade of C or better in CHEM 120 or CHEM 107 and CHEM 117; manufacturing and mechanical engineering technology or industrial distribution major or approval of department.

MMET 207 Metallic Materials

Credits 3. 2 Lecture Hours. 2 Lab Hours. Introduction to structure, properties and engineering application of ferrous and nonferrous materials; beneficiation, production of ferrous and nonferrous metals, destructive and nondestructive testing, protective coatings, strengthening and heat treatment; laboratory includes metallographic procedures, mechanical testing, heat treatment, surface treatment, corrosion testing, recrystallization and failure analysis. **Prerequisite:** Grade of C or better in CHEM 120 or CHEM 107 and CHEM 117; manufacturing and mechanical engineering technology or industrial distribution major or approval of department.

MMET 275 Mechanics for Technologists

Credits 3. 3 Lecture Hours. (ENGR 2301, ENGR 2401) Mechanics for Technologists. Forces, moments and couples in 2-D and 3-D systems; equilibrium of rigid bodies; structural analysis; friction and applications; centroids and moments of inertia. **Prerequisites:** Grade of C or better in MATH 152 and PHYS 206 or PHYS 218; manufacturing and mechanical engineering technology major.

MMET 281 Manufacturing and Assembly Processes II

Credits 3. 2 Lecture Hours. 2 Lab Hours. Survey of Polymer manufacturing processes, casting, expansion, extrusion, molding and thermoforming; additive manufacturing processes, material extrusion, vat photopolymerization, material jetting, binder jetting, sheet lamination, powder bed fusion and directed energy deposition. **Prerequisite:** Grade of C or better in MMET 181 and MMET 206; manufacturing and mechanical engineering technology major or approval of department.

MMET 301 Mechanical Power Transmission

Credits 3. 2 Lecture Hours. 2 Lab Hours. Overview of the engineering concepts of mechanical power and the components within a system to provide transmission of that power into useful work; experimental application of the related theory as it relates to the industrial distributor; "real world" knowledge learned for application in industry. **Prerequisites:** Grade of C or better in ENGL 103 or ENGL 104; grade of C or better in MATH 151, MATH 152, PHYS 206, and ENGR 216/PHYS 216 or PHYS 216/ENGR 216; grade of C or better in CHEM 107 and CHEM 117 or CHEM 120; grade of C or better in MMET 201 or concurrent enrollment; junior or senior classification in industrial distribution.

MMET 303 Fluid Mechanics and Power

Credits 4. 3 Lecture Hours. 2 Lab Hours. Fluid mechanics and fluid power applications for technologists; fluid properties; conservation of energy and momentum; incompressible flow in pipes; standard symbols; components and control of hydraulic systems and pneumatic systems. **Prerequisites:** Grade of C or better in MMET 275; manufacturing and mechanical engineering technology major.

MMET 307 Computer Design Graphics

Credits 3. 3 Lecture Hours. Use of microcomputers with currently available CAD software as an aid in the design process and as a means of increasing engineering productivity; review of ANSI standards and an introduction to a variety of computer graphics applications encountered in industry; user-oriented. **Prerequisites:** Grade of C or better in MMET 105 or MMET 181.

MMET 313 Industrial Welding Processes

Credits 3. 2 Lecture Hours. 3 Lab Hours. Theory and practical applications of industrial welding and cutting processes; experience in operation of various machines and processes. **Prerequisite:** Grade of C or better in MMET 181 and MMET 207; junior or senior classification in manufacturing and mechanical engineering technology.

MMET 320 Quality Assurance

Credits 3. 2 Lecture Hours. 3 Lab Hours. Applied statistical process control and design-of-experiment techniques for quality improvement and process characterization; emphasis on organizations operating in a continuous-improvement, customer-driven environment; statistical thinking; control charts; capability analysis of product, process and measurement system; experimental process characterization, prediction models and input variable control. **Prerequisites:** Grade of C or better in STAT 211; junior or senior classification in manufacturing and mechanical engineering technology.

MMET 361 Product Design and Solid Modeling

Credits 3. 2 Lecture Hours. 2 Lab Hours. Design processes and methodologies including quality function deployment, materials and process selection, and design for manufacturing and assembly; fundamentals of modeling part geometry and mechanical assembly using parametric CAD software. **Prerequisites:** Grade of C or better in ENGR 216/PHYS 216 or PHYS 216/ENGR 216, MMET 181, MMET 206, MMET 207, and MMET 275; junior or senior classification in manufacturing and mechanical engineering technology.

MMET 363 Mechanical Design Applications I

Credits 3. 3 Lecture Hours. Principles of design of mechanical components; theories of failure; Soderberg and Goodman diagrams; fatigue and fracture design criteria; materials and their selection to engineering applications; component assembly aspects; design of fasteners and springs as examples. **Prerequisite:** Grade of C or better in MMET 376; junior or senior classification in manufacturing and mechanical engineering technology.

MMET 370 Thermodynamics for Technologists

Credits 4. 3 Lecture Hours. 2 Lab Hours. Thermal and mechanical energy transformations; relationships applied to flow and non-flow processes in power and refrigeration cycles; devices include compressors, turbines, heat exchangers, nozzles, diffusers, pumps and piston-cylinder models; computer modeling. **Prerequisites:** Grade of C or better in PHYS 206, and ENGR 216/PHYS 216 or PHYS 216/ENGR 216; junior or senior classification in manufacturing and mechanical engineering technology.

MMET 376 Strength of Materials

Credits 4. 3 Lecture Hours. 2 Lab Hours. Stress and strain; elastic moduli Poisson's ratio; torsion, bending, unsymmetrical bending; design of beams and shafts; deflection of beams; buckling of columns; material and strength characterization laboratory tests. **Prerequisites:** Grade of C or better in ENGL 103 or ENGL 104; grade of C or better in MMET 207, MMET 275, MATH 151, MATH 152, CHEM 107 and CHEM 117 or CHEM 120, PHYS 206, and ENGR 216/PHYS 216 or PHYS 216/ENGR 216; junior or senior classification in manufacturing and mechanical engineering technology.

MMET 380 Computer-Aided Manufacturing

Credits 3. 2 Lecture Hours. 3 Lab Hours. Basic concepts in computer-aided manufacturing with emphasis on a system approach to manufacturing activities; use of numerical control machine tools and other computer based software as applied to different industries. **Prerequisites:** Grade of C or better in MMET 181 and MATH 152; junior or senior classification in manufacturing and mechanical engineering technology.

MMET 383 Manufacturing Information Systems

Credits 4. 3 Lecture Hours. 3 Lab Hours. Use of information technology for manufacturing enterprise applications, including computer-integrated manufacturing, database, computer networking, web-technology and enterprise resource planning. **Prerequisites:** Grade of C or better in MMET 380; junior or senior classification in manufacturing and mechanical engineering technology.

MMET 401 Fluid Power Transmission

Credits 3. 2 Lecture Hours. 2 Lab Hours. Engineering concepts of hydraulics and pneumatic power and its components within a system to provide transmission of that power into useful work; experimental application of the related theory as it relates to the industrial distributor; real world knowledge learned for application in industry. **Prerequisites:** Grade of C or better in MMET 201, MMET 301, PHYS 207, and ENGR 217/PHYS 217 or PHYS 217/ENGR 217; junior or senior classification in industrial distribution.

MMET 402 Inspection Methods and Procedures

Credits 3. 2 Lecture Hours. 2 Lab Hours. Methods and procedures in nondestructive inspection of materials and industrial products; ultrasonics, dye penetrants, magnetic particle, radiography and supportive evaluation methods such as weld sectioning, polishing, etching and macroscopic analysis. **Prerequisites:** Grade of C or better in MMET 281 and MMET 376; junior or senior classification in manufacturing and mechanical engineering technology.

MMET 405 Weldability of Ferrous Metals

Credits 3. 3 Lecture Hours. Applied principles of metallurgy with reference to weldability of ferrous metals. **Prerequisites:** Grade of C or better in MMET 207 and MMET 313; junior or senior classification in manufacturing and mechanical engineering technology.

MMET 410 Manufacturing Automation and Robotics

Credits 3. 2 Lecture Hours. 3 Lab Hours. Hardware for automated work handling, conveyors, loaders, robots, storage devices; power sources and methods of control, electric motors, controllers, program logic controllers, robot programming; interfacing of equipment controls; and manufacturing work cells. **Prerequisites:** Grade of C or better in MMET 361, MMET 376, MMET 383 and ESET 300; junior or senior classification in manufacturing and mechanical engineering technology.

MMET 412 Production and Inventory Planning

Credits 3. 2 Lecture Hours. 2 Lab Hours. An introductory treatment of models and techniques for the planning of production and inventory systems. **Prerequisites:** Grade of C or better in MMET 320, MMET 383 and ISEN 302; senior classification in manufacturing and mechanical engineering technology.

MMET 414 Micro/Nano Manufacturing

Credits 3. 2 Lecture Hours. 3 Lab Hours. Product miniaturization and impact; review of atomic structure, electrical and physical properties of materials; ultraprecision machining; microlithography; dry and wet etching/sputtering techniques; isotropic and anisotropic processes; pattern transfer with additive processes; surface micromachining; microreplication processes; introduction to packaging technology and nanometrology; manufacturing of selected microsystems (MEMS) and their applications. **Prerequisites:** Grade of C or better in CHEM 107, PHYS 207, and ENGR 217/PHYS 217 or PHYS 217/ENGR 217; junior or senior classification in manufacturing and mechanical engineering technology.

MMET 418 Medical Manufacturing

Credits 3. 2 Lecture Hours. 3 Lab Hours. Surveys relevant regulations, biocompatibility of engineering materials, and emphasizes suitable techniques for medical device manufacturing. **Prerequisites:** Grade of C or better in MMET 181; junior or senior classification in manufacturing and mechanical engineering technology.

MMET 422 Manufacturing Technology Projects

Credits 2. 1 Lecture Hour. 3 Lab Hours. A capstone projects course utilizing a team approach to an analysis and solutions of manufacturing problems. **Prerequisite:** Grade of C or better in MMET 429; grade of C or better in MMET 410, MMET 412 and MMET 463, or concurrent enrollment; ENTC 399 or concurrent enrollment; must be taken in fall or spring semester; senior classification in manufacturing and mechanical engineering technology.

MMET 429 Managing People and Projects in a Technological Society

Credits 3. 3 Lecture Hours. Supervisory and project management duties and responsibilities in technology based organizations and the methods required to fulfill these functions. **Prerequisites:** Grade of C or better in ISEN 302 and MMET 361; grade of C or better in MMET 363, or concurrent enrollment; must be taken in the fall or spring semester immediately prior to MMET 422; senior classification in manufacturing and mechanical engineering technology.

MMET 463 Mechanical Design Applications II

Credits 3. 3 Lecture Hours. Applications of principles of analysis and design of machines and machine elements including linkages, robots, cam and follower systems, shafts, gears, clutches, belt and chain drives; introduction to the mathematical tools for the analysis and design of these machines and machine elements. **Prerequisites:** Grade of C or better in MMET 361 and MMET 363; senior classification in manufacturing and mechanical engineering technology.

MMET 485 Directed Studies

Credits 1 to 6. 1 to 6 Other Hours. Directed study of selected problems in an in an area of manufacturing and mechanical engineering technology not covered in other courses. May be repeated for credit. **Prerequisites:** Senior classification and approval of instructor.

MMET 491 Research

Credits 0 to 4. 0 Lecture Hours. 0 Lab Hours. 0 to 4 Other Hours.

Research conducted under the direction of faculty member in the college of engineering. May be repeated three times for credit. **Prerequisites:** Junior or senior classification and approval of instructor.

MODL - Modern Languages (MODL)

MODL 221/ENGL 221 World Literature

Credits 3. 3 Lecture Hours. (ENGL 2332) World Literature. Survey of world literature from the ancient world through the sixteenth century in relation to its historical and cultural contexts; texts selected from a diverse group of authors, traditions and genres; ENGL-221 also taught at Qatar campus. **Cross Listing:** ENGL 221/MODL 221.

MODL 222/ENGL 222 World Literature

Credits 3. 3 Lecture Hours. (ENGL 2333) World Literature. Survey of world literature from the seventeenth century to the present in relation to its historical and cultural contexts; texts selected from a diverse group of authors, traditions and genres; ENGL-222 also taught at Galveston and Qatar campuses. **Cross Listing:** ENGL 222/MODL 222.

MODL 285 Directed Studies

Credits 0 to 3. 0 to 3 Other Hours. Individual supervision of readings or assigned projects, selected for each student individually. Written and oral reports. No class meetings. **Prerequisite:** Approval of department head.

MODL 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of modern languages. May be repeated for credit. **Prerequisite:** Approval of department head.

MODL 485 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Individual supervision of readings or assigned projects, selected for each student individually. Written and oral reports. No class meetings. **Prerequisite:** Approval of department head.

MODL 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of modern languages. May be repeated for credit. **Prerequisite:** Approval of department head.

MSEN - Materials Science & Engr (MSEN)

MSEN 201 Fundamentals of Materials Science and Engineering

Credits 3. 3 Lecture Hours. Fundamental principles of materials science and engineering and their application toward complex engineering challenges; relationship between materials structure and structural and functional properties of engineered materials; property-performance relationships; principle classes of materials, as illustrated through key materials advances; current directions in the field. **Prerequisites:** Grade of C or better in CHEM 107 or CHEM 119 and PHYS 206.

MSEN 205 Materials in Society

Credits 2. 2 Lecture Hours. Introduction to the study and practice of materials science and engineering; current topics in materials research and development, focusing on the impact of advanced materials on engineering fields and society; application of scientific engineering principals to guiding materials engineering process, with examples drawn from real-life case studies. **Prerequisite:** Grade of C or better in MSEN 201, or concurrent enrollment; or approval of instructor.

MSEN 210 Thermodynamics of Materials

Credits 3. 3 Lecture Hours. Basic concepts and fundamental laws of thermodynamics; processes and thermodynamic engines; phase equilibria and phase diagrams of simple substances; chemical reactions of condensed phases; computational software for thermodynamic and phase diagram calculations. **Prerequisites:** Grade of C or better in MSEN 201, AERO 413, BMEN 343, CHEN 322, CVEN 306, MEEN 222/ MSEN 222, MMET 206, MSEN 222/MEEN 222, or NUEN 265, or concurrent enrollment; grade of C or better in MATH 152 or concurrent enrollment.

MSEN 222/MEEN 222 Materials Science

Credits 3. 3 Lecture Hours. Mechanical, optical, thermal, magnetic and electrical properties of solids; differences in properties of metals, polymers, ceramics and composite materials in terms of bonding and crystal structure. **Prerequisites:** Grade of C or better in CHEM 107 or CHEM 119; grade of C or better in PHYS 206. **Cross Listing:** MEEN 222/ MSEN 222.

MSEN 250 Soft Matter

Credits 3. 3 Lecture Hours. Structure, properties and function of various classes of soft matter including colloids, polymers, amphiphils, liquid crystals and biomacromolecules; basic concepts of viscoelasticity, glass transition, liquid-liquid and liquid-solid transitions and gelation; forces acting between mesoscopic objects; supramolecular self-assembly in soft condensed matter. **Prerequisites:** Grade of C or better in CHEM 120; MSEN 201, or concurrent enrollment.

MSEN 260 Structure of Materials

Credits 3. 3 Lecture Hours. Materials structure over many orders of scale; structure of non-crystalline materials; symmetry, unit cell and the atomic structure of crystalline materials; liquid crystals; structural defects in ordered solids; microstructures and hierarchical structures. **Prerequisites:** Grade of C or better in MSEN 201, AERO 413, BMEN 343, CHEN 322, CVEN 306, MEEN 222/MSEN 222, MMET 206, MSEN 222/ MEEN 222, or NUEN 265, or concurrent enrollment.

MSEN 281 Materials Science and Engineering Seminar

Credit 1. 1 Other Hour. Presentation of technical advances in the field of materials science and engineering; applications toward solving engineering challenges; presentations from visiting industry, academic speakers, and faculty; introduction to current research themes and focal points in industry. **Prerequisite:** Grade of C or better in MSEN 201, or concurrent enrollment.

MSEN 285 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Directed study of selected problems in the area of materials science and engineering. May be taken for credit 4 times. **Prerequisite:** Approval of instructor.

MSEN 289 Special Topics In...

Credits 1 to 3. 1 to 3 Lecture Hours. 0 to 3 Lab Hours. Selected topics in an identified area of materials science and engineering. May be repeated for credit. **Prerequisite:** Approval of instructor.

MSEN 291 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in materials science and engineering. May be taken three times for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

MSEN 301 Unified Materials Lab I

Credits 3. 2 Lecture Hours. 3 Lab Hours. Integration of materials synthesis, structural characterization and property evaluation; theory and practice of experimental and simulation techniques; emphasis on relationship between processing parameters and resulting materials structure. **Prerequisites:** Grade of C or better in MSEN 210 and MSEN 260, or concurrent enrollment.

MSEN 302 Unified Materials Lab II

Credits 3. 2 Lecture Hours. 3 Lab Hours. Integration of materials synthesis, structural characterization and property evaluation; theory and practice of experimental and simulation techniques; emphasis on relationship between materials structure and resulting materials physical properties. **Prerequisite:** Grade of C or better in MSEN 301 and MSEN 380; grade of C or better in MSEN 320, or concurrent enrollment.

MSEN 305 Kinetics of Materials

Credits 3. 3 Lecture Hours. Application of physical principles that drive evolution of materials as they approach thermodynamic equilibrium states; includes Gibbs free energy, driving forces, point defects, diffusion in solids, interface and grain boundary motion, nucleation, growth, transformation diagrams, precipitation, phase separation, ordering and solidification. **Prerequisite:** Grade of C or better in MSEN 210.

MSEN 320 Deformation and Failure Mechanisms in Engineering Materials

Credits 3. 3 Lecture Hours. Survey of deformation and failure mechanisms in different materials, including metals, ceramics, polymers and composites; effect of atomistic structure, defects and microstructure on deformation and failure; deformation and failure mechanism maps and effects of temperature and deformation rate. **Prerequisite:** Grade of C or better in MSEN 260.

MSEN 325 Properties of Functional Materials

Credits 3. 3 Lecture Hours. Origins of functional materials properties from their electronic and molecular structure; electron theory in solids; electronic transport and dielectric behavior; optical and magnetic properties; current applications of functional materials. **Prerequisite:** Grade of C or better in MSEN 260.

MSEN 330 Numerical Methods for Materials Scientists and Engineers

Credits 3. 3 Lecture Hours. Computing platforms addressing scientific/engineering problems related to materials science and engineering; analyze data; implement mathematical models of materials behavior; numerical methods to solve materials-related problems. **Prerequisite:** Grade of C or better in MATH 307, MSEN 305, and MSEN 320.

MSEN 360 Materials Characterization

Credits 3. 2 Lecture Hours. 3 Lab Hours. Principles and techniques used in characterization of different materials, including metals, ceramics, polymers, composites and semiconductor systems; microstructural, chemical/compositional and surface analysis methods; interpretation and analysis of the characterization results. **Prerequisites:** Grade of C or better in MSEN 250 and MSEN 260.

MSEN 380 Communicating Materials Science and Engineering

Credit 1. 1 Lecture Hour. Effective communication of technical topics in materials science and engineering to technical and non-technical audiences; emphasis on written reports. **Prerequisite:** Grade of C or better in MSEN 301, or concurrent enrollment.

MSEN 399 High Impact Professional Development

Credits 0. 0 Other Hours. Student participation in an approved high-impact learning practice; reflection on professional outcomes from engineering body of knowledge; documentation and self-assessment of learning experience at mid-curriculum point. **Prerequisites:** Grade of C or better in MSEN 205 and MSEN 281; junior or senior classification.

MSEN 400 Design and Analysis of Materials Experiments

Credits 3. 2 Lecture Hours. 3 Lab Hours. Systematic design of experimental investigations; team approach to identification of topics and development of experiment designs including establishing the need, associated requirements and objective; conduction of experiments; characterization of materials; analysis and interpretation of results; documentation of the procedures, analysis, results and conclusions; presentation of written and oral reports. **Prerequisite:** Grade of C or better in MSEN 301; grade of C or better in MSEN 302 or concurrent enrollment.

MSEN 401 Materials Design I

Credits 3. 2 Lecture Hours. 3 Lab Hours. Design process; need definition, functional analysis, performance requirements, evaluation criteria, conceptual design evaluation; introduction to systems engineering; parametric and risk analysis, failure analysis, material selection and manufacturability; cost and life cycle issues, project management; industry-relevant design projects. **Prerequisite:** Grade of C or better in MSEN 281, MSEN 205 and MSEN 400.

MSEN 402 Materials Design II

Credits 3. 2 Lecture Hours. 3 Lab Hours. Development of innovative solutions to industry-relevant design challenges; structured framework and methodology for design activities; innovation, computational materials science, synthesis and processing and analysis and characterization of material components; project definition, management, customer interaction and effective team participation; presentations and design reviews. **Prerequisite:** Grade of C or better in MSEN 401.

MSEN 410 Materials Processing

Credits 3. 3 Lecture Hours. Synthesis, properties and processing of technologically important materials, metals, ceramics and polymers; thermodynamics and kinetics of different materials processing methods, casting, deformation processing, heat treatments, powder processing and sintering, coating, thin films processing, etc. **Prerequisite:** Grade of C or better in MSEN 250, MSEN 305, and MSEN 320; junior or senior classification.

MSEN 415 Defects in Solids

Credits 3. 3 Lecture Hours. Overview of point, line and surface defects in solids; relates defect properties to diffusion, deformation, phase transformations; focuses on atomic defects in crystals, with additional examples from liquid crystals, superconductors and ferromagnets; incorporates atomistic modeling to examine defect structure. **Prerequisite:** Grade of C or better in MSEN 260; junior or senior classification; or approval of instructor.

MSEN 418 Composites Processing and Performance

Credits 3. 3 Lecture Hours. Fundamental science and design of composites; processing and design interaction about multiphase composites; processing science, experimental characterization, laminate analysis; design structure and processing. **Prerequisite:** Grade of C or better in MSEN 320 or MEEN 360.

MSEN 420 Polymer Science

Credits 3. 3 Lecture Hours. Types of polymerization; molecular characteristics of polymer chains; single chain statistics and rubber elasticity; phase transitions, glass transition, viscoelasticity and time-temperature superposition; polymer structure at the molecular, microscopic and macroscopic level; polymer thermosets, thermoplastics, elastomers, fibers, and advanced nanoparticle-filled composites. **Prerequisite:** Grade of C or better in PHYS 206 and CHEM 120; junior or senior classification; or approval of instructor.

MSEN 426 Polymer Laboratories

Credits 3. 2 Lecture Hours. 3 Lab Hours. Laboratory to prepare those interested in polymer research with necessary experimental and analytical skills to conduct and analyze experimental work. **Prerequisite:** Grade of C or better in MSEN 250, junior or senior classification; or approval of instructor.

MSEN 430 Nanomaterials Science

Credits 3. 3 Lecture Hours. Nanotechnology and nanomaterials; types, fabrication, characterization methods and applications; current roles in technology and future impact of such systems on industry targeting. **Prerequisite:** Grade of C or better in MSEN 260, junior or senior classification; or approval of instructor.

MSEN 440 Materials Electrochemistry and Corrosion

Credits 3. 3 Lecture Hours. Survey of thermodynamic and kinetic fundamentals of electrochemistry; multiscale materials corrosion mechanisms; details of interfacial aqueous electrochemical mechanisms and the environmental effects when materials are exposed to different conditions. **Prerequisite:** Grade of C or better in MSEN 201, AERO 413, BMEN 344, CHEN 322, CVEN 306, MEEN 222/MSEN 222, MMET 207, MSEN 222/MEEN 222, or NUEN 265; or approval of instructor.

MSEN 444 Corrosion and Electrochemistry Lab

Credits 3. 2 Lecture Hours. 3 Lab Hours. Laboratory practice and principles for corrosion and electrochemistry methods; design, carry out and analyze a series of labs illustrating the most important techniques in the field; builds to an open-ended corrosion engineering problem resulting in preparation of a technical report for a hypothetical client. **Prerequisite:** Grade of C or better in MSEN 440, or approval of instructor.

MSEN 446 Corrosion Prevention and Control Methods

Credits 3. 3 Lecture Hours. Cathodic protection and coatings; functional engineering approach to controlling and preventing aqueous corrosion; impressed current, galvanic anodes, organic, inorganic and hybrid coatings; case studies in oil and gas, energy, automotive and different industries. **Prerequisites:** Grade of C or better in MSEN 440, or approval of instructor.

MSEN 448 Failure Analysis in Materials Science and Engineering

Credits 3. 3 Lecture Hours. Discussion and analysis of failure of engineering systems in terms of design, manufacturing, and service environments; broad background to common mechanisms of material failures in mechanical, electrical and chemical applications; emphasis on case studies and specific engineering disasters. **Prerequisites:** Grade of C or better in MSEN 320; or approval of instructor.

MSEN 458 Fundamentals of Ceramics

Credits 3. 3 Lecture Hours. Structure-property relationships of ceramics and ceramic composites; atomic bonding in ceramics; crystalline and glassy structures; phase equilibria and ceramic reactions; mechanical, electrical, thermal, dielectric, magnetic and optical properties; ceramic processing; different properties of ceramics will be related to their underlying structure. **Prerequisite:** Grade of C or better in MSEN 260; junior or senior classification; or approval of instructor.

MSEN 468 Fabrication and Characterization of Electronic Materials

Credits 3. 3 Lecture Hours. Properties, processing, and characterization of electronic materials; fabrication of semiconductors, patterning and etching of electronic and optical films; characterization of film structure, morphology, composition, and electronic and optical properties through different material analysis methods. **Prerequisites:** Grade of C or better in MSEN 325 or ECEN 370.

MSEN 470 Computational Materials Science and Engineering

Credits 3. 3 Lecture Hours. Modern methods of computational modeling and simulation of materials properties and phenomena, including synthesis, characterization and processing of materials, structures and devices; quantum, classical and statistical mechanical methods, including semi-empirical atomic and molecular-scale simulations and other modeling techniques using macroscopic input. **Prerequisite:** Grade of C or better in MATH 307, MSEN 305, and MSEN 320.

MSEN 472 Atomistic Simulation of Materials

Credits 3. 3 Lecture Hours. Modern methods of computational modeling and simulation of materials properties and phenomena at the atomistic scale; quantum, classical and statistical mechanical methods, including semi-empirical atomic and molecular-scale simulations, and other modeling techniques using macroscopic input. **Prerequisite:** Grade of C or better in MSEN 470, or approval of instructor.

MSEN 484 Internship

Credits 0 to 4. 0 to 4 Other Hours. Practical experience working in a professional materials science and engineering setting offered on an individual basis. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** Junior or senior classification and approval of instructor.

MSEN 485 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Directed study of selected problems in the area of materials science and engineering. May be taken four times for credit. **Prerequisite:** Grade of C or better in MSEN 301.

MSEN 489 Special Topics In...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of materials science and engineering. May be repeated for credit. **Prerequisite:** Approval of instructor.

MSEN 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of a faculty member in materials science and engineering. May be taken four times for credit. **Prerequisites:** Grade of C or better in MSEN 301.

MSTC - Music Technology (MSTC)

MSTC 101 Introduction to Performance Technology

Credits 3. 3 Lecture Hours. 1 Lab Hour. Basic hardware, software, and aesthetic concepts of technology-based artistic performance; basic electricity, electronics, troubleshooting, audio and video design software, study of significant works, and participation in a production.

MSTC 150 History of Electronic Music

Credits 3. 3 Lecture Hours. Historical survey of electronic music, including key technological advancements, people and musical works; exploration of electronic music from different genres and countries.

MSTC 221 Fixed Media Composition

Credits 3. 3 Lecture Hours. 1 Lab Hour. Creation of music using digital audio workstation software; critical listening and analysis of music literature; application of technical and aesthetic concepts of digital audio, types of signal processing, and composition. **Prerequisites:** MSTC 101 or approval of instructor.

MSTC 223 Recording and the Producer

Credits 3. 3 Lecture Hours. Tools and techniques of studio recording; the studio as compositional tool; recorded literature examining the creative and ideological impact of the producer; recording projects applying course techniques and exploring aesthetic concepts. **Prerequisites:** Grade of C or better in MSTC 221.

MSTC 224 Composing Commercial Music

Credits 3. 3 Lecture Hours. Creation of music in a commercial production context; technical and business concepts including synchronization, rights, licensing, distribution, and related roles in the music industry; analysis of existing music and application of course techniques in creating new music. **Prerequisites:** MSTC 223 or approval of instructor.

MSTC 245 Survey of Artificial Intelligence in Music

Credits 3. 3 Lecture Hours. Survey of Artificial Intelligence (AI) techniques and applications in music and sound, history of technological developments, and related music literature; examination of the creative process, authorship, and aesthetics in the context of creative computing for music.

MSTC 311 Technology-Based Performance

Credits 1 to 3. 1 to 3 Lecture Hours. Performance using technology as the primary basis for musical structure; study of technology-based music literature and performance techniques; presentation in live or mediated formats. May be taken eight times for credit. **Prerequisites:** MSTC 101; junior or senior classification or approval of instructor.

MSTC 341 Programming for Composers

Credits 3. 3 Lecture Hours. Overview of how to make music by programming a computer; creation of applications, control interfaces, instruments, and intelligent agents for digital signal processing, interactivity, generative art, and multimedia; no programming experience required. **Prerequisites:** MSTC 221; junior or senior classification or approval of instructor.

MSTC 352 Electronic Music Literature through Practice

Credits 3. 3 Lecture Hours. Study of a selected body of electronic music literature by applying their techniques to create new music; critical listening, musical analysis, consideration of historical context, and application of techniques observed in the selected literature. May be taken four times for credit. **Prerequisites:** MSTC 221; junior or senior classification or approval of instructor.

MSTC 354 The Recording Medium

Credits 3. 3 Lecture Hours. Overview of how to make music by studying a selected medium and its signature advantages, limitations, and the literature exploring them; musical and historical analysis; application of these concepts in new compositions. May be taken four times for credit. **Prerequisites:** MSTC 221; junior or senior classification or approval of instructor.

MSTC 417 Intermedia Performance

Credits 3. 3 Lecture Hours. Composition and performance of music using technology to cross boundaries across media, disciplines, and other modes of expression and experience; intermedia literature, theory, aesthetics, and techniques in constructing, composing, and presenting intermedia art in real-time encounters, live or mediated. **Prerequisites:** MSTC 221; junior or senior classification or approval of instructor.

MSTC 489 Special Topics In...

Credits 1 to 4. 1 to 4 Other Hours. Special topics in an identified area of music technology. May be repeated for credit. **Prerequisites:** Junior or senior classification or approval of instructor.

MTDE - Multidisciplinary Engr (MTDE)

MTDE 252 Engineering Entrepreneurship Hour

Credit 1. 1 Lecture Hour. Engagement with successful technology entrepreneurs from technical sectors across engineering and the nation; challenges faced by and characteristics of successful entrepreneurs and their strategies in launching and sustaining businesses on technology innovation; network with highly successful entrepreneurs and develop relations valuable to professional careers; development of speaking and presentation skills; networking with industry professionals in support of entrepreneurship. **Prerequisites:** Grade of C or better in ENGR 102; or approval of instructor.

MTDE 285 Directed Studies

Credits 0 to 6. 0 to 6 Other Hours. Directed studies within the field of multidisciplinary engineering. **Prerequisite:** Sophomore classification and approval of multidisciplinary engineering director or delegate.

MTDE 289 Special Topics in...

Credits 1 to 4. 1 to 4 Other Hours. Selected topics in an identified area of multidisciplinary engineering. May be repeated for credit.

MTDE 291 Research

Credits 1 to 6. 1 to 6 Other Hours. Research conducted under the direction of faculty member in multidisciplinary engineering. **Prerequisite:** Sophomore classification and approval of multidisciplinary engineering director or delegate.

MTDE 311 Enterprise Basics for Technical Entrepreneurs

Credits 3. 3 Lecture Hours. Aspects of entrepreneurship for a technical enterprise; elements of a business including idea generation, startup financing, staffing, product design and production, marketing and selling a product; focus on the front end of the venture; product design and development, financing, identifying and attracting key personnel, and starting up company. **Prerequisites:** Grade of C or better in MTDE 252, or approval of instructor.

MTDE 312 Sales, Operations and Manufacturing for Technology Companies

Credits 3. 3 Lecture Hours. Challenges faced in a start-up entity with respect to product manufacturing, operations and supply chain management, product pricing strategies, and sales and marketing; focus on small start-up to young mid-size enterprises. **Prerequisites:** Grade of C or better in MTDE 252, or approval of instructor.

MTDE 313 Engineer to Chief Executive Officer

Credits 3. 3 Lecture Hours. Fundamental skills, experience, and training necessary to one day serve in the Chief Executive Officer (CEO) role; exploration of what it means to be the CEO and to take on those responsibilities along with the personal and professional commitments associated with this important position; study of critical area of communications and effective ways to interface with the key stakeholder groups represented by shareholders, board of directors, executive management team, employees, customers, the media and communities where the company does business. **Prerequisite:** Completion of one summer internship or co-op; or approval of instructor.

MTDE 314 Skills for Technology Leadership

Credits 3. 3 Lecture Hours. Insight into career paths for engineers and technologists; emerging technology learning and evaluation; technology talent evaluation and management; elements of technology strategy; technology management processes and frameworks; communicating complex technologies; technology leader's roles in various organizations. **Prerequisites:** Junior or senior classification.

MTDE 315 Startup Fundamentals - Launching, Growing and Exiting a Startup Company

Credits 3. 3 Lecture Hours. Fundamental skills, experience, and training necessary to launch a startup company; techniques for growing the startup including branding, sales, transitioning from prototypes to production, human resources and organization design, and its operations; exit opportunities, such as understanding financials and company evaluations, developing negotiating skills, and exit options including, a strategic buyout, IPO, liquidation and bankruptcy. **Prerequisites:** Grade of C or better in MTDE 252; or approval of instructor.

MTDE 320 Engineering for Sustainable Development

Credits 3. 3 Lecture Hours. Principles of sustainable development applied to multidisciplinary engineering design; systems thinking approaches with aims towards optimal balances of technology benefits for society, economy, and environment; impacts of engineering innovation within realistic constraints; circular economy with engineering and financial implications. **Prerequisites:** Grade of C or better in ENGR 216/PHYS 216; junior or senior classification, or approval of instructor; also taught at Qatar campus.

MTDE 333 Project Management for Engineers

Credits 3. 3 Lecture Hours. Basic project management for engineering; project development and economic justification; estimating; scheduling; network methods; critical path analysis; earned value management; project organizational structures; project risk assessment; resource allocation; ethics; characteristics of project managers. **Prerequisites:** Junior or senior classification, classification in the College of Engineering or Biological and Agricultural Engineering, or approval of instructor; also taught at Qatar campus.

MTDE 334 Agile Project Management

Credits 3. 3 Lecture Hours. Agile approach of project management within the context of broader engineering disciplines; agile approaches and lifecycles; agile teams and roles; hybrid projects and tailoring tools; enterprise environmental factors; organizational structures; risk assessment; and principles of agile leadership. **Prerequisites:** Grade of C or better in ENGR 216/PHYS 216 or PHYS 216/ENGR 216, or approval of instructor.

MTDE 371 STEM in National Security

Credits 3. 3 Lecture Hours. Collection and processing of information from overseas by the U.S. Intelligence Community (IC) using science, technology, engineering, and mathematics (STEM); analysis of collected information on technical topics such as technology or weapons; overview of how different IC organizations recruit for and use STEM backgrounds; and process of the intelligence cycle from a STEM perspective including technical collection techniques, cyber and counterintelligence issues, and production of technical analysis for policymakers using open source information. **Prerequisites:** Grade of C or better in PHYS 206; or approval of instructor.

MTDE 380 Seminar Series in Engineering Project Management

Credit 1. 1 Lecture Hour. Presentations by practicing engineers and professionals addressing engineering project management process and practice; discussion forum to better understand the opportunities and challenges of engineering project management and the analytical tools and skills required to be successful. **Prerequisites:** Grade of C or better in MTDE 333 or concurrent enrollment; or approval of instructor; junior or senior classification in the College of Engineering or biological and agricultural engineering (BAEN).

MTDE 381 Professional Development Seminar-Subsea Engineering

Credit 1. 1 Lecture Hour. Presentations by subsea engineering industry experts; relation of subsea engineering principles to real world scenarios; application of analytical reasoning through class presentations, discussions, assignments, reports, specific to subsea field development design and operations; proper design and operation of subsea production systems including subsea hardware, umbilicals, risers, flowlines, flow assurance, subsea architectures, multiphase flow and several related areas of subsea production systems. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisite:** Grade of C or better in MTDE 430, or concurrent enrollment; or approval of instructor.

MTDE 409 Patent Law for Engineers

Credits 3. 3 Lecture Hours. Exploration of how proprietary interests in technology are protected by patent law, with a focus on issues of patent validity, patent-eligible subject matter and the enforcement of patent rights.

MTDE 421 Technology Company Management, Leadership, and Corporate Culture

Credits 3. 3 Lecture Hours. Strategic challenges associated with enterprise management and leadership; establishing and maintaining a sustainable brand; developing an effective corporate culture; dealing with global competition; case studies in strategic thinking. **Prerequisites:** Grade of C or better in MTDE 311, MTDE 312, MTDE 313, or MTDE 314, or approval of instructor.

MTDE 430 Fundamentals of Subsea Engineering

Credits 3. 3 Lecture Hours. Orientation to subsea engineering fundamentals, including SURF (Subsea, Umbilicals/Controls, Risers, Flowlines) equipment and configurations; exposure to practical, industry focused problems; subsea equipment components; design considerations and design drivers; subsea production operations; integrity critical maintenance activities. **Prerequisites:** Junior or senior classification; enrolled in the College of Engineering or approval of instructor.

MTDE 432 Subsea Project Implementation

Credits 3. 3 Lecture Hours. Overview of the realization of a subsea development project; includes all stages from discovery to pre-commissioning of the subsea infrastructure. **Prerequisite:** Grade of C or better in MTDE 430 or concurrent enrollment.

MTDE 433 Transition from Fossil Fuels

Credits 3. 3 Lecture Hours. Current status of energy supplies; overview of energy source trends and forecast of what will be seen in the future; examination of renewable energy sources, their technology, what the challenges are and how will these be overcome; key consideration appraises how the transition will be founded on what we are doing now. **Prerequisites:** Junior or senior classification; enrolled in the College of Engineering.

MTDE 440 Subsea Hardware Design

Credits 3. 3 Lecture Hours. Basic elements that make up subsea hardware assemblies; understanding of how these elements work together in a system; decision, design, and project teaming processes for subsea hardware projects. **Prerequisite:** Grade of a C or better MTDE 430; or approval of instructor.

MTDE 441 Subsea Umbilical and Control System Design

Credits 3. 3 Lecture Hours. Practical view of subsea umbilical and controls system project realization from concept selection through installation and offshore acceptance testing. **Prerequisite:** Grade of C or better in MTDE 430, or concurrent enrollment.

MTDE 442 Subsea Pipeline Design

Credits 3. 3 Lecture Hours. Realization of pipeline projects from concept selection through installation and offshore acceptance testing; emphasis on practical applications of theory to project delivery. **Prerequisite:** Grade of C or better in MTDE 430 or approval of instructor.

MTDE 443 Subsea Riser Design

Credits 3. 3 Lecture Hours. Realization of subsea riser projects from concept selection through installation and offshore acceptance testing; emphasis on practical applications of theory. **Prerequisite:** Grade of C or better in MATH 251 or MATH 253, and MATH 308; or approval of instructor.

MTDE 445 The Hydrogen Economy

Credits 3. 3 Lecture Hours. Advances in the hydrogen economy and hydrogen production from renewable sources; hydrogen storage, transport, delivery and utilization of clean energy using decarbonization methods; design and operation of hydrogen production hubs and equipment; integrity of critical maintenance activities; case studies of commercial applications; current technological challenges and innovations; economic and risk analyses and their controls. **Prerequisites:** Junior or senior classification; enrollment in the College of Engineering or approval of instructor.

MTDE 446 Applied Reliability Engineering to Subsea Systems

Credits 3. 3 Lecture Hours. Overview of the application of reliability engineering to subsea systems and all stages from discovery to pre-commissioning of the subsea infrastructure. **Prerequisite:** Grade of C or better in MATH 251 and MATH 308; or approval of instructor.

MTDE 450 Flow Assurance Operability of Subsea Systems

Credits 3. 3 Lecture Hours. Hydrocarbon production and transport from offshore fields to the host facilities, including prevention and remediation of phenomena that hinder fluid flow in production systems; subsea architecture, hydrodynamic and thermal considerations, reservoir fluid characterization and analysis, solids management, thermal hydraulics and production chemistry. **Prerequisite:** Grade of C or better in MTDE 430 or approval of instructor.

MTDE 451 Subsea Production Operations

Credits 3. 3 Lecture Hours. Multiphase hydrocarbon production and transport from offshore fields to host facilities under both steady-state and transient conditions; including reservoir and SURF system management through chemical gas and water injection, surface and subsea processing, testing and maintenance through all phases of a subsea development. **Prerequisite:** Grade of C or better in MTDE 430 or approval of instructor.

MTDE 461 Product Lean Launch for Engineers

Credits 3. 2 Lecture Hours. 2 Lab Hours. Exercises in the creation of an engineering-centric business using lean startup principles; customer and market validation; value proposition creation; minimum viable product (MVP) development; customer value chain discovery; communication skill training; development of a business model canvas for a student-developed engineering product business idea. **Prerequisites:** Grade of C or better in MTDE 311, MTDE 312, MTDE 313, or MTDE 314; or approval of instructor.

MTDE 485 Directed Studies

Credits 0 to 6. 0 to 6 Other Hours. Directed studies within the field of multidisciplinary engineering. **Prerequisite:** Junior or senior classification and approval of multidisciplinary engineering director or delegate.

MTDE 489 Special Topics In...

Credits 1 to 4. 1 to 4 Other Hours. Selected topics in an identified area of multidisciplinary engineering. May be repeated for credit.

MTDE 491 Research

Credits 1 to 6. 1 to 6 Other Hours. Research conducted under the direction of faculty member in multidisciplinary engineering. **Prerequisite:** Junior or senior classification and approval of multidisciplinary engineering director or delegate.

MUSC - Music (MUSC)

MUSC 102 Fundamentals of Music

Credits 3. 3 Lecture Hours. (MUSI 1303) Fundamentals of Music. Introduction to the basic elements of music (pitch, rhythm, scales, intervals and triads) and how these elements interrelate to form musical compositions; the application of musical understanding to particular instruments such as the guitar, keyboard, recorder and voice.

MUSC 115 Fundamentals of Music Technology

Credits 3. 3 Lecture Hours. 1 Lab Hour. Introduction to technology used for professional music performance; discussion of recording technology and procedures, live settings, technology of musical instruments, and sound reinforcement.

MUSC 130 Introduction to Music Performance

Credits 3. 3 Lecture Hours. Introduction to music performance practices; consideration of artistic development, collaborative process, marketing, cross-cultural influence, and creative process; performance in individual, small ensemble, and large ensemble settings.

MUSC 140 Introduction to InterArts Performance

Credits 3. 3 Lecture Hours. Introduction of musical performance practices or styles that intersect with other art forms or mediums, such as dance, visual art, theatre, film, or video games; consideration of artistic, aesthetic, collaborative and creative development.

MUSC 200 Topics in Music

Credits 3. 3 Lecture Hours. Study of a particular musical topic in its sociohistorical context; emphasis on the aesthetic, historical, social, and cultural aspects of a musical style or genre rather than on technical analysis. May be repeated for credit.

MUSC 201 Music and the Human Experience

Credits 3. 3 Lecture Hours. (MUSI 1306) Music and the Human Experience. An introduction to music and related issues; designed to enhance the student's knowledge and perception of music; selected works in various styles within historical, psychological and aesthetic contexts; also taught at Qatar campus.

MUSC 203 Sonic Design

Credits 3. 3 Lecture Hours. Exploration of definitions, methodologies, and applications of sonic design; discussion and analysis of sound creation and its uses or meanings; individual and collaborative sonic design projects.

MUSC 204 Music Theory I

Credits 2. 2 Lecture Hours. 0 Lab Hours. (MUSI 1311) Music Theory I. Principles of music of western and global traditions including harmonic, rhythmic, melodic and phrase or period structures; written analysis of short musical excerpts; composition or transcription of musical examples in common practice; period, global and popular styles. **Prerequisites:** Grade of C or better in MUSC 208, or concurrent enrollment; major or minor in Music or Performance Studies, or approval of instructor.

MUSC 205 Music Theory II

Credits 2. 2 Lecture Hours. (MUSI 1312) Music Theory II. Study of notation and transmission methods of musics in western and global traditions; examination of structural principles of tonal harmony and voice leading including chromaticism, modulation and secondary functions; analysis of large musical forms including 12-bar blues, binary, ternary, rondo and sonata-allegro. **Prerequisites:** Grade of C or better in MUSC 210 or concurrent enrollment; grade of C or better in MUSC 204 and MUSC 208; major or minor in Music, or approval of instructor.

MUSC 206 Music Theory III

Credits 2. 2 Lecture Hours. Study of notation and transmission methods in musics of western and global traditions including extended harmonic, rhythmic and melodic and post-tonal principles; examination of structural principles of tonal and post-tonal harmony; includes mode mixture, enharmonicism, and extended chromaticism; analysis of chromatic and contemporary music from classical, popular, and global music genres. **Prerequisites:** Grade of C or better in MUSC 205 and MUSC 210; grade of C or better in MUSC 212 or concurrent enrollment; major or minor in Music; or approval of instructor.

MUSC 208 Musicianship I

Credit 1. 3 Lab Hours. Application of principles of western and global music theory studied in MUSC 204; focus on embodiment, improvisation, memorization, aural identification, analysis, sight-singing, rhythm, and keyboard skills; application of skills to performance, composition and pedagogical literature; case studies in global and non-traditional music practices. **Prerequisites:** Grade of C or better in MUSC 204 or concurrent enrollment; major or minor in Music or Performance Studies, or approval of instructor.

MUSC 210 Musicianship II

Credit 1. 3 Lab Hours. Application of principles of western and global music theory traditions studied in MUSC 205; focus on continued development of embodiment, improvisation, memorization, aural identification and analysis, sight-singing, rhythm, and keyboard skills; application of skills to performance, composition and pedagogical literature; case studies in global and non-traditional music practices. **Prerequisites:** Grade of C or better in MUSC 204 and MUSC 208; concurrent enrollment in MUSC 205; major or minor in Music; or approval of instructor.

MUSC 211 Collaborative Musicianship

Credits 3. 3 Lecture Hours. Project-based approach to Western music traditions; critical reflection on aesthetics and performance of Western music; cross-cultural influences; notation and ear training; knowledge applied to the creative process. **Prerequisites:** Major or minor in PERF, or approval of instructor.

MUSC 212 Musicianship III

Credit 1. 3 Lab Hours. 0 Other Hours. Application of advanced principles of western and global music theory traditions explored in MUSC 206; focus on expanded development of embodiment, improvisation, memorization, aural identification and analysis, sight-singing, rhythm, and keyboard skills in chromatic and post-tonal music; application of skills to performance literature, composition, and analysis; case studies in global and non-traditional music practices. **Prerequisites:** Grade of C or better in MUSC 205 and MUSC 210; concurrent enrollment in MUSC 206; major or minor in Music; or approval of instructor.

MUSC 220 Music History Survey

Credits 3. 3 Lecture Hours. Overview of historical developments in music from antiquity to the contemporary era; exploration of musical characteristics, significant composers or performers, and cultural-social context; selected works from within historical, psychological, societal, and aesthetic contexts.

MUSC 221 Guitar Heroes

Credits 3. 3 Lecture Hours. Survey of social, cultural and aesthetic transformations of music history centered on important classical guitarists; exploration of their performance and compositional/musical styles; analysis of how their contributions gave rise to and revived the guitar's popularity as a concert-level instrument in both the classical and folk idioms.

MUSC 222 Music of the Americas

Credits 3. 3 Lecture Hours. Evolution of music of the Americas and the Caribbean; influence of natives, people of forced relocation and people from European communities; the syncretic process of music making.

MUSC 224 History of Country and Western Music

Credits 3. 3 Lecture Hours. Examination of the development of country music; emphasis on how the sounds and meaning of music reflect culture, ideology, and history.

MUSC 225 History of Jazz

Credits 3. 3 Lecture Hours. (MUSC 1310) History of Jazz. Non-technical survey of jazz as America's classical music, from the earliest recorded blues through the most recent trends; examination of how jazz has broadly expressed issues of modern life.

MUSC 226 History of Rock

Credits 3. 3 Lecture Hours. Examination of the development of rock music; emphasis on how the sounds and meaning of music reflects culture, ideology and history; also taught at Galveston campus.

MUSC 230 Topics in Music Analysis

Credits 3. 3 Lecture Hours. Analysis of a particular musical style, genre, or period; focus on aesthetic characteristics, compositional aspects, and repertoire; analysis of written compositions, aural examples, and/or live performance. May be repeated for credit. **Prerequisites:** Major or minor in Music; grade of C or better in MUSC 204 and MUSC 208; or approval of instructor.

MUSC 235 Introduction to Composition

Credits 3. 3 Lecture Hours. Significant styles and techniques in contemporary music including classical, jazz and popular trends; contemporary sonic design achieved through written exercises, reading and critical listening.

MUSC 241 Music and Video Games

Credits 3. 3 Lecture Hours. 1 Lab Hour. Examination of the development of music in video games; exploration of theoretical issues and subjects within ludomusicology; emphasis on how the sounds and meaning of video game music reflect culture, ideology and history; creative music composition/sonic design for a video game.

MUSC 242 Music and Dance

Credits 3. 3 Lecture Hours. Study of dance-music relations in various sociocultural contexts; emphasis on the aesthetic, historical, social, and cultural aspects of music and dance rather than on technical analysis.

MUSC 243 Music and Visual Art

Credits 3. 3 Lecture Hours. Study of the relationship between music and the visual arts, including painting, animation, and live concerts.

MUSC 244 Music and Film

Credits 3. 3 Lecture Hours. Study of film music history and analysis.

MUSC 245 Individual Instruction - Composition I

Credit 1. 2 Other Hours. Instruction in composition; the writing of small-form musical compositions; techniques for composing for instrumental, vocal, electronic, and mixed-media settings; emphasis on historical and theoretical aspects that relate to particular compositional practices and techniques. May be taken four times for credit. **Prerequisites** Grade of C or better in MUSC 235; or approval of instructor.

MUSC 246 Music and Theatre

Credits 3. 3 Lecture Hours. Study of music in theatrical productions; explorations of aesthetic, historical, social, and cultural aspects of performances that combine music and theatre; focus on diegetic and incidental use of music in theatre.

MUSC 253 Individual Instruction - Guitar Performance I

Credit 1. 0 Lecture Hours. 0 Lab Hours. 2 Other Hours. Instruction in guitar performance; study of a broad range of literature; special emphasis on historical and theoretical aspects that relate to particular performance practices and techniques; individual lesson and group studio meeting. May be taken four times for credit. **Prerequisites:** Approval of instructor.

MUSC 254 Individual Instruction - Vocal Performance I

Credit 1. 2 Other Hours. Instruction in vocal performance; study of a broad range of literature; special emphasis on historical and theoretical aspects that relate to particular performance practices and techniques; individual lesson and group studio meeting. May be taken four times for credit. **Prerequisites:** Approval of instructor.

MUSC 255 Individual Instruction - Piano Performance I

Credit 1. 2 Other Hours. Instruction in piano performance; study of a broad range of literature; special emphasis on historical and theoretical aspects that relate to particular performance practices and techniques; individual lesson and group studio instruction. May be taken four times for credit. **Prerequisites:** Approval of instructor.

MUSC 256 Individual Instruction - String Performance I

Credit 1. 2 Other Hours. Instruction in string performance; study of a broad range of literature; special emphasis on historical and theoretical aspects that relate to particular performance practices and techniques; individual lesson and group studio instruction. May be taken four times for credit. **Prerequisites:** Approval of instructor.

MUSC 270 Individual Instruction: Woodwind Performance I

Credit 1. 2 Other Hours. Instruction in woodwind performance; study of a broad range of literature; special emphasis on historical and theoretical aspects that relate to particular performance practices and techniques; individual lesson and group studio instruction. May be taken four times for credit. **Prerequisites:** Approval of instructor.

MUSC 271 Individual Instruction - Brass Performance I

Credit 1. 2 Other Hours. Instruction in brass performance; study of a broad range of literature; special emphasis on historical and theoretical aspects that relate to particular performance practices and techniques; individual lesson and group studio instruction. May be taken four times for credit. **Prerequisites:** Approval of instructor.

MUSC 272 Individual Instruction - Percussion Performance I

Credit 1. 2 Other Hours. Instruction in percussion performance; study of a broad range of literature; special emphasis on historical and theoretical aspects that relate to particular performance practices and techniques; individual lesson and group studio instruction. May be taken four times for credit. **Prerequisites:** Approval of instructor.

MUSC 273 Individual Instruction - Electronic Music Performance I

Credit 1. 2 Other Hours. Instruction in electronic music performance; study of a broad range of literature; special emphasis on historical and theoretical aspects that relate to particular performance practices and techniques; exploration of new technologies; individual lesson and group studio instruction. May be taken four times for credit. **Prerequisites:** Approval of instructor.

MUSC 277 Marching Band

Credit 1. 4 Lab Hours. Auditioned playing and marching band; serves as the official university band for Texas A&M University; perform for football games, Corps of Cadets events, and mandated university functions; performance-based course designed to improve marching and playing skills. **Prerequisites:** Previous high school marching and playing experience.

MUSC 280 Ensemble Performance-University Concert Bands

Credit 1. 3 Lab Hours. Four select musical performing ensembles (Wind Symphony, Symphonic Winds, Symphonic Band, and Concert Band) composed of 65 to 100 members each and devoted to learning the extensive literature written for wind band; activities include at least two concerts per semester; occasional national and international tours each spring. Students may register in up to but no more than two different sections of this course. May be repeated for credit. **Prerequisite:** Satisfactory audition.

MUSC 282 Ensemble Performance--Jazz Ensemble

Credit 1. 3 Lab Hours. A select musical performing ensemble of 18 to 25 members devoted to performing all styles and periods of jazz music from big band to modern jazz; activities include at least 2 performances each semester. May be repeated for credit. **Prerequisite:** Satisfactory audition.

MUSC 283 Ensemble Performance-University Orchestras

Credit 1. 3 Lab Hours. Two select orchestral performing ensembles (Chamber Orchestra and Philharmonic Orchestra) devoted to the rehearsal and performance of orchestral literature of various historical backgrounds; activities include full ensemble rehearsal, individual practice and public performances with the development of knowledge, understanding and appreciation for aspects of music ranging from the Renaissance to the Modern Era. **Prerequisites:** Previous orchestral experience; successful audition.

MUSC 290 Ensemble Performance--Choir

Credit 1. 1 Other Hour. A select musical performing ensemble composed of 40 to 70 members devoted to learning and performing works from the vast repertory of choral music from all historical periods and styles; several performances, occasionally with orchestra, each semester on and off campus. Students may register in up to but no more than two different sections of this course. May be repeated for credit. **Prerequisite:** Satisfactory audition.

MUSC 300 Music Research and Writing

Credits 3. 3 Lecture Hours. Techniques and methodologies for researching and writing about music; major writing component. **Prerequisites:** Junior or senior classification; major or minor in Music, or approval of instructor.

MUSC 305 Music Entrepreneurship

Credits 3. 3 Lecture Hours. Exploration of career paths, best practices, and practicalities of life in the music business; professional development and preparation for careers in the music industry; mentorship; opportunities for collaborative creativity. **Prerequisites:** Junior or senior classification; major or minor in music, or approval of instructor.

MUSC 311 Music History I

Credits 3. 3 Lecture Hours. Overview of various musical expressions around the world between Classical Greco-Roman Antiquity and 1750. **Prerequisites:** Junior or senior classification.

MUSC 312 Music History II

Credits 3. 3 Lecture Hours. Overview of various musical expressions around the world between 1750 and 1900. **Prerequisites:** Junior or senior classification.

MUSC 315 Music History III

Credits 3. 3 Lecture Hours. Overview of various musical expressions around the world since 1900. **Prerequisites:** Junior or senior classification.

MUSC 323 Global Hip Hop

Credits 3. 3 Lecture Hours. Examination of global and diasporic networks of hip hop music and culture; emphasis on the musical, visual, embodied, and intellectual artistic expressions of hip hop; discussion of hip hop's engagement with youth culture, politics, activism, media and industry, identity, and historical contexts. **Prerequisite:** Junior or senior classification or approval of instructor.

MUSC 324/ANTH 324 Music in World Cultures

Credits 3. 3 Lecture Hours. Examination of music from an ethnomusicological perspective focusing on musical performance and the complex interrelationship of music to culture, society and daily life; examination of music from a variety of cultures through a series of case studies. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** ANTH 324/MUSC 324.

MUSC 327/AFST 327 Popular Musics in the African Diaspora

Credits 3. 3 Lecture Hours. Examination of a range of popular musics from the twentieth century that have emerged in conjunction with the historical global spread of peoples and cultures from the African continent; technical knowledge about music is not required; focus on social and cultural contexts for popular music. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** AFST 327/MUSC 327.

MUSC 330 Music Performance Project

Credits 3. 3 Lecture Hours. 1 Lab Hour. Investigation of a particular musical practice through discussion, analysis, and embodied performance; participation in a public performance; techniques and methods of performance project design, development, and production; emphasis on collaboration. May be repeated for credit. **Prerequisites:** Major or minor in Music; grade of C or better in MUSC 130; or approval of instructor.

MUSC 335 Sonic Improvisation

Credits 3. 3 Lecture Hours. Exploration of sonic improvisation in cultural, social, and performative settings; discussion and analysis of role and meaning of global improvisational performance practices; project-based study of improvisational techniques in sound and music; collaborative creation and performance of improvised sound and music. **Prerequisite:** Junior or senior classification.

MUSC 345 Advanced Composition

Credits 3. 3 Lecture Hours. Advanced instruction in composition; the writing of large-form musical compositions employing contemporary styles; techniques in writing for instrumental, vocal, electronic and mixed-media resources. **Prerequisites:** Grade of C or better in MUSC 235, or approval of instructor.

MUSC 353 Individual Instruction - Guitar Performance II

Credit 1. 2 Other Hours. Advanced instruction in guitar performance; study of a broad range of literature; special emphasis on historical and theoretical aspects that relate to particular performance practices and techniques; individual lesson and group studio meeting. May be taken four times for credit. **Prerequisites:** Junior or senior classification; MUSC 253, and approval of instructor.

MUSC 354 Individual Instruction - Vocal Performance II

Credit 1. 2 Other Hours. Advanced instruction in vocal performance; study of a broad range of literature; special emphasis on historical and theoretical aspects that relate to particular performance practices and techniques; individual lesson and group studio meeting. May be taken four times for credit. **Prerequisites:** Junior or senior classification; MUSC 254 or approval of instructor.

MUSC 355 Individual Instruction - Piano Performance II

Credit 1. 2 Other Hours. Advanced instruction in piano performance; study of a broad range of literature; special emphasis on historical and theoretical aspects that relate to particular performance practices and techniques; individual lesson and group studio instruction. May be taken four times for credit. **Prerequisites:** Junior or senior classification; MUSC 255; or approval of instructor.

MUSC 356 Individual Instruction - String Performance II

Credit 1. 2 Other Hours. Advanced instruction in string performance; broad range of literature with special emphasis on the historical and theoretical aspects that reveal the performance practices of specific periods; individual and group laboratory instruction. May be taken four times for credit. **Prerequisites:** Junior or senior classification; MUSC 256; or approval of instructor.

MUSC 370 Individual Instruction - Woodwind Performance II

Credit 1. 2 Other Hours. Advanced instruction in woodwind performance; study of a broad range of literature; special emphasis on historical and theoretical aspects that relate to particular performance practices and techniques; individual lesson and group studio instruction. May be taken four times for credit. **Prerequisites:** Junior or senior classification; MUSC 270; or approval of instructor.

MUSC 371 Individual Instruction - Brass Performance II

Credit 1. 2 Other Hours. Advanced instruction in brass performance; study of a broad range of literature; special emphasis on historical and theoretical aspects that relate to particular performance practices and techniques; individual lesson and group studio instruction. May be taken four times for credit. **Prerequisites:** Junior or senior classification; MUSC 271; or approval of instructor.

MUSC 372 Individual Instruction - Percussion Performance II

Credit 1. 2 Other Hours. Advanced instruction in percussion performance; study of a broad range of literature; special emphasis on historical and theoretical aspects that relate to particular performance practices and techniques; individual lesson and group studio instruction. May be taken four times for credit. **Prerequisites:** Junior or senior classification; MUSC 272; or approval of instructor.

MUSC 373 Individual Instruction - Electronic Music Performance II

Credit 1. 2 Other Hours. Advanced instruction in electronic music performance; study of a broad range of literature; special emphasis on historical and theoretical aspects that relate to particular performance practices and techniques; exploration of new technologies; individual lesson and group studio instruction. May be taken four times for credit. **Prerequisites:** Junior or senior classification; MUSC 273; or approval of instructor.

MUSC 375 Individual Instruction - Composition II

Credit 1. 2 Other Hours. Advanced instruction in composition; the writing of small-form musical compositions; techniques for composing for instrumental, vocal, electronic, and mixed-media settings; emphasis on historical and theoretical aspects that relate to particular compositional practices and techniques. May be taken four times for credit. **Prerequisites:** Junior or senior classification; MUSC 245; or approval of instructor.

MUSC 381 Small Ensembles

Credits 1 to 3. 1 to 3 Lecture Hours. Performance and research in ensemble settings covering a wide variety of genres from world cultures, including contemporary, historical, popular, folk and classical genres. **Prerequisites:** Performance Studies major or minor, junior or senior classification, or approval of instructor.

MUSC 386/THEA 386 Evolution of the American Musical

Credits 3. 3 Lecture Hours. Examination of the American musical from its heterogeneous origins to a thriving and diverse expression of the human condition; analysis and critical discourse on the development of the American musical through text, audio and visual recordings. **Prerequisites:** Junior or senior classification or approval of instructor. **Cross Listing:** THEA 386/MUSC 386.

MUSC 424 Topics in Ethnomusicology

Credits 3. 3 Lecture Hours. Study and application of ethnomusicological theory, method, and literature in a variety of historical and geographical contexts. May be taken four times for credit. **Prerequisite:** Junior or senior classification.

MUSC 430 Music Performance Studio

Credits 3. 2 Lecture Hours. 3 Lab Hours. Practice of conceiving, designing, researching, developing, rehearsing, and staging musical performance in small groups; application of best practices and strategies for collaborative creation; advanced techniques and skills for musical performance; discussion and critical analysis of musical performance. May be repeated for credit. **Prerequisites:** Major or minor in Music; grade of C or better in MUSC 130 and MUSC 330; or approval of instructor.

MUSC 441 Music Performance Capstone

Credits 3. 1 Lecture Hour. 5 Lab Hours. Design, development, and presentation of an individually-chosen performance-based project; major writing and oral communication components. **Prerequisites:** Music major; MUSC 430; junior or senior classification.

MUSC 479 Advanced Topics in Music Technology

Credits 3. 3 Lecture Hours. Theory, aesthetics, and application of advanced concepts and skills relating to music technology. May be taken 4 times for credit. **Prerequisites:** MUSC 316 or approval of instructor.

MUSC 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. ..Selected topics in an identified area of music. **Prerequisites:** Approval of instructor.

MUSC 491 Research

Credits 0 to 3. 0 to 3 Other Hours. Research conducted under the direction of a faculty member in music. **Prerequisites:** Junior or senior classification and approval of instructor.

MUST - Museum Studies (MUST)

MUST 221/ARCH 221 Foundations of Museum Studies

Credits 3. 3 Lecture Hours. Introduction to museums, cultural heritage and collections care; best practices for non-profit institutions, public engagement and the collection, preservation and exhibition of material culture; emphasis on archaeological, ethnographic, and historical collections, or other collections of cultural significance. **Cross Listing:** ARCH 221/MUST 221.

MUST 421/ANTH 421 Advanced Museum Studies

Credits 3. 2 Lecture Hours. 3 Lab Hours. Exploration of advanced topics in museum programs; preservation, research, education, outreach; development and implementation; emphasis on historical contexts, disciplinary intersections, ethical obligations and professional responsibilities; service to community, state and national interest and advancement of sciences. **Prerequisites:** Grade of C or better in MUST 221/ARCH 221, ARCH 221/MUST 221, or MAST 220; junior or senior classification. **Cross Listing:** ANTH 421/MUST 421.

MUST 484 Internship

Credits 0 to 3. 0 to 3 Other Hours. Provides students with the opportunity to gain practical experience in a variety of cultural heritage settings, including museums, archives, libraries, art galleries, conservation and preservation laboratories, and collection facilities. May be taken four times for credit. **Prerequisites:** Junior or senior classification or approval of instructor.

MXET - Multidiscip Engr Tech (MXET)

MXET 220 Science, Technology, Engineering and Mathematics (STEM) Education Foundations

Credits 2. 1 Lecture Hour. 2 Lab Hours. Introduction to Science, Technology, Engineering and Mathematics (STEM) education approaches, planning, and analyzing; foundations of K-12 workshops in prototyping, mobile app programming, engineering design, robotics, and Computer-Aided Design (CAD); focus on implementation, testing, documentation, demonstration, and classroom management. **Prerequisites:** Sophomore level classification; MXET major; or approval of instructor.

MXET 250 Robotic Systems Design

Credits 3. 2 Lecture Hours. 3 Lab Hours. Principles of robotic systems design, fabrication, programming, and testing; fundamentals of mechanisms, mechanical power transmission, dynamics of mechanisms, instrumentation, actuation, and computer simulation. **Prerequisites:** Freshman or sophomore classification; MXET major; or approval of instructor.

MXET 300 Mechatronics I – Mobile Robotic Systems

Credits 3. 2 Lecture Hours. 3 Lab Hours. Mechanical, electronic, software, control and communications aspects of embedded intelligence-based electromechanical systems with a focus on mobile robotic platforms. **Prerequisites:** Grade of C or better in MXET 375, PHYS 207, and ENGR 217/PHYS 217 or PHYS 217/ENGR 217; grade of C or better in ESET 359 or concurrent enrollment.

MXET 345 Numerical Methods in Robotics Applications

Credits 3. 2 Lecture Hours. 2 Lab Hours. Vectors and Matrices, Numerical Integration and Differentiation, Linear System of Equations, Root Finding, Curve Fitting, Ordinary Differential Equations, with applications in Manipulator Dynamics, Forward and Inverse Kinematics, Trajectory Generation, and Simulation Dynamics. **Prerequisites:** Grade of C or better in MATH 151, MATH 152; junior or senior classification in multidisciplinary engineering technology; or approval of instructor.

MXET 375 Applied Dynamic Systems

Credits 3. 2 Lecture Hours. 3 Lab Hours. Study of translational mechanical system dynamics, rotational mechanical system dynamics, electrical system dynamics modeling, electro-mechanical/mechatronics system dynamics, fluid power dynamics and 2 dimensional rigid body dynamics. **Prerequisites:** Grade of C or better in MMET 275; junior or senior classification in an engineering technology major.

MXET 400 Mechatronics II – Industrial Robotic Systems

Credits 3. 2 Lecture Hours. 3 Lab Hours. Study and analysis of industrial robotics and automation processes necessary for robot-centric work cell design and operation. **Prerequisites:** Grade of C or better in MXET 300; grade of C or better in ESET 462 or concurrent enrollment, junior or senior classification in multidisciplinary engineering technology.

MXET 450 Artificial Intelligence for Mechatronics

Credits 3. 2 Lecture Hours. 2 Lab Hours. Principles of Artificial Intelligence and Machine Learning; Reinforcement Learning; Path Planning; Decision Making; and Intelligent Control and their applications in designing Intelligent Autonomous Systems. **Prerequisites:** Grade of C or better in MATH 151, MATH 152, and MXET 300; grade of C or better in ESET 462 or concurrent enrollment; junior or senior classification in multidisciplinary engineering technology; or approval of instructor.

MXET 485 Directed Studies

Credits 1 to 6. 1 to 6 Other Hours. Directed study of selected problems in an in an area of multidisciplinary engineering technology not covered in other courses. May be repeated for credit. **Prerequisites:** Senior classification and approval of instructor.

MXET 491 Research

Credits 0 to 4. 0 Lecture Hours. 0 Lab Hours. 0 to 4 Other Hours. Research conducted under the direction of faculty member in the college of engineering. May be repeated three times for credit. **Prerequisites:** Junior or senior classification and approval of instructor.

NAUT - Nautical Science (NAUT)

NAUT 300 Intermediate Communications, Navigation and Seamanship

Credits 6. 6 Lecture Hours. Practical application of classroom studies aboard training ship during second training cruise; intermediate projects in communications, navigation, seamanship and rules of the road; thorough study made of U.S. Public Health requirements in first aid. **Prerequisites:** MART 200 or NAUT 200, 301, 303, METR 302, or approval of MART department head; junior or senior classification or approval of instructor.

NAUT 400 Advanced Communications, Navigation and Seamanship

Credits 6. 6 Lecture Hours. Practical application of classroom studies aboard training ship during third training cruise; advanced projects in communications, navigation, seamanship and rules of the road. **Prerequisites:** NAUT 200, 300, 302, 304 MART 321, 406; junior or senior classification or approval of instructor.

NRSC - Neuroscience (NRSC)

NRSC 201/VIBS 201 History of Neuroscience

Credit 1. 1 Lecture Hour. Wide spectrum of neuroscience discovery beginning at the turn of the 20th Century; emphasis on key discoveries and their rationale, experimental design, experimental methods, major findings and interpretation of results. **Prerequisites:** Sophomore classification. **Cross Listing:** VIBS 201/NRSC 201.

NRSC 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of neuroscience. May be repeated for credit. **Prerequisite:** Approval of instructor.

NRSC 401/VIBS 401 Developmental Neurotoxicology

Credits 3. 3 Lecture Hours. Effects of exposure to toxic substances on the developing nervous system; content to include mechanisms of toxicity of substances potentially devastating to the developing nervous system including lead, mercury and other heavy metals, alcohol, nicotine (smoking), pesticides, flame retardants, and others. **Prerequisites:** Grade of C or better in CHEM 258 or CHEM 228; junior or senior classification; VIBS 277 or NRSC 277 recommended. **Cross Listing:** VIBS 401/NRSC 401.

NRSC 407/VIBS 407 Core Ideas in Neuroscience

Credits 2. 2 Lecture Hours. General overview of selected core ideas across the full spectrum of neuroscience. **Prerequisite:** Junior or senior classification; background in science courses recommended. **Cross Listing:** VIBS 407/NRSC 407.

NRSC 428/BIOL 428 Cellular Neuroscience

Credits 3. 3 Lecture Hours. Cell biology, molecular biology and biophysics of neurons as it pertains to their fundamental role in the physiological basis of behavior; study of how neurons create, maintain and exploit electrical signals for information coding and transmission; principles of electrical and chemical signaling between neurons, and the role of intracellular signaling for signal modulation and synaptic plasticity; exploration of a broad range of state-of-the-art molecular tools currently used to study the nervous system, and the cellular basis for many of the most common neurological disorders affecting humans as well as the strategies and therapies for their treatment. **Prerequisites:** BIOL 213 and PSYC 235, or approval of instructor. **Cross Listing:** BIOL 428.

NRSC 434/BIOL 434 Regulatory and Behavioral Neuroscience

Credits 3. 3 Lecture Hours. Cell biology and biophysics of neurons; functional organization of the vertebrate nervous system; physiological basis of behavior. **Prerequisites:** BIOL 213; BIOL 319, BIOL 320, BIOL 388, BIOL 413, or PBSI 235, or approval of instructor. **Cross Listing:** BIOL 434/NRSC 434.

NRSC 444/BIOL 444 Neural Development

Credits 3. 3 Lecture Hours. Cellular and molecular mechanisms of nervous system development including neural induction and the basis of complex behaviors; use of a wide range of model organisms with a specific emphasis on vertebrate nervous system development. **Prerequisites:** BIOL 213, BIOL 319, BIOL 320, BIOL 413, BIOL 388, or PBSI 235. **Cross Listing:** BIOL 444/NRSC 444.

NRSC 485 Directed Studies

Credits 0 to 3. 0 to 3 Other Hours. Directed readings or research problems in selected areas designed to supplement existing course offerings conducted under the direction of a member of the Faculty of Neuroscience. May be repeated for credit. **Prerequisite:** Approval of member of the faculty of neuroscience.

NRSC 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of neuroscience. May be repeated for credit. **Prerequisite:** Approval of instructor.

NRSC 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of a member of the Faculty of Neuroscience. May be repeated for credit. **Prerequisites:** Junior or senior classification and approval of member of the faculty of neuroscience.

NUEN - Nuclear Engineering (NUEN)

NUEN 101 Principles of Nuclear Engineering

Credit 1. 1 Lecture Hour. Introduction to nuclear engineering including global and national energy requirements, radioactivity, radiation protection, and fission and fusion reactor concepts.

NUEN 102 Nuclear Engineering Practice

Credits 0. 0 Other Hours. Participation in an approved high-impact learning practice; reflection on professional outcomes from engineering body of knowledge; documentation and self-assessment of learning experience at mid-curriculum point. **Prerequisite:** NUEN 101.

NUEN 201 Introduction to Nuclear Engineering I

Credits 3. 3 Lecture Hours. Atomic and nuclear physics discoveries that have led to the development of nuclear engineering, atomic models, relativity, x-rays, types of nuclear reactors; problem solving techniques.

Prerequisites: Grade of C or better in MATH 251 and PHYS 207, or concurrent enrollment.

NUEN 265 Materials Science for Nuclear Energy Applications

Credits 3. 3 Lecture Hours. Materials science fundamentals with an emphasis on nuclear applications; topics will include bonding, crystal structures crystalline defects, mechanical properties and radiation effects in metal, ceramic and polymer materials. **Prerequisites:** Grade of C or better in CHEM 107 or CHEM 120; grade of C or better in PHYS 206.

NUEN 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of nuclear engineering. May be repeated for credit. **Prerequisite:** Approval of department head.

NUEN 301 Nuclear Reactor Theory

Credits 3. 3 Lecture Hours. An introduction to neutron diffusion theory, neutron moderation, conditions for criticality of nuclear reactors.

Prerequisites: Grade of C or better in NUEN 302 and MATH 308; grade of C or better in MATH 309 or concurrent enrollment.

NUEN 302 Introduction to Nuclear Engineering II

Credits 3. 3 Lecture Hours. Basic radioactivity, nuclear and neutron physics as applied to nuclear engineering. **Prerequisites:** Grade of C or better in NUEN 201; grade of C or better in MATH 308 or concurrent enrollment.

NUEN 303 Radiation Detection and Isotope Technology Laboratory

Credits 3. 2 Lecture Hours. 3 Lab Hours. Interaction of radiation with matter; behavior of various nuclear radiation detectors studied both theoretically and experimentally in laboratory; properties of radionuclides useful to industry considered and evaluated from engineering point of view; writing intensive course. **Prerequisite:** Grade of C or better in NUEN 309.

NUEN 304 Nuclear Reactor Analysis

Credits 3. 3 Lecture Hours. The group diffusion method, multi-region reactors, heterogeneous reactors, reactor kinetics, changes in reactivity. **Prerequisites:** Grade of C or better in NUEN 301 and MATH 309.

NUEN 309 Radiological Safety

Credits 3. 3 Lecture Hours. Interactions of nuclear radiations with matter and biological systems; theory and practice of radiation dosimetry as applied to radiation protection; design and application of radiation dosimetry systems for personnel monitoring, area radiation monitoring and accident situation; includes external and internal dosimetry as well as long-term risk analysis. **Prerequisites:** Grade of C or better in NUEN 302.

NUEN 315 Thermodynamics in Nuclear Systems

Credits 3. 3 Lecture Hours. Introduction of thermodynamic theory and application; thermodynamic properties and conservation of mass and energy; first and second laws of thermodynamics; energy transfer by heat, work and mass; analysis of open and closed systems; key thermodynamic components in nuclear systems including BWR, PWR and other types of reactors; application of thermodynamic cycles to nuclear power systems; and heat and mass balances throughout nuclear systems. **Prerequisites:** MEEN 221; MATH 251 or MATH 253.

NUEN 329 Analytical and Numerical Methods

Credits 3. 3 Lecture Hours. Introduction to use of numerical analysis and advanced analytical techniques for obtaining nuclear reactor flux distributions, temperatures and transients; use of digital computer in obtaining nuclear reactor design information. **Prerequisites:** Grade of C or better in MATH 309 and NUEN 301.

NUEN 330 Monte Carlo Radiation Transport and MCNP Code

Credits 3. 2 Lecture Hours. 2 Lab Hours. Principles of Monte Carlo method; statistical methods in Monte Carlo; random number generation; sampling methods for physical processes represented by Boltzmann transport equation; particle tracking in combinatorial geometry; ACE format cross-sections; introduction to MCNP code; MCNP applied to radiation shielding, criticality safety, reactor physics and detector modeling problems; MCNP output analysis; MCNP statistical tests; MCNP tallying procedures; Variance reduction techniques; introduction to develop Monte Carlo algorithms. **Prerequisite:** Grade of C or better in NUEN 302; grade of C or better or concurrent enrollment in NUEN 301; MCNP code single user license from RSICC, ORNL, USA; junior or senior classification.

NUEN 405 Nuclear Engineering Experiments

Credits 3. 2 Lecture Hours. 3 Lab Hours. Experimental measurements of basic nuclear reactor parameters; reactor operation and reactor safety.

Prerequisites: Grade of C or better in NUEN 303 and NUEN 304.

NUEN 406 Nuclear Engineering Systems and Design

Credits 3. 3 Lecture Hours. Nuclear plant systems; conventional and advanced generation power reactors, nuclear simulators, transient analysis using available software for reactor simulators; nuclear engineering design methodology; problem formulation, criteria, trade-off decisions and design optimization; case studies. **Prerequisite:** Grade of C or better in NUEN 304 and MEEN 461, or approval of instructor.

NUEN 410 The Design of Nuclear Reactors

Credits 4. 4 Lecture Hours. Application of reactor theory and other engineering disciplines in fundamental and practical design of nuclear reactor systems for power applications; use of computer in design operations. **Prerequisites:** Grade of C or better in NUEN 304, NUEN 406 and MEEN 461.

NUEN 416 Small Modular Reactors and Microreactors

Credits 3. 3 Lecture Hours. Advanced topics in small modular reactors (SMR) and microreactors (MR); unique applications in the field of nuclear energy; SMR and MR systems and applications for non-carbon emitting sources of electricity; issues for emerging countries with small electrical grids; utilization of modularity for construction and staging of plants; analysis of SMR and MR designs, technologies, economics, financing approaches and regulatory processes. **Prerequisites:** Grade of C or better in NUEN 302 or approval of instructor.

NUEN 417/MEEN 417 Basics of Plasma Engineering and Applications

Credits 3. 3 Lecture Hours. Basic plasma properties and confinement techniques; single particle orbits in electric and magnetic fields, moments of Boltzmann equation and introduction to fluid theory; wave phenomena in plasmas and introduction to plasma kinetic theory; analysis of laboratory plasmas and plasma applications including fusion, electric propulsion, materials processing and plasmas enhanced chemistry.

Prerequisites: Grade of C or better in PHYS 207 or equivalent; senior classification in nuclear, mechanical or aerospace engineering, or physics. **Cross Listing:** MEEN 417/NUEN 417.

NUEN 418 Fuel Assembly and 3-D Reactor Core Design and Modeling

Credits 3. 3 Lecture Hours. Application of state-of-the-art engineering-grade codes in the neutronic design, analysis and modeling of nuclear fuel assembly and core. **Prerequisites:** NUEN 304 and junior or senior classification.

NUEN 428 Computational Fluid Dynamics in Nuclear Thermal Hydraulics

Credits 3. 3 Lecture Hours. Computational fluid dynamics (CFD) as it relates to thermal hydraulics in nuclear power generation; computational model of important flow scenarios using appropriate mesh generation techniques; assessment of result validity through standard verification and validation practices. **Prerequisite:** Grade C or better in NUEN 329, MEEN 344, or equivalent.

NUEN 430 Computer Applications in Nuclear Engineering

Credits 3. 3 Lecture Hours. Applications of digital computers to solve nuclear engineering problems; nuclear data and cross-section libraries; deterministic methods for linear and non-linear nuclear systems, and Monte Carlo methods for linear nuclear systems. **Prerequisites:** NUEN 304, NUEN 329.

NUEN 431 Technical Communications Issues in the Nuclear Industries

Credit 1. 1 Lecture Hour. Introduction to a variety of topics that present communication challenges; opportunities to learn from a variety of visiting experts concerning the nuances and challenges of, as well as successful methods for, communicating with concerned audiences about technically challenging topics. **Prerequisite:** Junior or senior classification or approval of instructor.

NUEN 432 Nuclear Power Plant Fundamentals

Credits 3. 3 Lecture Hours. Understanding the operation of a nuclear electric general station; includes reactor water chemistry, material science, electrical science; mechanical science, civil engineering for nuclear power plant engineers, and digital process control systems. **Prerequisite:** Junior or senior classification in the college of engineering; non-NUEN majors.

NUEN 437 Fundamentals of Fusion Engineering

Credits 3. 3 Lecture Hours. Broad introduction to the engineering of fusion energy systems; fundamental knowledge regarding fusion physics and approaches to achieve fusion; engineering challenges such as energy conversion, tritium fuel cycle, fusion neutronics and wastes.

Prerequisites: Grade of C or better in MEEN 344 or equivalent; grade of C or better in NUEN 301.

NUEN 451 Nuclear Security System Design

Credits 3. 3 Lecture Hours. The science and engineering associated with the design, evaluation and implementation of systems to secure nuclear and radiological materials; adversary characterization, categorization of nuclear and radiological targets, calculation of consequences associated with failure to protect targets, detection and delay technologies, and mathematical methods for evaluation and managing risk. **Prerequisites:** Grade of C or better in NUEN 303 and NUEN 309 or equivalent, or approval of instructor.

NUEN 460 Nuclear Plant Systems and Transients

Credits 3. 3 Lecture Hours. Use of engineering principles to elucidate the nuclear, mechanical, electrical and functional interactions among nuclear plant components and systems; reactor protection systems, alarm and trip setpoints, normal and accident transients; components studied in detail include core, control rod drive mechanism, neutron source, neutron detectors, primary coolant system, and emergency core cooling system. **Prerequisites:** NUEN 301, NUEN 302, NUEN 304, NUEN 406, NUEN 430 or equivalents; MEEN 315, MEEN 344, MEEN 461 or equivalents; junior or senior classification.

NUEN 465 Nuclear Materials Engineering

Credits 3. 3 Lecture Hours. Explore applications of materials science principles in nuclear energy systems; includes crystal structures and defects, metallurgy, and materials thermochemistry; emphasis on nuclear fuel performance, structural material changes, and waste materials; laboratory demonstrations on materials behavior. **Prerequisites:** NUEN 265, MEEN 222/MSEN 222 or equivalent and NUEN 302.

NUEN 467 Deep Learning for Engineering Applications

Credits 3. 3 Lecture Hours. Fundamentals of deep learning along with its advanced applications in addressing engineering problems, emphasizing modeling and simulation, as well as complex system analysis; combination of theoretical knowledge with practical applications; hands-on coding practice to foster a robust understanding of deep learning techniques and learn how to leverage them to solve complex engineering challenges. **Prerequisites:** Grade of a C or better in MATH 309 or MATH 311.

NUEN 475 Environmental Nuclear Engineering

Credits 3. 3 Lecture Hours. Environmental aspects of nuclear power; natural radiation environment and the distribution of radioactivity added to the environment by human activities; evaluation of effects of radiation and radioactivity on the environment and on humans. **Prerequisite:** Grade of C or better in NUEN 309.

NUEN 479 Radiation Protection Engineering

Credits 3. 2 Lecture Hours. 3 Lab Hours. Analysis of radiation hazard situations and design of nuclear facilities from a safety standpoint. **Prerequisite:** NUEN 475.

NUEN 481 Seminar

Credit 1. 1 Lecture Hour. Designed to broaden the student's capability, performance and perspective in nuclear engineering through faculty, student and guest presentations. **Prerequisite:** NUEN 410 or registration therein or NUEN 479 or registration therein.

NUEN 484 Internship

Credits 0-1. 0 Lecture Hours. 0 Lab Hours. 0-1 Other Hours. Directed internship in an organization or a research or teaching laboratory within or outside Texas A&M University; under the supervision of a professional expert aligned with the student's professional objectives; consists of on-the-job training, research, teaching, management, or a combination of these. **Prerequisites:** Junior or senior classification or approval of instructor.

NUEN 485 Directed Studies

Credits 1 to 6. 1 to 6 Other Hours. Problems of limited scope approved on an individual basis intended to promote independent study; program enrichment for capable students; results presented in writing to staff.

Prerequisites: Junior or senior classification and approval of department head.

NUEN 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of nuclear engineering. May be repeated for credit.

Prerequisite: Approval of instructor.

NUEN 491 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of a faculty member in Nuclear Engineering. May be repeated 2 times for credit. Registration in multiple sections of this course is possible within a given semester provided that the per semester credit hour limit is not exceeded. **Prerequisites:** Junior or senior classification and approval of instructor.

NURS - Nursing (NURS)

NURS 301 Nursing Foundation

Credits 2. 1 Lecture Hour. 1 Lab Hour. Introduction to nursing skills including such activities as safety, assessment of vital signs, comfort measures, assistance with daily living activities, environmental concerns, positioning and transporting. We will become familiar with the nursing process, communication and documentation tools. An introduction to the simulation center is highlighted in this class. Orientation to clinical sites and expectations for clinical rotation, as well as mandatory clinical site requirements will be completed. **Prerequisites:** Admission to the BSN program or approval from the Associate Dean for Academic Affairs.

NURS 305 Nursing Dimensions and Informatics

Credits 3. 3 Lecture Hours. Exploration of the concepts of informatics and professional dynamics in nursing; introduction to basic computer competencies essential to nursing, including skills required to locate and evaluate information (info literacy), and process and communicate findings (info management) related to evidence-based nursing practice; roles and behaviors of the professional nurse; exploration of the influence of ethics and cultural/society issues on the nursing profession as well as opportunities for personal and professional development. **Prerequisites:** Admission to the BSN program or approval from the Associate Dean for Academic Affairs.

NURS 306 Foundations of Nursing Practice Theory

Credits 5. 5 Lecture Hours. Role of the professional nurse utilizing the nursing process as a systematic approach assisting individuals toward optimal health; discussion of the scope of human needs and fundamental principles of nursing concepts, nursing theories, health promotion strategies, health assessment techniques and communication skills in providing basic care for the adult. **Prerequisites:** Admission to the College of Nursing Program; concurrent enrollment and grade of C or better in NURS 307.

NURS 307 Foundations of Nursing Practice Clinical

Credits 3. 9 Lab Hours. Application of fundamental principles of nursing concepts, nursing theories, health promotion strategies, health assessment techniques and communication skills employed in providing basic care of the adult; implementation of the nursing process as a systematic approach by obtaining health histories, utilizing interviewing skills, performing physical and psychosocial assessments, establishing a baseline database and formulating initial nursing plans. **Prerequisites:** Admission to the College of Nursing Program; concurrent enrollment and grade of C or better in NURS 306.

NURS 312 Introduction to Pathophysiology

Credits 3. 3 Lecture Hours. An introduction to pathophysiological alterations in major regulatory mechanisms of the body. Provides a foundation for understanding general nursing practice, various diagnostic procedures and selected therapeutic regimens.

NURS 313 Nursing Fundamentals

Credits 5. 3 Lecture Hours. 2 Lab Hours. An introduction to the scope of human needs, utilization of the nursing process as a systematic approach to meeting those needs and the role of the professional nurse in assisting individuals toward optimal health. Clinical settings are utilized in the application of fundamental concepts, principles of nursing and communication skills that are employed in providing basic client care. **Prerequisite:** Admission to the BSN Program.

NURS 314 Health Assessment

Credits 3. 1 Lecture Hour. 2 Lab Hours. Concepts and principles underlying assessment of the health status of individuals are presented. Emphasis is placed on interviewing skills, health histories, and the physical and psychosocial findings in the well person. Development of communication in the nurse-client relationship and assessment skills are included. Students implement the nursing process by obtaining health histories, performing physical and psychosocial assessments, establishing a database, and formulating initial nursing plans.

NURS 315 Nursing and the Aged

Credits 3. 2 Lecture Hours. 0 Lab Hours. 1 Other Hour. An overview of health promotion strategies for age-related physical, emotional, social, and environmental transitions in aging; includes direct patient care, simulation, laboratory, and community experiences. **Prerequisites:** Junior or senior classification.

NURS 316 Pharmacology Principles

Credits 3. 3 Lecture Hours. Focuses on the basic drug classifications, concepts and principles of pharmacology, with special consideration for the nursing role in developing a comprehensive approach to the clinical application of drug therapy through the use of the nursing process. Nursing implications relative to the utilization of drug therapy are examined.

NURS 318 Professional Identity I - The Role of the Professional Nurse

Credits 3. 3 Lecture Hours. Professional identity of nursing and nursing's unique contributions to society through the use of distinct knowledge, skills, and attitudes; includes the roles and responsibilities of the professional nurse within various healthcare systems and care delivery models. **Prerequisites:** Junior classification and admission to the BSN Nursing Program.

NURS 319 Professional Identity II - Interprofessional Practice and Evidence-Based Decision-Making

Credits 3. 3 Lecture Hours. Principles of collaborative practice and the role of the professional nurse as coordinator of care within the healthcare team; concepts of evidence-based practice and its implications for quality of care and safety standards. **Prerequisites:** Grade of C or better in NURS 330 and NURS 340.

NURS 320 Adult Nursing I

Credits 6. 3 Lecture Hours. 0 Lab Hours. 3 Other Hours. Examination of the effects of chronic and acute illness on individuals and families; exploration of the disruption of illness on growth and development patterns of adults; use of clinical decision-making processes to assist adults in reaching their optimal level of wellness; includes direct patient care, simulation, interprofessional practice, laboratory, and community experiences. **Prerequisite:** Grade of C or better in NURS 306, NURS 307, and NURS 312; grade of C or better in NURS 316 or concurrent enrollment.

NURS 323 Nursing Care of Women, Families and Newborns

Credits 4. 2 Lecture Hours. 2 Lab Hours. Study of childbearing families and women's health in normal and high-risk situations; role of the nurse in meeting health needs of women, families and their newborns; supervised clinical experiences and/or simulation experiences in the application of the nursing process in meeting these health needs; promotes acquisition of skills in caring for women, families and newborns during uncomplicated and/or complicated health experiences in a variety of settings. **Prerequisites:** Grade of C or better in NURS 306 or NURS 313; grade of C or better in NURS 307 or NURS 314; grade of C or better in NURS 312, NURS 316, and NURS 320.

NURS 330 Management of Care I - The Fundamentals of Nursing Care Across the Lifespan

Credits 5. 3 Lecture Hours. 2 Other Hours. Foundational knowledge and skills utilizing a clinical judgment model as a systematic approach for nursing practice; application of fundamental health assessment techniques and care delivery skills for individuals across the lifespan; includes a clinical component. **Prerequisites:** Junior classification and admission to the BSN Nursing Program.

NURS 332 Management of Care II - Nursing Care of Adults with Common and Chronic Conditions

Credits 5. 3 Lecture Hours. 2 Other Hours. Implementation of nursing care using a holistic approach through the examination of the effects of common and chronic illnesses or injury in adults; emphasizing the use of a clinical judgment model to achieve an optimum level of health considering the individual's developmental stage, culture, and gender; includes a clinical component. **Prerequisites:** Grade of C or better in NURS 330 and NURS 340.

NURS 340 Patho-Pharm I - Connecting Pathophysiology and Pharmacology to Common Patient Conditions

Credits 4. 4 Lecture Hours. Abnormal functioning of human cells, tissues, and organ systems and pharmacotherapeutics to address common and chronic pathological changes across the lifespan; emphasis on the influences of nutrition, genetics, environment, culture, health determinants, age-related variations, and alternative therapies on selected diseases and pharmacotherapeutics. **Prerequisites:** Junior classification and admission to the BSN nursing program.

NURS 341 Patho-Pharm II - Connecting Pathophysiology and Pharmacology to Complex Patient Conditions

Credits 3. 3 Lecture Hours. Builds on concepts of NURS 340; related to the abnormal functioning of human cells, tissues, and organ systems and the pharmacotherapeutics to address complex and emergent conditions across the lifespan; influences of nutrition, genetics, environment, culture, health determinants, age-related variations, and alternative therapies for complex diseases and pharmacotherapeutics. **Prerequisites:** Grade of C or better in NURS 330 and NURS 340.

NURS 342 Mental Health Nursing Care Across the Lifespan

Credits 3. 2 Lecture Hours. 1 Other Hour. Principles and concepts of mental health, psychopathology, and treatment modalities relevant to improve the health of clients with mental health needs; development of complex knowledge, critical judgment, essential skills, and professional values within legal, ethical, and patient-centered care frameworks; responsibilities of professional nurses as providers of evidence-based care, patient safety, and individual, family, and group recovery; includes a clinical component. **Prerequisites:** Grade of C or better in NURS 330 and NURS 340.

NURS 343 Building Healthy Communities I - Wellness and Health Promotion Across the Lifespan

Credits 4. 3 Lecture Hours. 1 Other Hour. Examination of individual and population health prevention and promotion across the lifespan including concepts of health screenings, literacy, equity and access, policy, care delivery systems and roles, epidemiology, and the use of big data for assessing the health of communities; includes a clinical component. **Prerequisites:** Junior classification and admission to the BSN Nursing Program.

NURS 344 Building Healthy Communities II - Fostering Health Infrastructure

Credits 3. 2 Lecture Hours. 1 Other Hour. Unique role of the nurse in local, state, country, and global communities including design, implementation, and evaluation of culturally appropriate and targeted interventions; coordinating with community members to improve health outcomes, build knowledge and resilience, and facilitate recovery from disaster; includes a clinical component. **Prerequisites:** Grade of C or better in NURS 330, NURS 340, and NURS 343.

NURS 385 Directed Studies

Credits 1 to 3. 1 to 3 Other Hours. Individually supervised study in subject matter to be arranged with faculty. **Prerequisite:** Admission to the College of Nursing or approval from the associate dean of academic affairs.

NURS 386 Directed Clinical Studies

Credits 1 to 3. 1 to 3 Other Hours. Individually supervised study focusing on clinical skills in focused areas to be arranged with faculty. **Prerequisite:** Admission to the College of Nursing or approval from the associate dean of academic affairs.

NURS 405 Selected Topics in Nursing

Credit 1. 1 Lecture Hour. A broad introduction to selected topics of current interest in the role of professional nursing.

NURS 411 Evidence-Based Practice for Nurses

Credits 3. 3 Lecture Hours. A study of the principles and methodology of research in nursing practice, with emphasis on evidence based practice research; interpret research, identify its methods and significance, and analyze findings in order to be a consumer of nursing research and practitioner of evidence based practice. **Prerequisite:** Grade of C or better in NURS 306 or NURS 313; grade of C or better in NURS 307 or NURS 314; grade of C or better in NURS 312 and NURS 316, or with approval from the Associate Dean of Academic Affairs.

NURS 412 Care of Mental Health Clients

Credits 4. 2 Lecture Hours. 0 Lab Hours. 2 Other Hours. In-depth examination of mental health and psychiatric nursing practice; designed to provide the knowledge, skills, and attitudes necessary to provide holistic and patient-centered care to individuals experiencing mental health issues across the lifespan; includes direct patient care, simulation, interprofessional practice, laboratory, and community experiences. **Prerequisites:** Grade of C or better in NURS 306, NURS 307, and NURS 312.

NURS 413 Nursing Care of Children and Families

Credits 4. 3 Lecture Hours. 1 Lab Hour. A study of the factors influencing health promotion, protection and maintenance of infants, children and adolescents; examination of family theory, growth and development, primary health care, and acute, chronic, and terminal conditions; clinical experience in caring for healthy, at-risk, acutely and chronically ill infants, children, adolescents and their families. **Prerequisites:** Grade of C or better in NURS 306 or NURS 313, NURS 307 or 314, NURS 312, NURS 316, and NURS 320.

NURS 418 Professional Identity III - Development in the Professional Nurse Role

Credits 3. 3 Lecture Hours. Investigation of the roles and responsibilities of the professional nurse; strategies for development of personal nursing identity and professional growth; responsibilities related to quality outcomes, population health, health promotion, and health advocacy using principles of epidemiology, current research and data sets to guide healthcare decisions; methods to address health equity, healthcare access, and quality issues. **Prerequisites:** Grade of C or better in NURS 332 and NURS 341.

NURS 419 Professional Identity IV - The Professional Nurse Leader

Credits 3. 3 Lecture Hours. Examination of the various roles and responsibilities of the nurse leader, professional organizations and activities; principles of leadership and management and skills with strategies for professional development. **Prerequisites:** Grade of C or better in NURS 433, NURS 442, and NURS 418; grade of C or better and concurrent enrollment in NURS 435 and NURS 445.

NURS 420 Adult Nursing II

Credits 6. 3 Lecture Hours. 3 Other Hours. Examination of the effects of critical and complex illness on individuals and families; exploration of the effects of critical illness and injury on the growth and development of adults; use of clinical decision-making and collaborative practice to assist adults in reaching their optimal level of wellness; includes clinical practice with diverse populations in emergency and critical care settings, simulation, laboratory, and community experiences. **Prerequisite:** Grade of C or better in NURS 320 or concurrent enrollment.

NURS 421 Care of Community Health Clients

Credits 5. 5 Lecture Hours. The nursing process is utilized in the study of community/public health nursing practice and common health problems encountered in community settings. Health promotion, maintenance, counseling and coordination of care are utilized in providing care to individuals, families, aggregates and populations in community settings. Principles and skills of public health nursing practice are used to assess a community's health and diagnose community health needs. **Prerequisite:** Grade of C or better in NURS 306 or NURS 313, NURS 307 or NURS 314, NURS 312, NURS 316 and NURS 320.

NURS 424 Professional Issues

Credits 2. 2 Lecture Hours. The purpose of this course is to introduce health professions students to professional and ethical/legal issues in everyday practice in health care, develop self-awareness skills about their own values and those of others, and provide them with tools to engage in self-reflective practice leading to enhancement of patient-centered care and collaborative teamwork. **Prerequisites:** Admission to the College of Nursing.

NURS 430 Transition to Professional Nursing Practice

Credits 5. 3 Lecture Hours. 2 Other Hours. Course reflects content that will prepare senior students for transition of entry into practice. Theories and principles concerning human behavior in organizations, with emphasis on leadership roles encountered in professional nursing practice. Senior nursing students in collaboration with nursing faculty refine coordination of care for a diverse population of clients. A clinical practicum will focus on synthesizing and refining skills in the delivery and management of nursing care to various groups of clients. Concepts of clinical decision-making, and inter-professional dynamics are incorporated in the context of legal, ethical, and evidence-based practice. **Prerequisite:** Grade of C or better in NURS 305, NURS 306 or NURS 313, NURS 307 or NURS 314, NURS 315, NURS 320, NURS 411, NURS 412, and NURS 420.

NURS 431 Care of Vulnerable Populations

Credits 1 to 3. 1 to 3 Lecture Hours. Principles of caring for vulnerable populations; includes characteristics of the vulnerable, clinical issues associated with caring for individuals from vulnerable populations, social justice and resilience; activities include development of care plans for the vulnerable, teaching projects and capacity building; option to utilize 16 hours of community health clinical time to complete a mini-immersion experience. **Co-requisite:** NURS 421.

NURS 432 Relations in Healthcare: Teamwork and Communication

Credits 1 to 3. 1 to 3 Lecture Hours. Preparation for inter and intra professional teamwork and communication to improve the culture for professional collaboration with a shared mental model for excellence in quality and safety; goal for effective teamwork and communication is higher quality, safer patient care through highly effective medical teams that optimize the use of resources, information, and people to achieve the best clinical outcomes for patients.

NURS 433 Management of Care III - Nursing Care of Adults with Complex, High-Acuity Conditions

Credits 5. 3 Lecture Hours. 2 Other Hours. Critical thinking and problem-solving strategies for care of persons with acute and/or complex illness and injury; examination of effects of acute illnesses in relation to the injury and in relation to the individual's developmental stage, culture and gender. A holistic approach is used to analyze and intervene in alterations to the health of the individual and family and to help them reach their optimal level of wellness; includes a clinical component. **Prerequisites:** Grade of C or better in NURS 332 and NURS 341.

NURS 434 Case Studies in Patient Safety and Quality

Credits 2. 2 Lecture Hours. Application of evidence based quality improvement and risk reduction tools and strategies to various case studies with the goal of improving patient safety, outcome, and quality of care; case study evaluation of nursing practice and evidence based practice recommendations which highlight the nurse's professional role in patient safety and quality; application of intra/interprofessional communication and teamwork skills to promote a safe environment for healthcare delivery. **Prerequisite:** Junior or senior classification.

NURS 435 Management of Care IV - Synthesis of Knowledge, Skills and Attitudes for Professional Success

Credits 6. 3 Lecture Hours. 3 Other Hours. Concepts of clinical decision-making, delegation, teamwork and inter-professional dynamics are incorporated in the context of legal, ethical, and evidence-based practice. Concepts for building future practice excellence, growth in profession, providing value to employers, and life management skills are explored; includes a clinical component. **Prerequisites:** Grade of C or better in NURS 433 and NURS 442; grade of C or better and concurrent enrollment in NURS 419 and NURS 445.

NURS 436 Maternal and Child Health

Credits 5. 3 Lecture Hours. 2 Other Hours. Care of childbearing women, families, and children including treatment modalities; development of complex knowledge, critical judgment, essential skills, and professional values within legal, ethical, and patient-centered care frameworks; responsibilities of professional nurses as providers of evidence-based care, patient safety, and maximization of individual, family, and group health; includes clinical component. **Prerequisites:** Grade of C or better in NURS 332 and NURS 341.

NURS 442 Application of Pharmacology Principles Across the Lifespan

Credits 3. 2 Lecture Hours. 1 Other Hour. Exploration of complex indications, planning, and interventions of fluid or medication management for the nurse in various critical care or emergency settings across the lifespan; includes a clinical component. **Prerequisites:** Grade of C or better in NURS 332 and NURS 341.

NURS 445 Writing for Nursing Professionals - The Nurse's Role in Health Advocacy and Healthcare Quality

Credits 3. 3 Lecture Hours. Scholarly writing in a discipline-based course organized around a specific topic; focus on improvement of academic writing skills, through development of policy and quality improvement processes; includes a significant amount of individualized attention and guidance. **Prerequisites:** Grade of C or better in NURS 442, NURS 443, and NURS 418; grade of C or better and concurrent enrollment in NURS 435 and NURS 419.

NURS 456 Complementary and Alternative Medicine/Health Care

Credits 3. 3 Lecture Hours. This course is an introduction to the practice of complementary and alternative medicine (CAM)/health care. It will explore both conventional health care and CAM allowing the student to examine each of the entities to gain an understanding of what each practice offers. This knowledge will allow the future health care professional to better inform and facilitate the individual's move toward or maintenance of optimal health and health practices. Alternative health care modalities, such as herbal medicine, acupuncture and massage therapy, will be discussed. Websites and online resources pertinent to the topic will be explored and analyzed, including the National Center for Complementary and Alternative Medicine within the National Institutes of Health.

NURS 457 Introduction to Concepts of Forensic Nursing

Credits 3. 3 Lecture Hours. This course provides an introduction to forensic science as a collaborative approach to criminal investigation. General concepts and principles of forensic science will be explored with an emphasis on the role of the nurse working with victims of violence. Content to be addressed includes: forensic investigation, evidence collection and management, mechanisms of injury and death using post-mortem forensic analysis, interpersonal crimes of violence, and forensic nursing roles.

NURS 460 Nursing Dimensions and Informatics for the RN

Credits 3. 3 Lecture Hours. This course is designed to build on the informatics knowledge and skills of the practicing nurse. Emphasis is placed on the application of the ANA Standards for Nursing Informatics and Professional Practice and incorporation of information technology to support patient care and clinical decision-making. The course will assist the students to develop the professional role by incorporation of the philosophy of nursing, nursing theory, and clinical reasoning. The nurse's role in interprofessional practice will be explored. The influence of ethics and cultural/society issues on the nursing profession are explored as well as opportunities for personal and professional development.

NURS 461 Application of Evidence Based Practice for the RN

Credits 3. 3 Lecture Hours. This course is a study of basic research methodologies and an in depth examination of the professional nurse's role in the application of evidence into clinical practice.

NURS 462 Pathophysiology and Pharmacology for the RN

Credits 4. 4 Lecture Hours. Students will demonstrate the ability to incorporate the principles of pathophysiology and pharmacology in planning healthcare for individuals across the lifespan.

NURS 463 Health Assessment for the RN

Credits 3. 3 Lecture Hours. In this course, the concepts and principles underlying assessment of the health status of culturally diverse individuals are presented. An emphasis is placed on reviewing and renewing cognitive, affective, and psychomotor skills to obtain health histories and discover physical and psychosocial findings in the well person. The role of genetics in family histories is examined. Successful completion of the course requires students to successfully complete a head-to-toe health assessment examination with accurate documentation of the findings.

NURS 464 Health Promotion Across the Lifespan for the RN

Credits 3. 2 Lecture Hours. 1 Lab Hour. This course emphasizes the role of the nurse in health promotion across multiple settings with diverse populations. The student will apply principles of teaching/learning, case management, and genetics/genomics to improve the health of general and vulnerable populations.

NURS 465 Care of the Older Adult for the RN

Credits 2. 2 Lecture Hours. The student will develop competencies and knowledge necessary for providing care and promote health aging in the older adult.

NURS 466 Community Health for the RN

Credits 5. 4 Lecture Hours. 1 Lab Hour. In this course, students are introduced to community-based health care of culturally diverse populations. The role of the professional nurse as part of an interprofessional team in health promotion, disease prevention, and management of chronic health problems in community settings is explored. Students apply critical reasoning and information technology skills to develop and implement evidence-based projects that positively impact the quality of life of populations. Practicum experiences are individualized.

NURS 467 Leadership and Management for the RN

Credits 5. 3 Lecture Hours. 2 Lab Hours. In this course, theories and principles of human behavior in organizations are examined, including an exploration of leadership roles in professional nursing practice. The role of regulatory agencies in the provision of quality health care is explored. Students will participate in the evaluation and planning for quality improvement using nurse sensitive indicators. The students will discern the nurse's role in reducing the financial cost of health care. Practicum experiences are individualized.

NURS 468 Professional Practice Issues for the RN

Credits 2. 2 Lecture Hours. Professional practice issues such as those related to political action, socio-legal concerns, cultural diversity, and ethics are explored with an emphasis on the advocacy role of the nurse. The importance of the nurse leader as a role model for continued professional growth through lifelong learning is emphasized.

NURS 481 Seminar

Credit 1. 1 Lecture Hour. Exploration of the nature of nursing scholarship along with related research, clinical and educational career opportunities; discussion of various topics related to leadership, research and ethics as it relates to nursing. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisite:** Admission to the BSN Honors program.

NURS 489 Special Topics In...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of nursing. May be repeated for credit. **Prerequisites:** Admission to the BSN program or approval from the Associate Dean for Academic Affairs.

NURS 491 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of a doctorally prepared nursing faculty member; preparation for careers in research. May be taken for credit up to two hours. **Prerequisite:** Junior or senior classification and approval of instructor.

NUTR - Nutrition (NUTR)

NUTR 202 Fundamentals of Human Nutrition

Credits 3. 3 Lecture Hours. (BIOL 1322, HECO 1322) Fundamentals of Human Nutrition. Principles of nutrition with application to the physiologic needs of individuals; food sources and selection of an adequate diet; formulation of Recommended Dietary Allowances; nutritional surveillance; for non-nutrition majors only.

NUTR 203 Scientific Principles of Human Nutrition

Credits 3. 3 Lecture Hours. Chemistry and physiology of proteins, carbohydrates, lipids, vitamins and minerals; their ingestion, digestion, absorption, transport and metabolism. **Prerequisites:** CHEM 119 or concurrent enrollment; NUTR majors and minors only.

NUTR 204 Perspectives in Nutrition

Credit 1. 1 Lecture Hour. Examination of current trends in nutrition through critical review and appraisal of relevant literature to understand, write, and communicate the research evidence for nutrients, food and/or dietary patterns underlying human health and disease. **Prerequisites:** Concurrent enrollment in NUTR 203.

NUTR 210/FSTC 210 Horizons in Nutrition and Food Science

Credit 1. 1 Lecture Hour. Introduction to nutrition and food science career opportunities through presentations by nutrition and food science researchers and industry professionals; addresses issues of professionalism including portfolio development, teamwork, and critical thinking skills. **Cross Listing:** FSTC 210/NUTR 210.

NUTR 211 Scientific Principles of Foods

Credits 4. 3 Lecture Hours. 3 Lab Hours. Basic principles underlying selection, preparation and preservation of food in relation to quality standards, acceptability and aesthetics; introduction to composition, nutritive value, chemical and physical properties of foods; introduction to experimental study of foods. **Prerequisites:** CHEM 119; NUTR 202 or NUTR 203; Dietetics (DPD) track; or approval of instructor.

NUTR 222 Nutrition for Health and Health Care

Credits 3. 3 Lecture Hours. Analysis of nutrition with emphasis on providing a basic understanding of nutrition and its role in disease prevention and treatment.

NUTR 285 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Directed study of selected problems in the area of nutrition. **Prerequisites:** Approval of instructor; 2.0 GPR in major and overall.

NUTR 289 Special Topics in...

Credits 1 to 4. 1 to 4 Other Hours. Selected topics in an identified area of nutrition. May be repeated for credit. **Prerequisite:** Approval of instructor.

NUTR 291 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in nutrition. May be repeated 2 times for credit. **Prerequisites:** Freshman or sophomore classification and approval of department head.

NUTR 300/FSTC 300 Religious and Ethnic Foods

Credits 3. 3 Lecture Hours. Understanding religious and ethnic foods with application to product development, production, and nutritional practices; emphasis on different food rules and priorities with attention given to different religious and ethnic groups within the US and around the world.

Prerequisites: Junior or senior classification or approval of instructor; basic knowledge of food science and nutrition helpful. **Cross Listing:** FSTC 300/NUTR 300.

NUTR 301 Nutrition Through Life

Credits 3. 3 Lecture Hours. Analysis of nutrition with emphasis on human biological needs through stages of the life cycle; biochemical, physiological and anthropometric aspects of nutrition. **Prerequisites:** NUTR 202 or NUTR 203; NUTR majors and minors only.

NUTR 303/ANSC 303 Principles of Animal Nutrition

Credits 3. 3 Lecture Hours. Scientific approach to nutritional roles of water, carbohydrates, proteins, lipids, minerals, vitamins, and other dietary components; emphasis on the comparative aspects of gastrointestinal tracts and on digestion, absorption, and metabolism of nutrients.

Prerequisites: CHEM 119 and a grade of C or better in ANSC 113, or CHEM 222, CHEM 227 or CHEM 257; junior classification or approval of instructor. **Cross Listing:** ANSC 303/NUTR 303.

NUTR 304 Food Service Systems and Management

Credits 3. 3 Lecture Hours. 0 Lab Hours. Application of basic management principles in food service operations, including human resource management, personnel issues, ethics, and negotiation.

Prerequisites: Grade of B or better in NUTR 211; junior or senior classification; Dietetics (DPD) track.

NUTR 306 Nutrition in Sports

Credits 3. 3 Lecture Hours. Exploration of energy systems and the macronutrient and micronutrient needs in different sport contexts.

Prerequisites: NUTR 301.

NUTR 307 Quantity Food Production

Credits 4. 3 Lecture Hours. 3 Lab Hours. Principles of food service management used in selecting, storing, preparing, and serving food in quantity; emphasis is on menu planning, quality control, purchasing, production, food service equipment, and layout design. **Prerequisite:** Grade of B or better in NUTR 211; junior or senior classification; Dietetics (DPD) track.

NUTR 320/FSTC 320 Understanding Obesity - A Social and Scientific Challenge

Credits 3. 3 Lecture Hours. Perspectives of obesity in food science, nutrition, health and psychology; study of obesity factors in relation to genetics, exercise physiology and sociology with emphasis on food and nutrition. **Prerequisites:** Junior or senior classification or approval of instructor. **Cross Listing:** FSTC 320/NUTR 320.

NUTR 365 Nutritional Physiology of Vitamins and Minerals

Credits 3. 3 Lecture Hours. Fundamental nutritional significance of fat soluble and water soluble vitamins and minerals to human metabolism, cell biology and physiology; micro-nutrient groups as per metabolic function or biochemical and physiological actions; important dietary sources, absorption, storage, metabolism, (bio)chemistry, deficiency and toxicity of individual nutrients in this context and basis of DRIs.

Prerequisites: NUTR 203 and NUTR 301; junior or senior classification.

NUTR 366 Nutrients and the Human Body I

Credits 4. 3 Lecture Hours. 3 Lab Hours. Exploration of the role of nutrients in maintaining normal organ systems; nutritional significance of vitamins, minerals, and other nutrients to normal and diseased organs; investigation of dietary sources, absorption, storage, metabolism, biochemistry, deficiency, and toxicity of nutrients on development and homeostasis of the integumentary, skeletal, muscular, and nervous systems. **Prerequisites:** NUTR 301 or concurrent enrollment; NUTR major; junior or senior classification or approval of instructor.

NUTR 367 Nutrients and the Human Body II

Credits 4. 3 Lecture Hours. 3 Lab Hours. Exploration of the role of nutrients in maintaining normal organ systems; nutritional significance of vitamins, minerals, and other nutrients to normal and diseased organs; investigation of dietary sources, absorption, storage, metabolism, biochemistry, deficiency, and toxicity of nutrients on development and homeostasis of the endocrine, digestive, urinary, cardiovascular, lymphatic, reproductive, adipose, and respiratory systems. **Prerequisites:** NUTR 366; NUTR majors; junior or senior classification or approval of instructor.

NUTR 400 Ethics in Nutrition and Healthcare

Credit 1. 1 Lecture Hour. Discussion of ethical issues and societal challenges experienced by professionals derived from scientific research and professional activities related to delivering wellness and healthcare services; review of sources, fundamental principles, scope of practice and applications of ethical behavior in the field of nutrition; application of ethical principles and scope of practice to different professional groups and organizations, including business, non-profits, government, health care, and science and technology. **Prerequisites:** NUTR major or minor or NUTR certificate; senior classification.

NUTR 403 Advanced Nutrition in Sports

Credits 3. 3 Lecture Hours. Examination of sports nutrition for specific athlete populations, training settings, and lessons on being a sports dietitian beyond the nutrition knowledge need. **Prerequisites:** NUTR 306.

NUTR 404 Nutrition Assessment and Planning

Credits 3. 3 Lecture Hours. Examines the methods of determining the nutritional status of individuals, dietary assessment techniques, planning nutritional care including diet modification and nutrition counseling.

Prerequisites: NUTR 203, NUTR 211 and NUTR 301; junior classification or approval of department head.

NUTR 406 Nutrition in Developmental Origins of Health and Diseases

Credits 3. 3 Lecture Hours. Overview of the connection between maternal nutrition and the Developmental Origins of Health and Diseases (DOHaD); focus on prenatal and perinatal nutrition and how it affects DOHaD; examination of the discovery of the DOHaD concept and how exposure status is remembered in the body over the long term; exploration of the associations between DOHaD-related diseases and specific nutrients; discussion of how genetic variation and sexual dimorphism influence these disease outcomes. **Prerequisites:** NUTR 301, NUTR 366, and NUTR 367; GENE 301 or GENE 302; junior or senior classification, or approval of instructor.

NUTR 407 Nutrition Care and Therapy

Credits 4. 3 Lecture Hours. 3 Lab Hours. Application of the Nutrition Care Process for clinical diagnoses and conditions; planning of nutritional care plans for complex patients, including the formulation and planning for enteral and parenteral nutrition support. **Prerequisites:** NUTR 203, NUTR 211, NUTR 301 and NUTR 404; junior classification; dietetics track; or approval of instructor.

NUTR 408 Professional Development in Nutrition and Dietetics

Credit 1. 1 Lecture Hour. Techniques in professional development with focus on knowledge requirements for a Registered Dietitian Nutritionist; emphasis on oral and written communication, professional leadership, interprofessional relationships, mentoring, and critical thinking.

Prerequisites: Senior classification; NUTR-DPD majors.

NUTR 409 Nutrition Education and Counseling

Credits 2. 2 Lecture Hours. Principles and techniques of nutrition education and counseling methods applied to diverse areas of the dietetic profession, including motivational interviewing, communication skills, and evaluation methods. **Prerequisites:** Grade of B or better in NUTR 404 or concurrent enrollment; junior or senior classification; Dietetics (DPD) track.

NUTR 410/FSTC 410 Nutritional Pharmacometrics of Food Compounds

Credits 3. 3 Lecture Hours. Nutritional pharmacokinetics and pharmacodynamics of food compounds; specific examples of toxicological and pharmacological effects of food compounds.

Prerequisites: NUTR 201, NUTR 202, NUTR 203, CHEM 222, or CHEM 227, or approval of instructor; junior or senior classification. **Cross Listing:** FSTC 410/NUTR 410.

NUTR 412 Nutritional Treatment of Disease

Credits 3. 3 Lecture Hours. Nutritional intervention in pathological conditions, based on biochemical, physiological and psychological effects of disease state; current research in clinical nutrition.

Prerequisites: NUTR 203; NUTR 301, BIOL 319 and BICH 410, or concurrent enrollment; senior classification or approval of instructor.

NUTR 430 Community Nutrition

Credits 3. 3 Lecture Hours. Principles of assessing nutrition problems in populations and planning nutrition programs to promote health in communities including nutrition education and food and nutrition policy; introduction to food and nutrition assistance programs. **Prerequisites:** NUTR 301; junior or senior classification.

NUTR 440 Microbes and Microbiome in Nutrition

Credits 4. 3 Lecture Hours. 3 Lab Hours. Contemporary approaches to nutrition-associated microbes and toxins with an emphasis on the alimentary (gastrointestinal) system including normal intestinal microbiota and dysbiosis; probiotic and prebiotic nutritional supplements; recombinant pharmabiotics; nutrient and microbiota modulation of gut-associated lymphoid tissue and mucosal immunity; foodborne pathogens; fermented products as functional foods, and food safety approaches. **Prerequisites:** NUTR 301 or concurrent enrollment; NUTR major; junior or senior classification or approval of instructor.

NUTR 450 Nutrition and Metabolism of Minerals

Credits 3. 3 Lecture Hours. The role of minerals in living systems and the exploration of their multitude of functions; chemical properties of minerals and how that relates to function in cells and tissues; consequences of mineral deficiencies based on known functions; insight into experimental approaches used to assess minerals in a living environment. **Prerequisite:** NUTR 203, BICH 303, or BICH 410, or approval of instructor.

NUTR 454 Nutrigenomics and Precision Nutrition

Credits 3. 3 Lecture Hours. Perspectives on the interaction between genetic variation and diet/nutrients; dietary and nutrient impacts on gene expression mediated by variation in individual genomes; modulation of the host epigenome by the microbiome; novel treatment of important diseases addressed through improved nutrition and the development of improved health through precision nutrition. **Prerequisites:** NUTR 202 or NUTR 203; GENE 301, GENE 302, GENE 310, or GENE 320/BIMS 320; junior or senior classification; or approval of instructor.

NUTR 469 Experimental Nutrition Laboratory

Credits 3. 2 Lecture Hours. 3 Lab Hours. Investigation of tools and molecular techniques used in studies of nutrition and metabolism (e.g. obesity, diabetes, cardiovascular disease, etc.); didactic and hands-on laboratory components; includes model systems, measurements of energy balance, body composition, RNA and protein analyses.

Prerequisites: Junior or senior classification or approval of instructor.

NUTR 471 Critical Evaluation of Nutrition and Food Science Literature - Evidence Based Reviews

Credits 3. 3 Lecture Hours. Evaluation of scientific literature, research methods within the literature, and the quality of scientific studies to produce an evidence-based review in areas specific to nutrition and food science. **Prerequisites:** NUTR 202 or NUTR 203; STAT 302; junior or senior classification; knowledge of technical writing helpful.

NUTR 475 Nutrition and Physiological Chemistry

Credits 3. 3 Lecture Hours. Fundamentals of physiology, biochemistry and nutrition and their relationship to the organismic and cellular metabolism of animals; biochemical basis of hormonal action.

Prerequisites: NUTR 301; NUTR 366 or BIOL 319; BICH 409, BICH 410, or BICH 440; senior classification; or approval of instructor.

NUTR 481 Seminar

Credit 1. 1 Lecture Hour. Critical review and synthesis of current peer-reviewed publications in the field of nutrition; structured evaluation of literature, independent research and experiences gained in classroom will culminate in a written professional paper and an oral presentation based on a nutrition topic of interest. **Prerequisite:** Senior classification; NUTR majors only.

NUTR 483 Practicum for Nutrition in Sports

Credits 3. 3 Other Hours. Exploration of applied aspects of sports nutrition; topics include team talks to athletes, one-on-one counseling, planning travel nutrition, needs assessments of athletes, pre and post workout fueling, and accompanying dietitians with grocery tours.

Prerequisites: NUTR 403.

NUTR 485 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Directed study on selected problems in the area of nutrition not covered in other courses. **Prerequisites:** Junior or senior classification; approval of department head; 2.0 GPR in major and overall.

NUTR 489 Special Topics in...

Credits 1 to 4. 1 to 4 Other Hours. Selected topics in an identified area of nutrition. May be repeated for credit. **Prerequisite:** Junior or senior classification.

NUTR 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of a faculty member in nutrition. May be repeated 3 times for credit. Registration in multiple sections of this course are possible within a given semester provided that the per semester credit hour limit is not exceeded.

NVSC - Naval Science (NVSC)

NVSC 101 Introduction to Naval Science

Credits 2. 2 Lecture Hours. 1 Lab Hour. Seapower and the naval service; mission, organization, regulations, and broad warfare components of the Navy; overview of officer and enlisted rank and rating structures, procurement and recruitment, training and education, promotion and advancement, and retirement policies. Basic tenets of naval courtesy and customs, discipline, naval leadership, and ship's nomenclature. Major challenges facing Naval officers; areas of equal opportunity, fraternization and drug/alcohol abuse.

NVSC 200 Naval Science for the Merchant Marine Officer

Credits 3. 3 Lecture Hours. (STCW Course). Organization of the U.S. Navy (including the U.S. Navy Control of Shipping Organization) with discussion of the Merchant Marine Naval Reserve commission in order to provide a sound basis for liaison between the U.S. Navy and the Merchant Marine. Seapower will be analyzed and naval damage control procedures and underway replenishment procedures will be introduced.

NVSC 205 Naval Sea Power and Maritime Affairs

Credits 3. 2 Lecture Hours. 2 Lab Hours. Naval history survey emphasizing major developments in strategy, tactics, technology, and effects of political climate; significant naval engagements and officers; includes an introduction to the role of seapower in national policy and diplomacy, Mahan's naval strategy and the affects of maritime policy on global stability.

NVSC 210 Leadership and Management I

Credits 3. 3 Lecture Hours. 1 Lab Hour. Principles of leadership and management and their application to duties and responsibilities for Junior Naval Officers; management theory, professional responsibility and human resource management programs; skills in leadership and management, communication, counseling, evaluations; administration of discipline developed through participation in case studies, experiential exercises and situational problems.

NVSC 301 Navigation

Credits 3. 2 Lecture Hours. 2 Lab Hours. Theory, principles and procedures of ship navigation in coastal and open ocean environments; piloting, ocean and tidal currents, weather, introduction to USN electronic and satellite navigational systems, guided participation in case studies involving maritime accidents.

NVSC 303 Evolution of Warfare

Credits 3. 3 Lecture Hours. Art and concepts of land warfare; its evolution from the beginning of recorded history to present day; influence that leadership, political, economic, sociological and technological development have had on warfare throughout history.

NVSC 320 Naval Ships Systems I: Engineering

Credits 3. 3 Lecture Hours. 1 Lab Hour. Study of engineering concepts and their application in U.S. Naval vessels; basic ship design, hydrodynamic forces, fluid dynamics, stability, propulsion, closed thermodynamic systems, electrical systems, shipboard power generation and distribution, shipboard safety, organization and firefighting.

Prerequisites: Junior or senior classification.

NVSC 401 Naval Ships Systems II: Weapons

Credits 3. 3 Lecture Hours. 1 Lab Hour. Types and purpose of major weapons systems and platforms of the U.S. Naval forces; theory and operational principles of radar, sonar and communication circuits; fire control problem geometry, principles of ballistics, propulsion, launching and guidance of weapons; principles of electronic warfare and nuclear weapons.

NVSC 402 Leadership and Ethics

Credits 3. 3 Lecture Hours. 1 Lab Hour. Theoretical concepts of Western moral traditions and ethical philosophy; topics include leadership, values, military ethics, Just War Theory, Uniform Code of Military Justice and Naval regulations; examination of ethical foundation for the development of leadership and communication skills; should be taken the semester of graduation.

NVSC 404 Naval Operations and Seamanship

Credits 3. 2 Lecture Hours. 2 Lab Hours. Relative motion, formation tactics, ship maneuvering behavior and characteristics, applied aspects of ship handling, afloat communications and ship employment; naval warfare, operations concepts, command and control, and joint warfare; review and analysis of case studies involving moral, ethical and leadership issues. **Prerequisite:** NVSC 301 or MART 204; junior or senior classification.

NVSC 410 Fundamentals of Maneuver Warfare

Credits 3. 3 Lecture Hours. Study of the foundational concepts and history of the United States Marine Corps as the premier Maneuver Warfare organization; evolution of amphibious and expeditionary doctrine over time and amid emerging technological challenges; exploration of theoretical concepts utilizing historical case studies. **Prerequisite:** Grade of C or better in NVSC 303.

NVSC 485 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Directed study in problems in the field of naval science not covered by other courses in department.

Prerequisite: Approval of department head.

OCEN - Ocean Engineering (OCEN)

OCEN 201 Introduction to Ocean Engineering

Credits 3. 3 Lecture Hours. Survey of ocean engineering; concepts and theories of wave-structure interaction; sources of technical information; coastal and ocean structures, moorings, laboratory models; underwater systems; naval architecture; ocean instrumentation; materials and corrosion; hydrographic surveying and positioning, graphics laboratory, recent developments in ocean engineering. **Prerequisite:** Ocean engineering majors.

OCEN 213 Principles of Materials Engineering

Credits 3. 2 Lecture Hours. 2 Lab Hours. Description of properties of materials using a unified approach; discussion of the chemical structure, crystalline structure, microstructure, interface structure, and phase diagrams for materials; develop bulk properties and characteristics of metals, polymers, and ceramics; mechanical, electrical, magnetic, thermal, and optical properties for these materials. **Prerequisite:** Ocean Engineering majors.

OCEN 214 Mechanics of Deformable Bodies

Credits 3. 3 Lecture Hours. Concepts of stress, strain and deformation; factor of safety; stress-strain relationships and material properties; stress concentrations; area moments of inertia; axially loaded members, torsionally loaded members, bending of beams; shear and moment diagrams; stresses due to combined loading; thin-walled pressure vessels; transformation of stress including Mohr's circle; beam deflections and buckling stability. **Prerequisites:** Grade of C or better in OCEN 221; grade of C or better in MATH 308 or concurrent enrollment.

OCEN 221 Engineering Mechanics - Statics

Credits 3. 3 Lecture Hours. General principles of mechanics; concurrent force systems; statics of particles; equivalent force/moment systems; centroids and center of gravity; equilibrium of rigid bodies; trusses, frames and machines; internal forces in structural members; moments of areas. **Prerequisite:** Grade of C or better in MATH 251 or MATH 253, or concurrent enrollment; also taught at Galveston campus.

OCEN 265 Introduction to Geotechnical Engineering

Credits 3. 2 Lecture Hours. 2 Lab Hours. Physical properties of soils, classification systems, soil exploration, permeability, consolidation, compaction and shear strength; laboratory tests conducted to determine the physical and engineering soil properties needed for application in geotechnical engineering design. **Prerequisite:** Grade of C or better in OCEN 214 or CVEN 305.

OCEN 285 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Directed study on selected current problems in the ocean and/or maritime industry; enables individuals or groups to undertake and complete with credit some specialized investigation not covered by other courses. **Prerequisite:** Approval of department head.

OCEN 300 Ocean Engineering Wave Mechanics

Credits 3. 3 Lecture Hours. Physical and mathematical fundamentals of ocean wave behavior; mechanics of wave motion; use of statistics and probability to develop design wave criteria. **Prerequisite:** Grade of C or better in OCEN 311; grade of C or better in OCEN 362 or concurrent enrollment.

OCEN 311 Fluid Statics and Dynamics

Credits 3. 3 Lecture Hours. Fluid properties; statics; kinematics; ideal gas law; conservation of mass; linear momentum and Newton's Second Law; conservation of energy; Bernoulli's equation; control volume analysis, similitude and hydraulic models; homogeneous flow in pipes; fluid drag, boundary layer basics. **Prerequisite:** Grade of C or better in OCEN 221.

OCEN 336 Fluid Dynamics Laboratory

Credit 1. 2 Lab Hours. Introduction to laboratory techniques, calibration principles, reports and fluid measurements; determination of fluid properties; visualization of types of flow; experiments in closed conduit flow of air, water and oil; fluid drag and turbomachinery tests; open channel and gravity wave demonstrations. **Prerequisite:** Grade of C or better in OCEN 311 or OCEN 311/EVEN 311, or concurrent enrollment.

OCEN 341 Engineering Economics and Project Management

Credits 3. 3 Lecture Hours. Analysis of engineering economics and management, using costs and benefits of various engineering options; project scheduling covered in detail including PERT, GANT and CPM methods; time value of money, cash flows, analysis techniques, interest rates, inflation, depreciation, optimization, statistics, network analysis and critical path programming. **Prerequisites:** Junior or senior classification; enrollment in the OCEN program; also taught at Galveston campus.

OCEN 344 Reinforced Concrete Structures

Credits 3. 3 Lecture Hours. Analysis and design of reinforced concrete beams, columns, slabs and footings using ultimate strength methods. **Prerequisites:** Grade of C or better in OCEN 345 and OCEN 213; also taught at Galveston campus.

OCEN 345 Theory of Ocean Engineering Structures

Credits 3. 3 Lecture Hours. Functions of and loadings on ocean engineering structures, including sea walls, harbor structures, sea-going vessels, offshore structures and underwater vehicles; analysis of structures including trusses, beams, plates, shells and arches; introduction to stress and failure analysis; introduction to finite element analysis (FEA) including computational mechanics of ocean engineering structures using FEA. **Prerequisite:** Grade of C or better in OCEN 214.

OCEN 351 Rigid Body Dynamics For Ocean Engineers

Credits 3. 3 Lecture Hours. General principles in mechanics; position, velocity and acceleration; application of Newton's laws to rigid body dynamics; kinematics of rectilinear and curvilinear motions; stationary and moving frames of reference; work-energy and impulse momentum principles for applications to ocean engineering systems. **Prerequisites:** Grade of C or better in MATH 308 or concurrent enrollment; grade of C or better in OCEN 221.

OCEN 352 Vibrations and Control for Ocean Engineers

Credits 3. 3 Lecture Hours. Fundamentals of mechanical vibration; vibration responses to harmonic and random excitations; vibration of single-degree-of-freedom and multiple-degree-of-freedom; modal analysis and resonance; optimum control theories and examples; state-space representation; applications of the optimum feedback control; compensator design using Separation Principle. **Prerequisite:** Grade of C or better in OCEN 351.

OCEN 361 Applied Numerical Methods

Credits 3. 3 Lecture Hours. Application of numerical methods to ocean-related engineering problems; development, evaluation and comparison of various techniques for root finding, curve fitting, numerical integration, simultaneous linear algebraic equations, matrix methods, probability and statistics and ordinary differential equations in ocean-related engineering applications. **Prerequisite:** Grade of C or better in MATH 308 or concurrent enrollment.

OCEN 362 Hydromechanics

Credits 3. 3 Lecture Hours. Kinematics of fluids; differential analysis of fluid flow; homogeneous, incompressible, irrotational and turbulent flows; Euler equations; Navier-Stokes equations; flow of viscous fluids; pumps; introduction to water waves. **Prerequisites:** Grade of C or better in OCEN 311 and MATH 308.

OCEN 363 Dynamics and Vibrations

Credits 3. 3 Lecture Hours. Application of Newtonian and energy methods to model dynamic systems with ordinary differential equations; dynamics and vibrations of linear single- and multi-degree of freedom systems of particles and rigid bodies; solutions of models using analytical approaches; interpreting solutions; application to simple floating systems. **Prerequisites:** Grade of C or better in OCEN 221; grade of C or better in MATH 308 or concurrent enrollment.

OCEN 399 Leadership and Experience

Credits 0. 0 Other Hours. Participation in an approved high-impact learning practice; reflection on professional outcomes from engineering body of knowledge; documentation and self-assessment of learning experience at mid-curriculum point. **Prerequisites:** OCEN 201; junior or senior classification or approval of instructor.

OCEN 400 Basic Coastal Engineering

Credits 3. 3 Lecture Hours. Mechanics of wave motion; wave refraction, diffraction and reflection; wave forecasting; shore processes; planning of coastal engineering projects; design of seawalls, breakwaters, beach nourishment and fixed and floating installations; dredging; risk analysis. **Prerequisites:** Grade of C or better in OCEN 300.

OCEN 401 Underwater Acoustics for Ocean Engineers

Credits 3. 3 Lecture Hours. Fundamentals of underwater acoustics, SONAR equations, propagation of underwater sound, acoustic transducers and arrays, noise in the ocean environment, design and prediction of SONAR systems, ocean engineering applications of underwater sound. **Prerequisite:** Grade of C or better in OCEN 311.

OCEN 402 Principles of Naval Architecture

Credits 3. 3 Lecture Hours. Elementary principles of naval architecture; ship geometry and hydrostatics; load line and classification regulations; concept of intact and damaged stability; resistance and propulsion of water-borne vehicles; applications to the design consideration of semi-submersibles, catamarans and drilling rigs. **Prerequisite:** Grade of C or better in OCEN 311.

OCEN 403 Dynamics of Offshore Structures

Credits 3. 3 Lecture Hours. Prediction of loads due to wind, current and waves; introduction to concepts of linear structural dynamics and to the design of ocean structures; mooring and towing analysis; fluid-structure interactions; vibration of submerged structures; offshore pipelines; introduction to risk analysis. **Prerequisite:** Grade of C or better in OCEN 300, OCEN 345, and OCEN 362; grade of C or better in OCEN 363 or concurrent enrollment.

OCEN 405 Finite Element Analysis in Engineering Design

Credits 3. 3 Lecture Hours. Introduction to the fundamental theory and techniques; direct approach and energy formulation; element equations, assembly and solution schemes; computer implementation, design considerations; applications to field problems; original computer project required. **Prerequisite:** Grade of C or better in OCEN 345.

OCEN 406 Capstone Design I

Credit 1. 1 Lecture Hour. Part one of a two-course sequence; development and presentation of detailed proposals for offshore or coastal engineering projects, which will form the basis for OCEN 407 design projects; includes formulation of project objectives, design constraints, delineation of alternatives, scheduling and analysis of economic and environmental impact. **Prerequisites:** Grade of C or better in OCEN 300; grade of C or better in OCEN 400, OCEN 402, and OCEN 403, or concurrent enrollment.

OCEN 407 Design of Ocean Engineering Facilities II

Credits 3. 0 Lecture Hours. 6 Lab Hours. Design of structures, equipment and systems for the ocean; environmental, logistical and reliability requirements; complete design process followed through group design project; delineation of alternatives, constraints, economics and environmental consequences included to strengthen real-life problem solving skills. **Prerequisites:** Grade of C or better in OCEN 400, OCEN 402, OCEN 403, and OCEN 406.

OCEN 408 Underwater and Moored System Design

Credits 3. 3 Lecture Hours. Basic principles of thermodynamics, fluid dynamics and human respiration physiology applied to design of underwater habitats, submersibles and diving bells; breathing gas supply for diving systems; heat transfer for underwater systems; pressure vessel design; remotely operated vehicles; subsea flowlines and manifold systems; and design of towed and moored systems. **Prerequisite:** Grade of C or better in OCEN 311.

OCEN 410 Ocean Engineering Laboratory

Credits 2. 1 Lecture Hour. 2 Lab Hours. Fundamental techniques and instrumentation for field and laboratory measurements pertaining to ocean engineering experiment planning; data analysis and data presentation; written reports describing planning, analysis and results of experiments. **Prerequisites:** Grade of C or better in OCEN 400, OCEN 402, and OCEN 403.

OCEN 411 Environmental Nearshore Hydrodynamics

Credits 3. 3 Lecture Hours. Fundamentals of current and shallow water wave motions; beach response to nearshore processes; coastal sediment and pollutant transport including nearshore currents, longshore onshore-offshore transport and shoreline configuration; facilities for shoreline stabilization, backshore protection and inlet stabilization; environmentally conscious coastal engineering design. **Prerequisites:** Grade of C or better in OCEN 300.

OCEN 415 Offshore Structure Design

Credits 3. 3 Lecture Hours. Design of large structures using diffraction analysis; design project: design of a fixed offshore structure including dynamics effects. **Prerequisite:** Grade of C or better in OCEN 345, or concurrent enrollment.

OCEN 421 Naval Architecture Design II

Credits 3. 2 Lecture Hours. 3 Lab Hours. Ship motion and mooring; theory and practice of naval architecture, basic principles and design calculations; hull structural design considerations; ship resistance and propulsion power prediction; propeller selection concepts; dynamic positioning systems; mobile offshore drilling unit (MODU) design considerations; practical design work on a vessel or MODU of the student's choosing under the guidance of the instructor. **Prerequisites:** Grade of C or better in OCEN 362 and OCEN 402.

OCEN 451 Robotic Marine Vehicles for Ocean Engineers

Credits 3. 3 Lecture Hours. Theoretical and practical overview of robotic marine vehicles, including both surface and subsurface vehicles, operating in remote and coastal areas; design and deployment of seaborne robotic systems; hydrodynamic and hydrostatic properties of the vessel, the propulsion, control system and navigation strategies and path planning; underwater acoustics, focusing on the fundamentals necessary to design and predict SONAR performance for underwater communications and obstacle avoidance. **Prerequisite:** Grade of C or better in OCEN 311.

OCEN 459 Mechanical Vibrations

Credits 3. 3 Lecture Hours. Basic theory of vibrating systems with single and multiple degrees of freedom and principles of transmission and isolation of vibrations. **Prerequisites:** Grade of C or better in OCEN 361 and OCEN 363.

OCEN 460 Data Science for Ocean Engineers

Credits 3. 3 Lecture Hours. Engineering analysis of large amounts of complex raw and processed information; identifying data patterns and surveying well-known data science techniques; communicating through the language of data science; constructing prototype data analytics pipelines demonstrations. **Prerequisite:** Junior or senior classification; approval of instructor.

OCEN 461 Ocean Instrumentation and Control Theory

Credits 3. 3 Lecture Hours. Electrical systems components; analog and digital filters-amplifiers; network analysis; instrument behavior and displacement, velocity, acceleration, force, and flow measurements; simple feedback and control theory for linear electromechanical systems; digital data acquisition. **Prerequisites:** Grade of C or better in ECEN 215.

OCEN 463 Hydrodynamics of Offshore Structures

Credits 3. 3 Lecture Hours. Introduction to offshore structures; wave force formulation; wave forces on small structures; floating structure dynamics; modeling dynamics systems of rigid body motion; structure response statistics. **Prerequisite:** Grade of C or better in OCEN 345 and OCEN 363.

OCEN 465 Subsea Pipeline Design

Credits 3. 3 Lecture Hours. Design and construction practices of submarine oil/gas pipelines and risers; pipe selections, coating, insulation; route selection; operation and installation stresses; stability during laying and operation due to wave and current action; cost analysis considering long term operability and safety. **Prerequisite:** Grade of C or better in OCEN 300.

OCEN 467 Offshore Random Processes

Credits 3. 3 Lecture Hours. Basic probability theory and engineering statistics; irregular structural excitation and response; random vibration theory with application to offshore processes and structures; development of extreme values used in design of ocean structures. **Prerequisites:** Grade of C or better in OCEN 361, OCEN 363, and OCEN 403; also taught at Galveston campus.

OCEN 474 Port and Harbor Engineering

Credits 3. 3 Lecture Hours. Engineering background and specific skills for design of marine facilities and harbors; includes development of design criteria, channel design, evaluation of operations and extreme loads, dredging and disposal. **Prerequisites:** Junior or senior classification or approval of instructor.

OCEN 481 Seminar

Credit 1. 1 Lecture Hour. Responsibilities and obligations of new ocean engineers; professional ethics, membership in professional societies and professional registrations; case studies and lectures presented by staff and practicing engineers. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisite:** Grade of C or better in OCEN 406.

OCEN 485 Directed Studies

Credits 1 to 6. 1 to 6 Other Hours. Special problems in various areas of ocean engineering assigned to individual students or to groups; readings and assignments given and frequent consultations held. **Prerequisite:** Approval of program head.

OCEN 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified field of ocean engineering. May be repeated for credit. **Prerequisite:** Approval of instructor.

OCEN 491 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of faculty member in ocean engineering. May be repeated 2 times for credit. Registration in multiple sections of this course is possible within a given semester provided that the per semester credit hour limit is not exceeded. **Prerequisites:** Approval of instructor.

OCNG - Oceanography (OCNG)

OCNG 101 Succeeding in Oceanography

Credit 1. 1 Lecture Hour. Introduction to the study of the ocean and to the departmental and university resources available to assist and enhance the pursuit of a degree in oceanography or ocean studies; variety of guest lecturers will present on career pathways, internship, and research opportunities.

OCNG 203 Communicating Oceanography

Credits 3. 3 Lecture Hours. Learn and practice basic writing skills for ocean science; basic background on the research being conducted in the Department of Oceanography through seminars given by Oceanography graduate students. **Prerequisites:** OCNG 251; majors in OCNG and OCNS.

OCNG 251 The Blue Planet - Our Oceans

Credits 3. 3 Lecture Hours. (GEOL 1345, GEOL 1445*) The Blue Planet - Our Oceans. Overview of the ocean environment; interrelation of the subdisciplines of ocean sciences; importance of the oceans to human beings; human impact on the oceans; also taught at Galveston campus.

OCNG 252 The Blue Planet - Our Oceans Laboratory

Credit 1. 2 Lab Hours. (GEOL 1145, GEOL 1445*) The Blue Planet - Our Oceans Laboratory. Hands-on laboratory experiments and exercises demonstrating principles of ocean sciences; emphasis on the unique interdisciplinary nature of the ocean and current ocean issues relevant to today's society.

OCNG 281 Seminar

Credit 1. 1 Other Hour. Basic background on the research being conducted in the Department of Oceanography through seminars given by Oceanography graduate student; basic writing skills for ocean science through instruction and assignments during the semester. **Prerequisites:** OCNG 251; OCNG 252; or approval of instructor.

OCNG 289 Special Topics in...

Credits 1 to 4. 1 to 4 Other Hours. Selected topics in an identified area of oceanography. May be repeated for credit. **Prerequisites:** Approval of instructor.

OCNG 291 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in oceanography. May be repeated 2 times for credit. Registration in multiple sections of this course is possible within a given semester provided that the per semester credit hour limit is not exceeded. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

OCNG 303 Professional Communication in Oceanography

Credits 3. 3 Lecture Hours. Exploration of the fundamental skills required for effective communication of various forms of writing and for oral presentations of various lengths and purposes; addresses preparation for various ocean science-related careers. **Prerequisite:** OCNG 203; COMM 203 or COMM 205, junior or senior classification or approval of instructor.

OCNG 310 Physical Oceanography

Credits 4. 3 Lecture Hours. 2 Lab Hours. Elements of the physics of the sea; descriptive aspects as well as cause and effect relations in respect to currents, thermal structure and waves; intended for majors in the physical sciences or engineering. **Prerequisites:** MATH 152; PHYS 206; PHYS 226, PHYS 216/ENGR 216, or ENGR 216/PHYS 216; junior or senior classification.

OCNG 320 Biological Oceanography

Credits 4. 3 Lecture Hours. 2 Lab Hours. Biological aspects of the marine environment; marine organisms; productivity of the sea; marine pollution and fouling; use of the sea. **Prerequisites:** OCNG 251; BIOL 112, BIOL 107, or ECCB 205; junior or senior classification or approval of instructor.

OCNG 330 Geological Oceanography

Credits 4. 3 Lecture Hours. 2 Lab Hours. History of Oceanography; physiographic provinces of the oceans, their origins and sediments; geological sampling techniques and geophysical methods; coasts and beaches, paleoceanography; global tectonics. **Prerequisites:** OCNG 251, GEOL 101 or GEOG 203, or approval of instructor.

OCNG 340 Chemical Oceanography

Credits 4. 3 Lecture Hours. 2 Lab Hours. A basic understanding of the chemistry of the ocean and the chemical fluxes with the atmosphere, continents and seafloor; special emphasis will be placed on the application of chemical concepts and measurements to the other oceanographic disciplines. **Prerequisites:** CHEM 120 and OCNG 251.

OCNG 350 Marine Pollution

Credits 3. 3 Lecture Hours. Sources and fates of marine pollutants; types of pollutants including plastics, oil and sound; impact of pollution on society. **Prerequisite:** Junior or senior classification or approval of instructor.

OCNG 355 The Blue Frontier - Harnessing Ocean Resources for Future Sustainability

Credits 3. 3 Lecture Hours. Survey of Blue Economy industries and practices and examination of sustainable and equitable use and management of ocean resources. **Prerequisites:** OCNG 251; junior or senior classification.

OCNG 404 Ocean Observing Systems

Credits 3. 3 Lecture Hours. Investigate the rationale behind ocean observing systems; familiarize with the relevant social, scientific design, technology and policy issues associated with observing systems. **Prerequisite:** OCNG 251 or approval of instructor.

OCNG 411 Global Oceanography

Credits 3. 3 Lecture Hours. The ocean's large-scale circulation and water mass structure based on the interpretation of modern observations; emphasis on the ocean's role in global climate and physical-chemical property fluxes in basin to global scale budgets. **Prerequisite:** OCNG 251.

OCNG 412/GEOG 410 Global Change

Credits 3. 3 Lecture Hours. The interaction of the earth, atmosphere, oceans, cryosphere and life, including the impact of human society on the environment and climate; global change modeling; politics, policy and decision making; and personal awareness. **Prerequisite:** Junior or senior classification. **Cross Listing:** GEOG 410/OCNG 412.

OCNG 413 Polar Regions of the Earth: Science, Society and Discovery

Credits 3. 3 Lecture Hours. Overview of disciplines and topics that define modern polar science in the north and the south; includes history of the Polar Regions, polar geosciences, major polar scientific projects, and special topics; participate as individuals and teams in education, outreach and science projects. **Prerequisite:** Junior or senior classification.

OCNG 425 Microbial Oceanography

Credits 3. 3 Lecture Hours. Diversity and ecology of microorganisms in the ocean; role in the Earth system both in the contemporary ocean and the geological past. **Prerequisites:** Junior or senior classification, OCNG 251, or approval of instructor.

OCNG 443 Oceanographic Field and Laboratory Methods

Credits 3. 2 Lecture Hours. 2 Lab Hours. Development of skills needed to collect, prepare and analyze oceanographic samples; perform data analysis, interpretation and reporting for common oceanographic analyses. **Prerequisite:** OCNG 251 and CHEM 120; junior or senior classification or approval of instructor.

OCNG 451 Mathematical Modeling of Ocean Climate

Credits 4. 3 Lecture Hours. 2 Lab Hours. Problem-based course in theoretical and computer techniques applied to mathematical solutions of ocean climate, including ocean circulation, climate variability, El Niño. **Prerequisite:** MATH 308.

OCNG 453 Hydrothermal Vents and Mid-Ocean Ridges

Credits 3. 3 Lecture Hours. Exploration of the creation of various types of hydrothermal fluids, the associated chemical behavior of vent and plume fluids, and the ecology of hydrothermal vent systems; emphasis on the interdependence of the geological, chemical, and biological aspects of hydrothermal systems. **Prerequisite:** OCNG 251; BIOL 112; CHEM 120; junior or senior classification or approval of instructor.

OCNG 456 MATLAB Programming for Ocean Sciences

Credits 3. 2 Lecture Hours. 2 Lab Hours. Computation techniques for oceanographic data processing using MATLAB; focus on the analysis of oceanographic-related data sets and real-world oceanographic applications; analyze individual data sets. **Prerequisite:** Junior or senior classification or approval of the instructor.

OCNG 461 Advanced Oceanographic Data Analysis and Communication

Credits 3. 3 Lecture Hours. Project design and planning for oceanographers; oceanographic data organization and analysis; synthesis and interpretation of data analysis; technical report writing and presentation. **Prerequisites:** OCNG 203; STAT 211 or STAT 303; junior or senior classification.

OCNG 469 Python for Geosciences

Credits 3. 3 Lecture Hours. 1 Lab Hour. Core language Python programming, scientific programming analysis methods, analysis of large geophysical data sets, plotting geophysical data, interpolation. **Prerequisite:** Junior or senior classification.

OCNG 470 Data Analysis Methods in Geosciences

Credits 4. 3 Lecture Hours. 2 Lab Hours. Topics and methods encountered while performing research in the geosciences; conceptualization of a scientific problem, data collection and processing, appropriate analysis techniques and data archiving and management; multi-disciplinary approach with an emphasis on real-world applications from environmental, atmospheric, and oceanographic sciences. **Prerequisite:** Junior or senior classification; MATH 151; STAT 211, STAT 301, STAT 302, or STAT 303, or concurrent enrollment; or approval of instructor.

OCNG 481 Seminar

Credit 1. 1 Lecture Hour. Analysis, review and critique of current research themes in oceanography based on reading assignments and seminar presentations. May be taken four times for credit. **Prerequisite:** Junior or senior classification.

OCNG 484 Internship

Credits 0 to 3. 0 Lecture Hours. 0 to 3 Other Hours. Directed internship in a private firm, government agency or non-governmental organization to provide work experience related to the student's degree program and career objectives. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisite:** OCNG major or approval of instructor.

OCNG 485 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Special reading assignments, problems and discussion on oceanographic topics of mutual interest to student and instructor. **Prerequisites:** OCNG 251 or approval of instructor. An honors section is also available.

OCNG 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of oceanography. May be taken two times for credit. **Prerequisite:** OCNG 251 or approval of instructor. An honors section is also available.

OCNG 491 Research

Credits 0 to 9. 0 to 9 Other Hours. Research conducted under the direction of faculty member in oceanography. Registration in multiple sections of this course is possible within a given semester provided that the per semester credit hour limit is not exceeded. Honors section also available. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** Junior or senior classification and approval of instructor.

PBSI - Psyc & Brain Sciences (PBSI)

PBSI 105 Psychology as a Major and Profession

Credit 1. 1 Lecture Hour. Development of building blocks essential to success at Texas A&M University and majors in the Department of Psychological and Brain Sciences; introduction to understanding how adjusting to college life and exploring strategies will help manage time and motivation; examination of methods for effective studying and test preparation; information about graduate school and careers with and without a graduate-level degree; intended to be taken during first semester in the major. **Prerequisites:** First semester students in psychology.

PBSI 107 Introduction to Psychology

Credits 3. 3 Lecture Hours. (PSYC 2301) Introduction to Psychology. Introductory course dealing with elementary principles of human behavior; also taught at Galveston and Qatar campuses.

PBSI 206/AFST 206 Black Psychology

Credits 3. 3 Lecture Hours. Critical examination of psychological experience, theories, and methods from perspectives grounded in the "Black experience." **Cross Listing:** AFST 206/PBSI 206.

PBSI 208 Stereotypes, Prejudice, and Minority Experience

Credits 3. 3 Lecture Hours. Overview of theory and research relating to stereotyping, prejudice, discrimination, and minority experiences from a social psychological perspective. **Prerequisites:** PBSI 107.

PBSI 209/AFST 209 Psychology of Culture and Diversity

Credits 3. 3 Lecture Hours. Introduction to various issues surrounding an increasingly interconnected and globalized world by critically examining the dynamic relationship between psychological processes and diverse (e.g., motivation, memory, self, prejudice) socio-cultural contexts. **Prerequisites:** PBSI 107. **Cross Listing:** AFST 209/PBSI 209.

PBSI 210/WGST 210 Psychological Aspects of Human Sexuality

Credits 3. 3 Lecture Hours. Interface between human sexuality, reproductive development and gender roles across the lifespan; theoretical and research literature promotes understanding of hormonal influences, learning processes, cultural differences, sexual response and love and attraction. **Prerequisite:** PBSI 107. **Cross Listing:** WGST 210/PBSI 210.

PBSI 225 Lifespan Development

Credits 3. 3 Lecture Hours. (PSYC 2314) Lifespan Development. Major theoretical perspectives and empirical research examining psychological processes across the lifespan; changes across the lifespan in emotional, cognitive, personality and social processes; stages of the lifespan including infancy, childhood, adolescence, adulthood and the end of life.

PBSI 235 Introduction to Behavioral and Cognitive Neuroscience

Credits 3. 3 Lecture Hours. Physiological bases of sensation, motor functions, emotion, motivation and complex psychological processes.

Prerequisites: PBSI 107 or BIOL 111.

PBSI 245 Introduction to Psychological Science Methods

Credits 3. 3 Lecture Hours. (PSYC 2317) Introduction to Psychological Science Methods. Basic elements of statistics and research methods in the psychological and brain sciences; topics include ethics in psychological research, measurement, research design and descriptive and inferential statistics.

PBSI 251 Survey of Industrial/Organizational Psychology

Credits 3. 3 Lecture Hours. Literature and research in the basic theories and practices of I/O psychology including selection, testing, job analysis, performance appraisal, training, employee motivation, job satisfaction, leadership, and group processes within organizations.

PBSI 285 Directed Studies

Credits 0 to 3. 0 to 3 Other Hours. Directed readings or research problems in selected areas designed to supplement existing course offerings; individual report required. **Prerequisites:** Approval of instructor; major in psychology.

PBSI 289 Special Topics in...

Credits 1 to 4. 1 to 4 Other Hours. Selected topics in an identified area of psychology. May be repeated for credit. **Prerequisite:** PBSI 107.

PBSI 291 Research

Credits 0 to 3. 0 to 3 Other Hours. Research conducted under the supervision of a chosen faculty member in the department of psychology; involves discussion and weekly presentation of student research projects. May be repeated for credit. **Prerequisites:** PBSI 285; freshman or sophomore classification.

PBSI 300/WGST 300 Psychology of Women

Credits 3. 3 Lecture Hours. Theoretical and research literature relevant to psychological assumptions about the female personality; challenges to and verification of these assumptions by recent experimental studies. **Prerequisite:** PBSI 107. **Cross Listing:** WGST 300/PBSI 300.

PBSI 301 Elementary Statistics for Psychology

Credits 4. 3 Lecture Hours. 2 Lab Hours. Practical knowledge of statistics up through analysis of variance. Practice sessions devoted to numerical problems. Will not satisfy mathematics requirement in College of Liberal Arts curricula. **Prerequisites:** Grade of C or better in PBSI 107 and PBSI 245; major in psychology.

PBSI 302 Research Methods and Design in Psychology

Credits 4. 3 Lecture Hours. 2 Lab Hours. Research techniques in psychology with emphasis on the experimental method; laboratory exercises applied to specific problems in psychology. **Prerequisites:** Grade of C or better in PBSI 107 and PBSI 301; major in psychology.

PBSI 303 Psychology of Women of Color

Credits 3. 3 Lecture Hours. Interdisciplinary theories to study the unique yet intersectional experiences of women from different racial groups, ethnicities, nationalities and cultural backgrounds; scholarly research from the diversity science field; contemporary topics that have developed in a global context; examination of complex issues, which affect women of color across the lifespan. **Prerequisites:** Grade of C or better in AFST 201, PBSI 107, or WGST 200, or approval of instructor. **Cross Listing:** AFST 303 and WGST 303.

PBSI 304 Psychology of Sport and Physical Activity

Credits 3. 3 Lecture Hours. The relationship of psychology to sport, exercise and human performance; including history, application of learning principles, social psychology, personality variables, psychological assessment, youth sport, the female sport experience, psychology of coaching, exercise and human performance.

PBSI 305 Psychology of Adjustment

Credits 3. 3 Lecture Hours. Adjustment problems of normal people; application of psychological principles to family, school and community life.

PBSI 306 Psychological Disorders

Credits 3. 3 Lecture Hours. Survey of psychopathology; models of diagnosis and assessment, anxiety and depression, eating disorders, substance abuse, sexual dysfunctions, schizophrenia, bipolar illness, character disorders, children's disorders and aging. **Prerequisites:** PBSI 107; PBSI 301 and PBSI 302 recommended; also taught at Galveston campus.

PBSI 307 Developmental Psychology

Credits 3. 3 Lecture Hours. Growth and development of normal child from infancy to adolescence with emphasis on elementary school years. **Prerequisite:** PBSI 107; PBSI 245, MATH 140, MATH 168, MATH 142, MATH 147, MATH 151, MATH 171, MATH 152, MATH 148, MATH 172, MATH 150, PHIL 240 or STAT 201.

PBSI 310 Career Readiness and Preparation

Credit 1. 1 Lecture Hour. Exploration of various career paths in the preparation of upper-level undergraduate psychology and neuroscience majors for either entering the job market or pursuing graduate school in psychology or related fields; assistance in preparing for and succeeding in graduate school, and how to apply for a job or to graduate school. **Prerequisites:** Junior or senior classification; Psychology and Neuroscience-BCN majors.

PBSI 311 Psychology of Animal Behavior

Credits 3. 3 Lecture Hours. Problems, principles, and methods of animal psychology; animal learning, motivation, discriminative processes and abnormal, social and instinctual behaviors. **Prerequisites:** PBSI 107, BIOL 111, or BIOL 113.

PBSI 315 Social Psychology

Credits 3. 3 Lecture Hours. Social psychological variables operating on the individual; results of experimental laboratory findings; interaction of personality and social behavior. **Prerequisites:** PBSI 107.

PBSI 316/COMM 316 Media Psychology

Credits 3. 3 Lecture Hours. Examine the role of media and its impact on human behavior, emotions and thoughts; topics include mass media, social media and how they influence individual and societal functioning across a range of important psychological topics; e.g., self-image, sexual behavior, mental health, violence. **Prerequisites:** PBSI 107. **Cross Listing:** COMM 316/PSYC 316.

PBSI 319 History and Systems of Psychology

Credits 3. 3 Lecture Hours. Historical analysis of pre-scientific psychology in philosophy and physiology through the period of the psychological "schools." **Prerequisite:** PBSI 107.

PBSI 320 Sensation-Perception

Credits 3. 3 Lecture Hours. Review of sensory physiology, sensory and perceptual phenomena and the major perceptual theories; current research in the field. **Prerequisites:** PBSI 235.

PBSI 323 Psychology of Adolescence

Credits 3. 3 Lecture Hours. Psychological problems of normal teenage individual; ways and means of aiding youth to meet these problems constructively. **Prerequisites:** PBSI 107; PBSI 245 or one of the following: MATH 140, MATH 168, MATH 142, MATH 147, MATH 151, MATH 171, MATH 152, MATH 148, MATH 172, MATH 150, PHIL 240, STAT 201; PBSI 301 and PBSI 302 recommended.

PBSI 330 Personality

Credits 3. 3 Lecture Hours. Review of personality theories, techniques of assessment and research relevant to understanding individual differences. **Prerequisites:** PBSI 107; PBSI 301 and PBSI 302 recommended.

PBSI 332 Neuroscience of Learning and Memory

Credits 3. 3 Lecture Hours. Brain mechanisms of learning and memory from molecular to behavioral levels; synaptic plasticity, model systems, multiple memory systems, diseases of learning and memory. **Prerequisites:** PBSI 235, PBSI 340, VIBS 277, or NRSC 277.

PBSI 333 Biology of Psychological Disorders

Credits 3. 3 Lecture Hours. Neurobiology and clinical explanation of molecular mechanisms underlying psychiatric disorders and their drug treatments; depression and bipolar, anxiety disorders, mood disorders, psychosis and schizophrenia. **Prerequisites:** PBSI 235, PBSI 340, VIBS 277, or NRSC 277.

PBSI 336 Drugs and Behavior

Credits 3. 3 Lecture Hours. Physiological, pharmacological and behavioral effects of psychoactive drugs, including short-term and long-term effects of psychoactive drugs, properties of addictive drugs, etiology of addiction, and treatments of drug addiction and withdrawal. **Prerequisites:** PBSI 235, PBSI 340, VIBS 277, or NRSC 277.

PBSI 340 Psychology of Learning

Credits 3. 3 Lecture Hours. Survey of significant concepts, experimental methods and principles of learning. **Prerequisites:** PBSI 107, BIOL 111, or BIOL 113.

PBSI 345 Human Cognitive Processes

Credits 3. 3 Lecture Hours. Human cognition and information processing: perception, attention, memory, reasoning and problem solving; experimental methods and data, and contemporary theories of human cognition. **Prerequisites:** PBSI 107; PBSI 245 or one of the following: MATH 140, MATH 168, MATH 142, MATH 147, MATH 151, MATH 171, MATH 152, MATH 148, MATH 172, MATH 150, PHIL 240, STAT 201; PBSI 301 and PBSI 302 recommended.

PBSI 346 Psychology of Language

Credits 3. 3 Lecture Hours. Examines theories of how language is acquired, comprehended, produced, stored and used in normal and brain-impaired individuals. **Prerequisites:** PBSI 107; PBSI 301 and PBSI 302 recommended.

PBSI 350 Cognitive Neuroscience

Credits 3. 3 Lecture Hours. Research in cognitive neuroscience; methodological advances that enable the study of the human brain safely in the laboratory; complex aspects of the mind like emotion, social behavior and consciousness. **Prerequisites:** PBSI 107; PBSI 235; PBSI 301, PBSI 302, and NRCS 277 recommended.

PBSI 352 Organizational Psychology

Credits 3. 3 Lecture Hours. Literature and research in basic theories and practices of organizational psychology including employee motivation, leadership, job satisfaction, counterproductive work behaviors, organizational commitment, culture, climate, communication, and group processes within organizations. **Prerequisites:** PBSI 107; PBSI 245 or one of the following: MATH 140, MATH 168, MATH 142, MATH 147, MATH 151, MATH 171, MATH 152, MATH 148, MATH 172, MATH 150, PHIL 240, STAT 201; PBSI 301 and PBSI 302 recommended.

PBSI 353 Personnel Psychology

Credits 3. 3 Lecture Hours. Literature and research in basic theories and practices of personnel psychology including job analysis, testing and validation, selection, performance appraisal, training, and legal issues in employment decision making. **Prerequisites:** PBSI 107; PBSI 245 or one of the following: MATH 140, MATH 168, MATH 142, MATH 147, MATH 151, MATH 171, MATH 152, MATH 148, MATH 172, MATH 150, PHIL 240, STAT 201; PBSI 301 and PBSI 302 recommended.

PBSI 354 Conflict and Negotiation

Credits 3. 3 Lecture Hours. Examination of the field of conflict and negotiation, including the structure and causes of common interpersonal, intragroup, and intergroup conflicts, effective negotiation strategies, ethics, mediation, and the development of negotiating skills. **Prerequisite:** PBSI 107.

PBSI 360 Health Psychology and Behavioral Medicine

Credits 3. 3 Lecture Hours. Health psychology emphasizing behavioral and lifestyle factors in health and illness, prevention and modification of health-compromising behaviors, health care utilization, and psychological management of chronic disorders and psychological management of chronic disorders and terminal illnesses. **Prerequisites:** PBSI 107; junior or senior classification.

PBSI 365 Psychology of Aging

Credits 3. 3 Lecture Hours. Examination of the psychological aspects of the aging process including physiology and health, memory and intellectual functioning, personality and social relationships, emotional health and late life transition. **Prerequisite:** PBSI 107.

PBSI 371 Forensic Psychology

Credits 3. 3 Lecture Hours. Interface between psychology and the legal system; role of psychological theories and data, as well as mental health expertise, in the resolution of criminal trials and civil disputes; legal system's impact on the practice of psychology. **Prerequisites:** PBSI 107; PBSI 306 recommended.

PBSI 375 Qualitative Methods in the Psychological Sciences

Credits 3. 3 Lecture Hours. Research methods and approaches to engaging in qualitative analysis; topics include epistemological and ontological assumptions of qualitative research, ethical considerations, focus groups, interviews, qualitative surveys, thematic analysis, and use of qualitative software. **Prerequisites:** Junior or senior classification; grade of C or better in PBSI 107.

PBSI 389 Careers in Psychology

Credits 3. 3 Lecture Hours. Exploration of graduate study and professional careers in the field of psychology, including teaching, research, and clinical practice; content will include graduate admissions, licensure types, areas of specialization and professional skills related to training and practice in the field of psychology. **Prerequisites:** PBSI 107; approval of instructor.

PBSI 407 Behavioral Disorders of Children

Credits 3. 3 Lecture Hours. Behavior problems related to childhood; psychological aspects of mental retardation, emotional disturbance, physical handicaps and other disorders; causative factors, preventative and therapeutic methods explored; where feasible, practical experience included as requirement. **Prerequisites:** PBSI 306; PBSI 307 or equivalent.

PBSI 408 Pain Psychology

Credits 3. 3 Lecture Hours. Critical and transdisciplinary approach to the study of pain including an examination of personal and historical conceptions of pain, understanding of biopsychosocial mechanisms of pain, and consideration of sociodemographic and global pain disparities. **Prerequisites:** PBSI 107; PBSI 302 and PBSI 360 recommended; junior or senior classification.

PBSI 411 Psychology of Self

Credits 3. 3 Lecture Hours. Overview of psychological theory and research on issues related to the self, the self-concept and identity, and how these phenomena are integral to the human experience and to mental health and well-being. **Prerequisite:** PBSI 107 or approval of instructor.

PBSI 414 Behavior Principles

Credits 3. 3 Lecture Hours. Behavioral analysis of humans' complex interactions with their environments: how behavioral repertoires are constructed during maturation process; how existent behaviors are strengthened, weakened or eliminated; and how features of environment exercise control over behavioral components within a repertoire. **Prerequisites:** 9 hours of psychology; PBSI 107; junior or senior classification; PBSI 301 and PBSI 302 recommended.

PBSI 421 Existential Psychology

Credits 3. 3 Lecture Hours. Study of major theoretical perspectives and contemporary research in existential psychology; focus on theory and research examining major topics in existential psychology including the causes and consequences of mortality awareness, self-knowledge, authenticity, belief in free-will and the experience of meaning in life. **Prerequisite:** PBSI 107.

PBSI 425 Psychology of Emotion

Credits 3. 3 Lecture Hours. Examination of the theories and approaches in the psychological study of emotion; topics related to emotion, including predictors of happiness, causes and consequences of emotion, and the role of emotion in society; identification of facial expressions of emotion; examination of techniques that promote happiness. **Prerequisites:** PBSI 107.

PBSI 432 Diversity and Inclusion in Organizations

Credits 3. 3 Lecture Hours. Psychological and organizational theory and research on the experience of diversity and inclusion in organizations. **Prerequisites:** PBSI 315, PBSI 352, PBSI 353, or approval of instructor.

PBSI 440 Hormones and Behavior

Credits 3. 3 Lecture Hours. Principles of hormones and the endocrine system; relationships among hormones, the nervous system and a variety of behaviors in vertebrates including humans. **Prerequisites:** PBSI 235, PBSI 340, VIBS 277, or NRSC 277, or approval of instructor.

PBSI 445 Psychological and Social Determinants of Health Disparities

Credits 3. 3 Lecture Hours. Critical examination of macrosocial factors and position within racial and social statuses that most often affect health, causing disparities, through intermediary mechanisms and process, such as health behavior, stress, medical care and a broad range of social, psychological, cultural and religious resources.

PBSI 450 Clinical Psychology

Credits 3. 3 Lecture Hours. Analysis of the field of clinical psychology with a particular focus on the theoretical and scientific bases for the practice of clinical psychology. **Prerequisites:** Grade of C or better in PBSI 306; PBSI 301 and PBSI 302 recommended.

PBSI 470 Psychological Testing and Measurement

Credits 3. 3 Lecture Hours. Theories and techniques of measurement of psychological concepts; a range of measurement models and procedures; critical tasks of evaluating strategies for measuring psychological concepts and drawing inferences and interpretations from commonly used psychological assessments. **Prerequisites:** PBSI 301 recommended; junior or senior classification or approval of instructor.

PBSI 471 Research Writing in Neuroscience

Credit 1. 1 Lecture Hour. Development of written communication skills; comprehension and communication of neuroscience research concepts to both academics and lay people. **Prerequisite:** PBSI 235; junior or senior classification.

PBSI 475 Communicating Neuroscience Concepts

Credit 1. 1 Lecture Hour. Development of written communication skills; written assignments include summaries of research in the field of neuroscience. **Prerequisite:** PBSI 235; junior or senior classification.

PBSI 483 Teaching Scholars

Credits 0 to 3. 0 to 3 Other Hours. Acquisition of experience in educational programs and knowledge about the scientific basis for educational strategies and development of materials in conjunction with serving as a course teaching assistant. **Prerequisites:** Major or minor within the PBSI department; junior or senior classification; approval of instructor.

PBSI 484 Field Experiences

Credits 0 to 6. 0 to 6 Other Hours. Participation in an approved mental health, mental retardation, school, industrial or other approved setting; field experiences supervised by an appropriate professor within an area of student interest; course requirements vary with the setting, the supervising professor and the needs of the individual student. May be repeated for credit. **Prerequisites:** PBSI 301 and PBSI 302; 12 hours of psychology; GPR of 2.5 or better in all psychology courses; major in psychology; approval of instructor.

PBSI 485 Directed Studies

Credits 0 to 6. 0 to 6 Other Hours. Directed readings or research problems in selected areas designed to supplement existing course offerings. May be repeated for credit. **Prerequisite:** Approval of instructor.

PBSI 489 Special Topics in...

Credits 1 to 4. 1 to 4 Other Hours. Selected topics in an identified area of psychology. May be repeated for credit. **Prerequisites:** PBSI 107 and approval of instructor.

PBSI 491 Research

Credits 0 to 6. 0 to 6 Other Hours. Research conducted under the supervision of a chosen faculty member in the department of psychology. May be repeated for credit. **Prerequisites:** Junior or senior classification; approval of instructor.

PBSI 603 Motivation and Cognitive Processes

Credits 3. 3 Lecture Hours. Selected topics in areas of motivation and higher mental processes; symbolic processes in perceptual organization; learning and remembering, reasoning and creativity. **Prerequisite:** Graduate classification or approval of instructor.

PBSI 606/NRSC 606 Learning

Credits 3. 3 Lecture Hours. Procedural and theoretical issues in study of basic learning mechanisms in animals and humans, including Pavlovian and instrumental conditioning. Application of this work to other domains and relevant biological mechanisms also discussed. **Prerequisite:** Graduate classification or approval of instructor. **Cross Listing:** NRSC 606/PBSI 606.

PBSI 607 Methods and Statistics in Psychological Science I

Credits 3. 2 Lecture Hours. 3 Lab Hours. Experimental methods and statistics; developing a general frame of reference for approaching experimental research problems and associated statistical tests; t-tests, ANOVA, MANOVA. **Prerequisite:** Graduate classification or approval of instructor.

PBSI 608 Introduction to Clinical Ethics and Techniques

Credits 3. 3 Lecture Hours. Ethical and legal issues in clinical practice; development of listening and interpretation skills; supervised practicum in interviewing non-clinical subjects; structured role-play of clinical situations. **Prerequisite:** Graduate classification or approval of instructor.

PBSI 609/NRSC 609 Physiological Psychology

Credits 3. 2 Lecture Hours. 3 Lab Hours. Current research and methodological procedures on physiological bases of sensation-perception, memory and learning, arousal-sleep-attention, emotions and motivation. **Prerequisite:** Graduate classification or approval of instructor. **Cross Listing:** NRSC 609/PBSI 609.

PBSI 610 Organizational Psychology

Credits 3. 3 Lecture Hours. Current literature and research in employee motivation, satisfaction, leadership, communication, group conflict and other group processes. **Prerequisite:** Graduate classification or approval of instructor.

PBSI 611 Personnel Psychology

Credits 3. 3 Lecture Hours. Application of psychological principles and research methods to the areas of selection, placement, job analysis, performance appraisal and training. **Prerequisites:** PBSI 251 or PBSI 353 or graduate classification or approval of instructor.

PBSI 613 Practicum in Psychological Assessment

Credits 1 to 4. 1 to 4 Other Hours. Application of psychological assessment across the life-span; assessment of cognitive, intellectual, academic, and memory abilities and adaptive behavior; assessment of personality, behavioral style, and systems/environment; integration of assessment measures in comprehensive psychological evaluations; attendance required at Practicum Seminar designed to integrate research, coursework, and applied training and supervisory instruction from a faculty supervisor; at least 3 credits and no more than 18 credits applied to degree plan. **Prerequisites:** PBSI 623 and PBSI 624, or approval of instructor.

PBSI 614 Practicum in Psychology

Credits 1 to 6. 1 to 6 Other Hours. Practical on-the-job experience for graduate students. Activities will be guided by psychologists in the following areas: behavior modification, social, clinical, experimental and industrial. Supervision will be provided by members of University staff. May be taken more than once but not to exceed 18 hours of credit toward a graduate degree. **Prerequisite:** PBSI 608 or approval of instructor.

PBSI 615/NRSC 615 Perceptual Processes

Credits 3. 3 Lecture Hours. Complex sensory and perceptual phenomena with emphasis on the relationship between perception and motivation, cognition, creativity and instinctive/ethological; learning/experiential factors in higher level perceptual processes. **Prerequisite:** Graduate classification or approval of instructor. **Cross Listing:** NRSC 615/PBSI 615.

PBSI 616 Treatment of Problem Behavior in Children and Families

Credits 3. 3 Lecture Hours. Current methods of treating families with children displaying aggressive, hyperactive, underachieving and other problem behaviors in natural settings; behavior of children and adolescents at home, school and at play. **Prerequisite:** Approval of instructor.

PBSI 619 Advanced Methods in Social Psychology

Credits 3. 3 Lecture Hours. A survey of advanced methodological considerations in social and personality psychology; theory development; experimental design; non-experimental design; power; replicability; meta-analysis; open science; mediation and moderation. **Prerequisites:** Graduate classification or approval of instructor.

PBSI 620 Theories of Social Psychology

Credits 3. 3 Lecture Hours. Current theories of social psychology and a review of related studies to these theories; theories of attitude change, prosocial behavior, aggression, equity, coalition formation, social learning and S-R theory applied to social behavior. **Prerequisite:** Graduate classification or approval of instructor.

PBSI 621 Seminar in Social Psychology

Credits 3. 3 Other Hours. Survey of research in social psychology; attitudes and persuasion; self-regulation; motivation; self and identity; applied social problems; existential social psychology; social psychology of emotion; and social cognition; course content will vary by semester. May be repeated up to four times for credit. **Prerequisite:** Graduate classification or approval of instructor.

PBSI 622 Affective Science

Credits 3. 3 Lecture Hours. Overview of theories and approaches in the interdisciplinary field of affective science; historical and contemporary approaches focused on emotional and affective processes. **Prerequisite:** Graduate classification or approval of instructor.

PBSI 623 Psychological Assessment I

Credits 3. 3 Lecture Hours. Principles of psychological testing; uses and critical evaluation of tests of achievement, intelligence, aptitude and personality. **Prerequisites:** Enrollment in Clinical Psychology Program or approval of instructor.

PBSI 624 Psychological Assessment II

Credits 3. 3 Lecture Hours. Theory and application of psychological assessment of children, adolescents, and adults; assessment of cognitive, intellectual, academic, and memory abilities and adaptive behavior; integration of assessment measures in comprehensive psychological evaluations. **Prerequisite:** Enrollment in Clinical Psychology Program or approval of instructor.

PBSI 626 Psychopathology

Credits 3. 3 Lecture Hours. Various symptom categories in psychopathology including differing theoretical conceptualizations of these symptom categories, and theories and research concerning etiology and treatment. **Prerequisite:** Enrollment in Clinical Psychology Program or approval of instructor.

PBSI 627 Psychological Assessment of Children and Adolescents

Credits 3. 3 Lecture Hours. Theory and application of psychological assessment of toddlers, children, and adolescents; assessment of cognitive, intellectual, academic, and memory abilities and adaptive behavior; assessment of personality, behavioral style, family functioning, and child-focused systems; integration of assessment measures in comprehensive psychological evaluations. **Prerequisites:** PBSI 623 and PBSI 624, or approval of instructor.

PBSI 629 Pain Psychology

Credits 3. 3 Lecture Hours. Theory and research on the psychology of pain; examination of historical and personal conceptions of pain; readings and discussions of biopsychosocial mechanisms of pain; consideration of sociodemographic and global pain disparities. **Prerequisites:** Graduate classification or approval of instructor.

PBSI 630 Health Psychology and Behavioral Medicine

Credits 3. 3 Lecture Hours. Theory, research and practice of health psychology emphasizing the prevention and modification of health compromising behaviors; psychological management of stress, pain and chronic/terminal illness; effective interventions for specific health behaviors/disorders. **Prerequisite:** Graduate classification or approval of instructor.

PBSI 631 Academic Career Development in Psychological and Brain Sciences

Credit 1. 1 Lecture Hour. Strategies and career planning for a research and teaching oriented academic track; focus on developing a multi-year plan for placement in a position to be maximally competitive for an academic job and preparation in how to assemble a strong application package. **Prerequisite:** Graduate classification or approval of instructor.

PBSI 632 Equity and Diversity Considerations for Scholars: A Critical Orientation to Research

Credits 3. 3 Lecture Hours. Introduction to diverse science practices and publishing; knowledge production; contextualization of research; researcher positionality; epistemic exclusion; decolonial perspectives; citational politics **Prerequisites:** Graduate classification; approval of instructor.

PBSI 633 Gender and Minority Issues in Clinical Psychology

Credits 3. 3 Lecture Hours. Human behavior and mental health as a function of culture, gender and sexual orientation; discussion of absolutist, relativist and universalist perspectives in cross-cultural psychology; psychology of stereotype and prejudice; adjustment through acculturation and biculturalism; learning about our own and other cultures. **Prerequisite:** Graduate classification or approval of instructor.

PBSI 635 Behavioral and Cellular Research Seminar

Credits 2. 2 Other Hours. Expose graduate students to neuroscience research, theory, and proposal development; research presentations by guest speakers, faculty, and graduate students; Discussions, readings and presentations on issues related to research design, statistics, methodology, ethics, IACUC, grant writing, presentation skills, job talks, and other relevant topics. May be taken four times for credit.

Prerequisite: Graduate classification or approval of instructor.

PBSI 636 Seminar in Developmental Psychology

Credits 3. 3 Other Hours. Cognitive development; social and emotional development; developmental abnormalities in connection with social/emotional and cognitive development; language acquisition; family processes; and development during infancy; recent developments in these fields; topics will vary from semester to semester. May be repeated for credit up to three times as topics change. **Prerequisites:** Graduate classification or approval of instructor.

PBSI 637 Clinical Interventions I

Credits 3. 3 Lecture Hours. Theory, research and techniques related to evidence-based behavioral and cognitive-behavioral approaches to clinical interventions; ethical, professional, multicultural and history/systems issues in therapeutic psychological interventions. **Prerequisite:** Enrollment in Clinical Psychology Graduate Program or approval of instructor.

PBSI 638 Clinical Interventions II

Credits 3. 3 Lecture Hours. Theory, research, and techniques related to evidence-based interpersonal, psychodynamic, group therapy, and family therapy approaches to clinical interventions; ethical, professional, multicultural, and history/systems issues in therapeutic psychological interventions. **Prerequisite:** Enrollment in Clinical Psychology Graduate Program or approval of instructor.

PBSI 639 Pediatric Psychology

Credits 3. 3 Lecture Hours. Application of clinical/counseling/school psychology to children and adolescents with chronic illnesses or disabilities and their families; theoretical foundations and models for consultation, assessment and intervention strategies; unique ethical and professional issues associated with research and service delivery in child health psychology/pediatric behavioral medicine. **Prerequisite:** PBSI 685, EPSY 685, PBSI 691, or EPSY 691, or approval of instructor; graduate classification.

PBSI 642/NRSC 642 Neuroimaging Data Analysis

Credits 3. 3 Lecture Hours. Physics of magnetic resonance imaging; experimental design for fMRI; linear and nonlinear image registration; data denoising; data filtering and smoothing; volume and surface methods; General Linear Models and multivariate approaches to subject-level data; mixed effects modeling, random effects modeling, permutation methods for linear models; functional connectivity. **Prerequisite:** Graduate classification or approval of instructor; coursework in regression models recommended. **Cross Listing:** NRSC 642/PBSI 642.

PBSI 648 Decision Making

Credits 3. 3 Lecture Hours. Research and theory in decision making, including classic theories, heuristics and biases, framing, neural systems, neuroeconomics, reinforcement learning, emotion, and neuropsychology.

Prerequisites: Graduate classification.

PBSI 649/NRSC 649 Seminar in Behavioral Neuroscience

Credits 3. 3 Other Hours. Behavioral neuroscience; including behavioral pharmacology, neuropharmacology, methods and techniques, drug reinforcement, behavioral toxicology, pain perception and ingestive behavior. May be repeated up to three times for credit. **Prerequisite:** Graduate classification or approval of instructor. **Cross Listing:** NRSC 649/PBSI 649.

PBSI 650 Clinical Psychopharmacology

Credits 3. 3 Lecture Hours. Survey of topics in clinical psychopharmacology, including pharmacodynamics, major neurotransmitter systems, and therapeutic applications and limitations.

Prerequisite: Graduate classification or approval of instructor.

PBSI 651/AFST 651 Cultural Psychology

Credits 3. 3 Lecture Hours. Surveys key readings in the field of cultural psychology; discussion and examination of relationship between psychological processes (e.g., motivation, memory, self perception, prejudice) and sociocultural contexts. **Prerequisites:** Enrollment in a graduate program or approval of instructor. **Cross Listing:** AFST 651/PBSI 651.

PBSI 652 Statistics and Research Methods in Industrial/Organizational Psychology I

Credits 3. 3 Lecture Hours. The first of two courses in statistics and research methods; integrates research design, appropriate methodology, and advanced statistical techniques used by industrial/organizational psychologists (e.g., General Linear Model); current topics pertinent to the content domain draws heavily from the application of quantitative psychology literature to workplace problems; statistical software packages will be used to enhance conceptual understanding.

Prerequisites: Graduate classification or approval of instructor.

PBSI 653 Statistics and Research Methods in Industrial/Organizational Psychology II

Credits 3. 3 Lecture Hours. The second of two courses in statistics and research methods; integrates research design, appropriate methodology, and advanced statistical techniques used by industrial/organizational psychologists (e.g., Generalized Linear Model, nonlinear regression); current topics pertinent to the content domain draws heavily from the application of quantitative psychology literature to workplace problems; statistical software packages will be used to enhance conceptual understanding. **Prerequisites:** PBSI 652; graduate classification or approval of instructor.

PBSI 654 Psychometrics and Survey Design in Industrial/Organizational Psychology

Credits 3. 3 Lecture Hours. Study of psychological measurement for testing and assessment purposes in I/O psychology; classical and modern test theories are introduced as well as their implications for test construction and survey design; emphasis on skill acquisition through developing, administering and scoring predictor or criterion tests and presenting results. **Prerequisites:** PBSI 652; PBSI 653; graduate classification or approval of instructor.

PBSI 655/NRSC 655 Foundations in Cognitive Neuroscience

Credits 3. 3 Lecture Hours. Experimental design in cognitive neuroscience; basics of cognitive neuroscience methods; perception versus imagery; attention; motor control; short-term and long-term memory; volition and consciousness; executive function; decision making; affect and psychopathology; social cognition. **Prerequisite:** Graduate classification or approval of instructor. **Cross Listing:** NRSC 655/PBSI 655.

PBSI 656 Advanced Selection

Credits 3. 3 Lecture Hours. An in-depth analysis of psychological principles and employee selection methods with a focus on applied practice and current topics; emphasis on the application of evidence-based best practices to the selection process; importance of job and work analysis, testing and assessment, psychometrics, validation procedures, and measurement in light of ethical, legal, diversity and international issues. **Prerequisites:** Graduate classification or approval of instructor.

PBSI 657 Training and Performance Management

Credits 3. 3 Lecture Hours. A comprehensive review of theory, research, current topics and practice associated with training and performance management; training as an organizational subsystem is emphasized as the model for the design, implementation and evaluation of training programs; appraisal and management of work performance for various organizational purposes. **Prerequisites:** Graduate classification or approval of instructor.

PBSI 658 Work Attitudes and Motivation

Credits 3. 3 Lecture Hours. A critical analysis of major theories, current research and practical or current issues associated with employee attitudes and motivation in the workplace; topics include job satisfaction, organizational commitment, work engagement, stress, absenteeism, turnover, motivation, job design and quality of work, and work values; key methodological and measurement issues; application of social psychology literature to workplace problems. **Prerequisites:** Graduate classification or approval of instructor.

PBSI 659 Groups, Teams and Leadership

Credits 3. 3 Lecture Hours. An in-depth review of the factors leading to effective groups, teams and leadership in organizations; topics include strategies for building high performance teams and techniques for assessing, selecting and developing leaders; the course integrates theory, research and current topics with experiential learning; application of social psychology literature to workplace problems. **Prerequisites:** Graduate classification or approval of instructor.

PBSI 660 Self and Identity

Credits 3. 3 Lecture Hours. An overview of the historical and current issues related to the study of the self and identity.

PBSI 670 Professional Seminar in Social Psychology

Credits 2. 1 Lecture Hour. 2 Lab Hours. Survey of recent theoretical, methodological and empirical developments in social psychology; different topics each semester will include theory and research on attitudes and persuasion, social cognition, interpersonal relationships, group processes, social development, and personality and social behavior. May be taken for credit up to eight times. **Prerequisite:** Graduate classification or approval of instructor.

PBSI 671/NRSC 671 Methods and Statistics in Psychological Science II

Credits 3. 2 Lecture Hours. 3 Lab Hours. Intensive practical study of designs of special interest to psychological scientists; repeated measures designs. **Prerequisite:** Graduate classification or approval of instructor. **Cross Listing:** NRSC 671/PBSI 671.

PBSI 672 Qualitative Methods in Psychological Sciences

Credits 3. 3 Lecture Hours. Overview of psychology qualitative methods; assumptions of qualitative research; focus groups; qualitative analysis software; thematic analysis. **Prerequisites:** Graduate classification or approval of instructor.

PBSI 673 Psychometric Theory and Methods

Credits 3. 3 Lecture Hours. Overview of methods for the construction and evaluation of psychological measurements including unidimensional scales and multi-variate analytical techniques; approaches include classical test theory, factor analysis, unidimensional scaling, latent trait theory, profile and discriminant analysis. **Prerequisites:** PBSI 607 and PBSI 671/NRSC 671 or equivalents.

PBSI 674 Covariance Structure Models and Causal Analysis

Credits 3. 3 Lecture Hours. Advanced introduction to structural equation models and causal analysis; emphasis on underlying theory and assumptions as well as practical application for the behavioral sciences. **Prerequisites:** PBSI 671/NRSC 671 or STAT 608 or approval of the instructor.

PBSI 675 Clinical Psychology and the Legal System

Credits 3. 3 Lecture Hours. Survey of theoretical and applied topics relevant to clinical psychology in the legal system; includes assessment of adjudicative competence, criminal responsibility and risk assessment; correctional psychology and offender rehabilitation. **Prerequisite:** Approval of instructor.

PBSI 678/CPSY 678 Couples Therapy

Credits 3. 3 Lecture Hours. Theory and practice of marital therapy emphasizing systems and communication approaches; effective strategies and techniques; therapy with specific marital problems and obstacles to effective therapy. **Prerequisite:** PBSI 637, CPSY 631, or equivalent. **Cross Listing:** CPSY 678/PBSI 678.

PBSI 680 Seminar in Organizational Psychology

Credits 3. 3 Other Hours. Areas of organizational psychology: job stress, socialization processes, motivation, leadership, person perception in organizations, conflict management. May be repeated up to five times for credit; content will vary by semester. **Prerequisite:** PBSI 610 or approval of instructor.

PBSI 681 Industrial/Organizational Psychology

Credits 1 to 3. 1 to 3 Other Hours. Both research and applied colloquia provided by I/O psychologists and individuals in related disciplines.

Prerequisite: Graduate classification or approval of instructor.

PBSI 682 Seminar in Personnel Selection and Placement

Credits 3. 3 Other Hours. Personnel selection and placement including job analysis and evaluation, psychological testing, test development, psychometric theory, theories of test fairness, validity generalization, utility theory, performance appraisal and selection/placement decision models. May be repeated up to five times for credit; content will vary by semester. **Prerequisite:** PBSI 611 or approval of instructor.

PBSI 683 Professional Seminar

Credits 1 to 3. 1 to 3 Other Hours. Guidance in searching for and securing internships and jobs upon graduation; review of internship requirements and expectations; professional development sessions and preparation of application materials; assistance in the transition from student to professional, e.g., professional identity, affiliation and networks. May be taken for credit up to three hours. **Prerequisites:** Graduate classification or approval of instructor.

PBSI 684 Professional Internship

Credits 0 to 12. 0 to 12 Other Hours. Full-time internship experience in a departmentally-approved internship training facility. May be taken up to 12 hours for credit. **Prerequisite:** Approval of instructor.

PBSI 685 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Directed individual study of selected problem in psychology or special topics to fit small group requirements. **Prerequisite:** Approval of instructor.

PBSI 689 Special Topics in...

Credits 1 to 4. 1 to 4 Other Hours. Selected topics in an identified area of psychology. May be repeated for credit. **Prerequisite:** Graduate classification or approval of instructor.

PBSI 690 Cognoscenti - Professional Issues in Cognitive Psychology

Credits 2. 2 Lecture Hours. Introduce students to current themes in research, theory and practice in cognitive psychology; presentations by guest speakers from within and outside the University. **Prerequisite:** Graduate classification or approval of instructor.

PBSI 691 Research

Credits 1 to 23. 1 to 23 Other Hours. Research for thesis.

PBSI 695 Manuscript Development and Publication of Academic Research in Psychological and Brain Sciences

Credits 3. 3 Lecture Hours. Development of research writing and instruction on the process of publishing in scientific, peer-reviewed scientific academic journals and books; exploration of the many different aspects of publishing research; review of the mechanics of the process ranging from choosing topics, writing the paper, the submission process, the review process, dealing with rejection, responding to requests for revision and resubmission and acceptance and publication; discussion of the benefits of publishing and how publishing factors into career considerations and aspirations. **Prerequisite:** Graduate classification.

PBSI 696 Principles and Methods for Teaching in Psychology

Credits 3. 3 Lecture Hours. Practical issues related to college teaching; reflection on and improvement of teaching skills; developing course objectives and teaching philosophies; improving teaching tools; understanding teaching-learning situations; advising students; ethics in teaching. **Prerequisite:** Graduate classification or approval of instructor.

PBSI 697 Seminar in the Teaching of Introductory Psychology

Credits 3. 3 Lecture Hours. Introductory methods relevant to teaching psychology; for graduate students assisting in the teaching of PSYC 107. **Prerequisite:** Graduate classification or approval of instructor.

PERF - Performance Studies (PERF)

PERF 101 Introduction to Performance Studies

Credits 3. 3 Lecture Hours. Survey of topics in the interdisciplinary field of performance studies, including forms of performance, performance in everyday life and performance in global and intercultural contexts; in-class performance exercises and discussions; major writing component.

PERF 156 Dress in World Cultures

Credits 3. 3 Lecture Hours. Relationship of dress to humans as biological, aesthetic and social beings; dress as cultural performance.

PERF 223 Aesthetics of Activism

Credits 3. 3 Lecture Hours. The use of performance in activist contexts to achieve social and political change; examination of activism, including struggles for social justice, economic equality and civil rights, as performance; examination of the arts, including performance, theatre, music, dress and design, as tools for activism.

PERF 284 Internship

Credits 0 to 4. 0 to 4 Lecture Hours. Supervised experience program conducted in the area of the student's interest in performance studies. May be taken three times for credit. **Prerequisites:** PERF 101 or FILM 101/VIST 101.

PERF 285 Directed Studies

Credits 0 to 3. 0 to 3 Other Hours. Directed Studies in specific problems in identified areas of performance studies. May be taken for credit up to 3 hours. **Prerequisites:** Approval of instructor and department head; PERF majors and minors only.

PERF 289 Special Topics in...

Credits 3. 3 Other Hours. Selected topics in performance studies. May be taken for credit seven times. **Prerequisite:** Approval of instructor.

PERF 291 Research

Credits 0 to 3. 0 to 3 Other Hours. Research conducted under the direction of faculty member in performance studies. May be taken two times for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

PERF 292 Cooperative Education in Performance Studies

Credits 0 to 3. 0 to 3 Other Hours. Educational work assignment by a student in the field of his or her career interest and course of study; supervision of the student by the cooperating employer and the instructor; technical report on a related subject area approved by the instructor. May be taken two times for credit. **Prerequisite:** PERF 101.

PERF 301 Performance in World Cultures

Credits 3. 3 Lecture Hours. Application of the tools of performance studies to explore the enactment of the arts in world cultures and the ways the people of every society express themselves in performance; examination of different genres of performance through music, theatre, verbal art and dress. **Prerequisite:** Junior or senior classification or approval of instructor; PERF-301 also taught at Galveston campus.

PERF 303 Creating Performance

Credits 3. 3 Lecture Hours. Live and mediated performance; techniques and skills for performance; practical experience; discussion and critical analysis of performance; strategies for devising performance. **Prerequisites:** Major or minor in PERF; junior or senior classification or approval of instructor.

PERF 308 Performing Arts Administration

Credits 3. 3 Lecture Hours. Planning and managing artistic events and performances; basic concepts of management theories, creating budgets, production management, and grant applications; attendance of departmental events required. **Prerequisite:** Approval of instructor.

PERF 310 History of Performance in the Ancient World

Credits 3. 3 Lecture Hours. Historical approach to performance in the ancient world; primary and secondary evidence for performance practice; application of historical methods in the study of performance. **Prerequisites:** Junior or senior classification, or approval of instructor.

PERF 311 History of Performance in the Common Era

Credits 3. 3 Lecture Hours. Historical approach to performance practices and texts in the Common Era to 1800; transmission of performance styles, techniques and genres across cultures; applications of historical methods in the study of performance. **Prerequisites:** Junior or senior classification or approval of instructor.

PERF 312 History of Performance Modern Era

Credits 3. 3 Lecture Hours. Development of performance practices and texts in the 19th-21st centuries; performance styles, techniques and genres in and across cultures; application of historical methods in the study of performance. **Prerequisites:** Junior or senior classification or approval of instructor.

PERF 320 Research Methods in Performance and Visual Studies

Credits 3. 3 Lecture Hours. Study and practice of research methods used in performance and visual studies; discussion of practical, ethical, and epistemological aspects of research. **Prerequisites:** Junior or senior classification.

PERF 321 Collaborative Design Process

Credits 3. 3 Lecture Hours. 1 Lab Hour. Principles and practical application of techniques for designing theatre, music and other types of live performance; practical aspects of designing and producing live performances: plays, music events, devised performances, performance art; topics include lighting, sets and space, clothing and costume design, sound; may include specialized techniques such as masks, props, makeup. May be repeated for credit. **Prerequisites:** Junior or senior classification, major or minor in PERF, or approval of instructor.

PERF 322 Collaborative Performing

Credits 3. 3 Lecture Hours. 1 Lab Hour. Acting, movement, music and directing techniques for plays and other types of performances focusing on collaboration among all participants; principles of realistic and non-realistic acting, including non-Western styles of performance, music and physical movement and principles of stage direction. May be repeated for credit. **Prerequisites:** Junior or senior classification, major or minor in PERF, or approval of instructor.

PERF 325 Dance in World Cultures

Credits 3. 3 Lecture Hours. Examination of international relationships between dance, culture, identity, gender, youth and politics; relationships between dancing, gender and politics in specific cultures and in globalization; variety of dance practices around the globe. **Prerequisite:** Junior or senior classification.

PERF 326 Dance and Identity in the United States

Credits 3. 3 Lecture Hours. Analysis of dance events as complex sites for social action; examines dances performed by diverse groups of people; considers such issues as identity, community, diversity, gender and representation in the United States. **Prerequisite:** Junior or senior classification.

PERF 328 Japanese Traditional Performing Arts

Credits 3. 3 Lecture Hours. Study of various genres of Japanese performing arts from the 7th century to the present; understanding the genres in their historical and cultural contexts and recognizing shared aesthetic values. **Prerequisites:** Junior or senior classification or approval of instructor.

PERF 330 Public Scholarship in Performance and Visual Studies

Credits 3. 3 Lecture Hours. Examination of the mediums and means through which scholars of the performing and visual arts engage diverse audiences; exploration of the ethics of public scholarship; survey of contemporary and historical presentational methods including performance, exhibition, installation, data visualization, criticism, and more. **Prerequisites:** Grade of C or better in PERF 320; junior or senior classification.

PERF 333 Movement in Performance Studies

Credits 3. 3 Lecture Hours. Embodied practices in performance studies; examination of the role movement plays in aesthetics, communication, religion, society, individual experience and politics; investigation of varied movement practices.

PERF 338 Performing Communities

Credits 3. 3 Lecture Hours. Consideration of socio-cultural, aesthetic and ethical issues in arts-based community engagement; development of a community-based performance project. **Prerequisites:** Junior or senior classification.

PERF 343 Role-Playing as Performance

Credits 3. 3 Lecture Hours. Performance-based course; exploration of real-world applications and ethics of role-playing situations and scenarios. **Prerequisites:** Junior or senior classification.

PERF 399/FILM 399 Star Studies

Credits 3. 3 Lecture Hours. Examination of stardom as a cultural, economic, creative, and performative force; may focus on national or global star industries; topics include examination of film, theater, television, sports, or social media stardom depending on the term. **Prerequisites:** Grade of C or better in FILM 251/ENGL 251 or FILM 299. **Cross Listing:** FILM 399/PERF 399.

PERF 407 Performing Literature

Credits 3. 3 Lecture Hours. Analysis and performance of poetry, prose and drama; emphasis on translating analytical decisions into performance; solo performance, readers theatre, chamber theatre, and technology in/as performance. **Prerequisite:** Junior or senior classification.

PERF 430 Performance and Visual Studies Studio

Credits 3. 3 Lecture Hours. Discussion and application of best practices and strategies for research project design and execution; design and development of a research project; advanced topics within Performance and Visual Studies. **Prerequisites:** Grade of C or better in PERF 320 and PERF 330; junior or senior classification.

PERF 446 Design as Performance

Credits 3. 3 Lecture Hours. Design as performance using research methods and the production of new work; disciplines of design, performance, installation and performance as research. **Prerequisites:** Junior or senior classification.

PERF 450 Seminar in 20th-21st Century Performance

Credits 3. 3 Lecture Hours. Social, political and aesthetic issues and problems in 20th-21st century performance idioms; study of genres, styles, artistic movements; may include performance. May be taken two times for credit when content varies. **Prerequisites:** Junior or senior classification or approval of instructor.

PERF 451 Seminar in Historical Performance

Credits 3. 3 Lecture Hours. Historical contexts for performance genres, styles or movements prior to the 20th century; texts, performance practices and contexts of performance genres, styles or movements prior to the 20th century; emphasis on historical methods; production participation may be required. May be taken two times for credit if content differs. **Prerequisites:** Junior or senior classification or approval of instructor.

PERF 452 Seminar in Global Performance

Credits 3. 3 Lecture Hours. Intersection of cultures in performances; representations and expressions of culture; focus on culture as the ground for performance; may culminate in a performance. May be taken two times for credit if content differs. **Prerequisites:** Junior or senior classification or approval of instructor.

PERF 453 Seminar in Performance Ethnography

Credits 3. 3 Lecture Hours. Theories and methods of ethnographic research; ethnographic research in the study of performance; ethnography of performance; ethnographic field work may be required. **Prerequisites:** Junior or senior classification or approval of instructor.

PERF 454 Seminar Performing the City

Credits 3. 3 Lecture Hours. Vernacular and aesthetic performance traditions in a city or cities; politics, culture, economics and geography of city or cities; may include a faculty-led field trip. **Prerequisites:** Junior or senior classification or approval of instructor.

PERF 455 Seminar in Gender, Sexuality, and Performance

Credits 3. 3 Lecture Hours. Performance of gender and sexuality; emphasis on feminist theory and queer theory, their intersection with performance studies and applications to performance practice; in-depth examination of works by artists who are women, queer, and/or gender non-conforming. **Prerequisite:** Junior or senior classification or approval of instructor.

PERF 456 Seminar in Identity, Intersectionality, and Performance

Credits 3. 3 Lecture Hours. Performance as site for expressing and constructing intersectional social identities; race, ethnicity, gender, class and other identities in performance; social identities in the performance of everyday life; countering oppression using performance. **Prerequisite:** Junior or senior classification or approval of the Instructor.

PERF 457 Seminar in Performance and Technology

Credits 3. 3 Lecture Hours. The intersection of performance and technology. The use of technology in artistic practice; the impact of technology on live performance; performance studies approaches to the study of science and technology. **Prerequisite:** Junior or senior classification or approval of instructor.

PERF 460 Seminar in Performance Theory

Credits 3. 3 Lecture Hours. . In-depth examination of one or more contemporary theories of performance. Emphasis on problems, research, and innovations relevant to performing and analyzing performance.

Prerequisite: Junior or senior classification, or approval of instructor.

PERF 461 Seminar in Folklore

Credits 3. 3 Lecture Hours. Expressive forms in vernacular culture; folklore genres and traditions of expression; local and regional customs; material culture and narrative; processes of meaning-making; aesthetics in vernacular performance. **Prerequisites:** Junior or senior classification or approval of instructor.

PERF 481 Capstone Seminar: Performance as Research

Credits 3. 1 Lecture Hour. 5 Lab Hours. Capstone senior project on an individually-chosen research topic, presentation of a performance or interdisciplinary project; major writing and oral communication components. **Prerequisites:** Performance studies major; completion of all performance studies coursework or taken concurrently with this course; approval of instructor, advisor and department head.

PERF 483 Performance Practicum

Credits 1 to 3. 1 to 3 Other Hours. Faculty-supervised performance experience in a public setting as part of a department production or an approved external production. May be taken four times for credit. **Prerequisite:** Junior or senior classification and approval of instructor.

PERF 484 Internship

Credits 0 to 6. 0 to 6 Other Hours. Supervised experience program conducted in the area of the student's interest in performance studies. May be taken three times for credit. **Prerequisites:** PERF 101 or FILM 101/VIST 101; junior or senior classification.

PERF 485 Directed Studies

Credits 0 to 3. 0 to 3 Other Hours. Directed Studies in specific problems in identified areas of performance studies. May be taken for credit up to 3 hours. **Prerequisites:** Approval of instructor and department head; PERF majors and minors only.

PERF 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in performance studies. May be repeated for credit. **Prerequisite:** Approval of instructor.

PERF 491 Research

Credits 0 to 3. 0 to 3 Other Hours. Research conducted under the direction of faculty member in performance studies. May be taken two times for credit. **Prerequisites:** Junior or senior classification and approval of instructor.

PERF 492 Cooperative Education in Performance Studies

Credits 0 to 3. 0 to 3 Other Hours. Educational work assignment by a student in the field of his or her career interest and course of study; supervision of the student by the cooperating employer and the instructor; technical report on a related subject area approved by the instructor. May be taken two times for credit. **Prerequisites:** PERF 101; junior or senior classification.

PETE - Petroleum Engineering (PETE)

PETE 201 Introduction to Petroleum Engineering

Credit 1. 1 Lecture Hour. Overview and history of the petroleum industry and petroleum engineering; nature of oil and gas reservoirs, exploration and drilling, formation evaluation, well completions and production, surface facilities, reservoir mechanics, improved oil recovery; impact of ethical, societal, environmental considerations; career development resources, including professional society. **Prerequisite:** Approval of department head.

PETE 219 Foundations of Petroleum Data Analytics

Credits 2. 1 Lecture Hour. 3 Lab Hours. . Introduction to petroleum data analytics and computations; use of pre-built computational functions and packages for purposes of interpolation, gradient approximation, calculation of area under the curve, vector and matrix manipulation, and solving ordinary differential equations relevant to petroleum engineering; use of pre-built statistical functions and packages to solve petroleum engineering problems; exploratory data analysis and data preprocessing on large petroleum engineering and geophysical datasets; big-data visualization to generate insights and discover relationships; regression, classification, and clustering relevant to petroleum engineering; neural networks for regression and classification on petroleum engineering data; basic evaluation of data-driven models and basic computations using equations specific to petroleum engineering. **Prerequisite:** Grade of C or better in ENGR 102; concurrent enrollment in PETE 301.

PETE 225 Introduction to Drilling Systems

Credits 3. 2 Lecture Hours. 3 Lab Hours. Introduction to petroleum drilling systems, including fundamental petroleum engineering concepts, quantities and unit systems, drilling rig components, drilling fluids, pressure loss calculations, casing, well cementing, and directional drilling. **Prerequisites:** Grade of C or better in MATH 152, PHYS 206, and ENGR 216/PHYS 216 or PHYS 216/ENGR 216; grade of C or better in CHEM 107 and CHEM 117, or concurrent enrollment.

PETE 285 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Special problems in various areas of petroleum engineering assigned to individual students or to groups. **Prerequisites:** Approval of department head.

PETE 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of petroleum engineering. May be repeated for credit. **Prerequisite:** Approval of instructor.

PETE 291 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of a faculty member in petroleum engineering. May be taken two times for credit. Registration in multiple sections of this course is possible within a given semester. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

PETE 300 Summer Practice

Credits 0. Required. No Credit. Industry practice to familiarize the petroleum engineering student with practices and equipment of the petroleum industry. Approval of advisor required.

PETE 301 Petroleum Engineering Numerical Methods

Credits 3. 2 Lecture Hours. 3 Lab Hours. Use of numerical methods in a variety of petroleum engineering problems; numerical differentiation and integration; root finding; numerical solution of differential equations; curve fitting and interpolation; computer applications; introduction to the principles of numerical simulation methods. **Prerequisite:** Grade of C or better in MATH 308; concurrent enrollment in PETE 219; junior or senior classification, petroleum engineering majors only; or approval of instructor.

PETE 310 Reservoir Fluids

Credits 3. 2 Lecture Hours. 3 Lab Hours. Thermodynamic behavior of naturally occurring hydrocarbon mixtures; evaluation and correlation of physical properties of petroleum reservoir fluids including laboratory and empirical methods. **Prerequisite:** Grade of C or better in CHEM 107, CHEM 117, MATH 308, PETE 311 and PETE 315.

PETE 311 Reservoir Petrophysics

Credits 3. 2 Lecture Hours. 3 Lab Hours. Systematic theoretical and laboratory study of physical properties of petroleum reservoir rocks; lithology, porosity, elastic properties, strength, acoustic properties, electrical properties, relative and effective permeability, fluid saturations, capillary characteristics and rock-fluid interactions such as adsorption and absorption. **Prerequisite:** Grade of C or better in MATH 251, PHYS 207, and ENGR 217/PHYS 217 or PHYS 217/ENGR 217; grade of C or better in CHEM 107, CHEM 117, and GEOL 104, or concurrent enrollment.

PETE 314 Transport Processes in Petroleum Production

Credits 3. 3 Lecture Hours. Basics and applications of fluid mechanics including statics, mass, energy, momentum balances, laminar and turbulent flow, Reynolds number, Moody diagram, non-Newtonian fluid flow, multi-phase flow, flow in porous media, non-Darcy flow; heat transfer, heat conduction, convection and heat exchangers; emphasis on analogies and similarities within mass, energy and momentum transport. **Prerequisite:** Grade of C or better in PETE 315, junior or senior classification, petroleum engineering majors only; or approval of instructor.

PETE 315 Petroleum Engineering Thermodynamics

Credits 3. 3 Lecture Hours. Laws of thermodynamics; volumetric properties of pure fluids; heat effects; applications to flow processes; phase behavior and equations of state. **Prerequisites:** Grade of C or better in MATH 251 and MEEN 221.

PETE 321 Formation Evaluation

Credits 4. 3 Lecture Hours. 3 Lab Hours. Well-log interpretation for formation evaluation of hydrocarbon-bearing reservoirs; basic rock physics principles; theory of tool operation; analysis of open hole logs and core measurements to estimate hydrocarbon reserves and petrophysical properties of the formation such as porosity, net pay thickness, water/hydrocarbon saturation, permeability and saturation-dependent capillary pressure; formation evaluation of clay-free and shaly-sand formations as well as basic introduction to formation evaluation of organic-shale formations. **Prerequisites:** Grade of C or better in PETE 301, PETE 310, PETE 311, and GEOL 404, junior or senior classification, petroleum engineering majors only; or approval of instructor.

PETE 323 Fundamentals of Reservoir Engineering

Credits 3. 3 Lecture Hours. Determination of reserves; material balance methods; aquifer models; fractional flow and frontal advance; displacement, pattern and vertical sweep efficiencies in waterfloods; enhanced oil recovery processes; design of optimal recovery processes; introduction and performance analysis of unconventional reservoirs. **Prerequisites:** Grade of C or better in PETE 301, PETE 310, PETE 311, and GEOL 404, junior or senior classification, petroleum engineering majors only; or approval of instructor.

PETE 324 Well Testing

Credits 3. 3 Lecture Hours. Analysis of well performance under varied reservoir conditions including evaluation of unsteady, pseudo-steady and steady state flow; well testing methods used to determine well and reservoir parameters; applications to conventional and unconventional wells producing gas and/or liquids; fundamentals of preparing and operating well test equipment to monitor, measure and gather samples for evaluating well performance. **Prerequisites:** Grade of C or better in PETE 301, PETE 310, PETE 311, and GEOL 404, junior or senior classification, petroleum engineering majors only; or approval of instructor.

PETE 325 Petroleum Production Systems

Credits 3. 2 Lecture Hours. 3 Lab Hours. Petroleum operation and oil field equipment including onshore and offshore production systems; wellbore inflow and outflow and backpressure analysis; downhole completion and sand control equipment; artificial lift equipment and design; stimulation, workover/completion nomenclature; flow assurance; produced fluids, fluid separation and metering, safety systems, pressure boosting and monitoring. **Prerequisites:** Grade of C or better in PETE 301, PETE 310, and PETE 314, junior or senior classification, petroleum engineering majors only; or approval of instructor.

PETE 335 Technical Presentations I

Credit 1. 1 Lecture Hour. Preparation of a written technical paper proposal on a subject related to petroleum technology and an oral presentation of the proposal in a formal technical conference format. **Prerequisites:** Grade of C or better in COMM 203, COMM 205, COMM 243, or ENGL 210; junior or senior classification.

PETE 336 Petroleum Technical Presentation I

Credit 1. 3 Lab Hours. Preparation of a written technical paper on a subject related to petroleum technology. **Prerequisites:** Grade of C or better in ENGL 210; junior or senior classification, petroleum engineering majors only or approval of department head; Qatar campus.

PETE 337 Junior Student Paper Contest

Credits 0. No Credit. Presentation of a technical proposal on a subject related to petroleum technology judged by petroleum professionals at the junior level departmental student paper contest. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisite:** Grade of C or better in PETE 336 or concurrent enrollment, or grade of C or better in PETE 335.

PETE 353 Petroleum Project Evaluation

Credits 3. 3 Lecture Hours. Economic analysis and investment decision methods in petroleum and mineral extraction industries; depletion, petroleum taxation regulations, and projects of the type found in the industry; mineral project evaluation case studies. **Prerequisites:** Grade of C or better in PETE 301 and PETE 310, or concurrent enrollment.

PETE 355 Drilling Engineering

Credits 3. 3 Lecture Hours. Design and evaluation of well drilling systems; identification and solution of drilling problems; wellbore hydraulics, well control, casing design; well cementing directional drilling, offshore drilling. **Prerequisites:** Grade of C or better in CVEN 305, PETE 225, and PETE 314; grade of C or better in PETE 321 and PETE 325, or concurrent enrollment.

PETE 401 Reservoir Simulation

Credits 2. 1 Lecture Hour. 3 Lab Hours. Solution of production and reservoir engineering problems using state-of-the-art commercial reservoir simulation software, using data commonly available in industry; emphasis on reservoir description, reservoir model design and calibration, production forecasting and optimization, economic analysis and decision making under uncertainty. **Prerequisites:** Grade of C or better in PETE 310, PETE 321, PETE 323, PETE 324, and PETE 353.

PETE 402 Integrated Asset Development

Credits 3. 1 Lecture Hour. 6 Lab Hours. Capstone design encompassing previously acquired skills; project teams formed to solve practical petroleum engineering problems using current tools; technical content of the projects may include any combination of drilling and completion, formation evaluation, inflow/outflow design and analysis, and application of reservoir engineering principles. **Prerequisites:** Grade of C or better in PETE 355, PETE 401, PETE 404, and PETE 410.

PETE 404 Integrated Reservoir Modeling

Credits 3. 3 Lecture Hours. Geophysical, geological, petrophysical and engineering data with geostatistical methods to create reservoir descriptions for dynamic reservoir modeling (simulation); geostatistical concepts such as variogram modeling, kriging and sequential Gaussian simulation; combines several techniques to quantify uncertainty in a realistic dynamic reservoir simulation. **Prerequisite:** Grade of C or better in PETE 401, or concurrent enrollment.

PETE 406 High Performance Drilling Design and Operational Practices

Credits 3. 3 Lecture Hours. Preparation in achieving differentiating drilling performance in the most complex wells; includes training in the underlying physics of each type of performance limiter and real time and engineering practices to address the limitation; performance management workflows and change models required to effectively change the way organizations conduct work essential in achieving higher performance. **Prerequisite:** Grade of C or better in PETE 355.

PETE 408 Probabilistic Reserves Evaluation

Credits 3. 3 Lecture Hours. Oil and gas reserves definitions and reporting regulations; probabilistic reserves estimation methods; unconventional resources characterization; reserves valuation techniques. **Prerequisite:** Grade of C or better in PETE 353 or approval of instructor.

PETE 409 Enhanced Oil Recovery

Credits 3. 3 Lecture Hours. Fundamentals and theory of enhanced oil recovery; polymer flooding, surfactant flooding, miscible gas flooding and steam flooding; application of fractional flow theory; strategies and displacement performance calculations. **Prerequisites:** Grade of C or better in PETE 310 or approval of instructor.

PETE 410 Production Engineering

Credits 3. 3 Lecture Hours. Fundamental production engineering design, evaluation and optimization for oil and gas producing well; well deliverability; formation damage and skin analysis; well completion selection; technologies that improve oil and gas well performance including artificial lift and well stimulation. **Prerequisites:** Grade of C or better in PETE 321, PETE 323, PETE 324 and PETE 325.

PETE 412 Surface Production Facilities

Credits 3. 3 Lecture Hours. Overview of separation and treatment of production fluid; fundamentals of gas-liquid separation; design and performance analysis of two- and three-phase separators; oil desalting, sweetening and stabilization; water treatment; overview of gas separation, dehydration and sweetening. **Prerequisite:** Senior classification or approval of instructor; Qatar campus.

PETE 413 Natural Gas Engineering

Credits 3. 3 Lecture Hours. Flow of natural gas in reservoirs and wellbores and gathering systems; deliverability testing; production surveillance and monitoring; production forecasting; flow measurement; and compressor sizing. **Prerequisites:** Grade of C or better in PETE 323, PETE 324, and PETE 325.

PETE 416 Solving Common Production Engineering Problems

Credits 3. 3 Lecture Hours. Application of petroleum engineering tools, methods and techniques to solve real problems that petroleum engineers encounter in producing individual wells; focus primarily on problems associated with single-phase gas wells and uses Microsoft Excel to solve many of these problems. **Prerequisite:** Grade of C or better in PETE 410.

PETE 418 Deterministic Reserves Evaluation

Credits 3. 3 Lecture Hours. Oil and gas reserves definitions and reporting regulations; deterministic estimation methods; unconventional resources characterization; reserves valuation techniques. **Prerequisite:** Grade of C or better in PETE 353 or approval of instructor.

PETE 419 Petroleum Data Analytics and Machine Learning

Credits 3. 3 Lecture Hours. Working knowledge about data analytics suitable for petroleum engineers and geoscientists; emphasis on implementing data-driven methods on various types of subsurface data; assembly of data-driven workflows and application of them on various types of subsurface data generated during petroleum engineering and geoscience operations and work on case studies that integrate various domains of petroleum engineering and geoscience; emphasis on the use of supervised learning, classification and regression, unsupervised learning, transformations, clustering, and feature extraction, and neural networks using open-source Python computational platforms; facilitation of understanding the basics of machine learning, data science and data analysis and their applications to petroleum engineering and geoscience. **Prerequisite:** Grade of C or better in PETE 219 and PETE 301 or approval of instructor.

PETE 426 Unconventional Reservoir Methods and Analysis

Credits 3. 3 Lecture Hours. Unconventional reservoirs and the latest practices of reservoir characterization, horizontal drilling and completion optimization methodologies, reservoir engineering and production. **Prerequisite:** Grade of C or better in PETE 323.

PETE 435 Technical Presentations II

Credit 1. 1 Lecture Hour. Preparation of a written technical paper on a subject related to petroleum technology and an oral presentation of the paper in a formal technical conference format. **Prerequisites:** PETE 337.

PETE 436 Petroleum Technical Presentation II

Credit 1. 3 Lab Hours. Preparation of a written technical paper on a subject related to petroleum technology and an oral presentation of the paper in a formal technical conference format. **Prerequisites:** Grade of C or better in PETE 336; senior classification, petroleum engineering majors only or approval of department head; Qatar campus.

PETE 437 Senior Student Paper Contest

Credits 0. No credit. Presentation of a technical petroleum engineering topic judged by petroleum professionals at the senior level departmental student paper contest. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisite:** Grade of C or better in PETE 435 or PETE 436.

PETE 453 Petroleum Entrepreneurship

Credits 3. 3 Lecture Hours. Exploration of the various aspects of entrepreneurship with a focus on petroleum asset valuation and prospect analysis in the energy sector; exposure to all aspects of the journey including business idea generation, raising early stage capital, staffing the enterprise, developing the business plan and selling the concept to investors. **Prerequisites:** Grade of C or better in PETE 353.

PETE 485 Directed Studies

Credits 1 to 5. 1 to 5 Other Hours. Special problems in various phases of petroleum engineering assigned to individual students or to groups. **Prerequisites:** Junior or senior classification and approval of department head.

PETE 489 Special Topics in...

Credits 1 to 4. 1 to 4 Other Hours. Selected topics in an identified field of petroleum engineering. May be repeated for credit. **Prerequisite:** Approval of instructor.

PETE 491 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of a faculty member in petroleum engineering. May be taken two times for credit. Registration in multiple sections of this course is possible within a given semester. **Prerequisites:** Junior or senior classification and approval of instructor.

PHIL - Philosophy (PHIL)

PHIL 107 Introduction to the Health Humanities

Credits 3. 3 Lecture Hours. Introduction to the methods and approaches of the health humanities; exposure to key scholarship in this field as well as major methods and approaches; application of such skills to the analysis of cultural case studies such as illness narratives or contemporary debates in scientific bioethics. **Cross Listing:** COMM 107, ENGL 107, and HHUM 107.

PHIL 111 Contemporary Moral Issues

Credits 3. 3 Lecture Hours. (PHIL 2306) Contemporary Moral Issues. Representative ethical positions and their application to contemporary social problems; also taught at Galveston campus.

PHIL 202 The Human Experience

Credits 3. 3 Lecture Hours. Introduction to classic transformative texts in the history of the arts, sciences, and humanities; interdisciplinary methods and approaches within the humanities; key ethical and moral debates across the human experience. **Cross Listing:** ARSC 202 and HIST 202.

PHIL 205 Technology and Human Values

Credits 3. 3 Lecture Hours. Interaction of personal and societal values with technology and man's self-image, the future and value change.

PHIL 208 Philosophy of Education

Credits 3. 3 Lecture Hours. Basic social ideas and concepts of human nature in Western civilization; their implications for theories of education.

PHIL 240 Introduction to Logic

Credits 3. 3 Lecture Hours. (PHIL 2303) Introduction to Logic. Introduction to formal methods of deductive and inductive logic including, but not limited to, truth-tables, formal deduction and probability theory; also taught at Galveston campus.

PHIL 251 Introduction to Philosophy

Credits 3. 3 Lecture Hours. (PHIL 1301) Introduction to Philosophy. Perennial problems of philosophy such as the existence of God, the mind/body relationship, the limits of knowledge, the foundations of moral judgment, man and the state; also taught at Galveston campus.

PHIL 252/AFST 252 Introduction to Hip-Hop Philosophy

Credits 3. 3 Lecture Hours. Introduction to philosophy by way of the major themes and subjects of Hip-Hop; critical advocacy of various philosophical ideals. **Cross Listing:** AFST 252/PHIL 252.

PHIL 282 Ethics in a Digital Age

Credits 3. 3 Lecture Hours. Exploration of the intersection between ethical and social theories, principles, and values and the interconnected digital world; examination of the interplay between these domains for topics such as cybercrime, privacy, surveillance, security, intellectual property rights, artificial intelligence, cyber warfare, internet governance, computing professionalism, and cyber policy and law.

PHIL 283 Latin American Philosophy

Credits 3. 3 Lecture Hours. Major philosophers in the history of Latin American philosophy, such as Unamuno, Ortega y Gasset, Vasconcelos, Caso and Gutiérrez.

PHIL 285 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Directed studies in specific problem areas of philosophy. **Prerequisite:** Approval of department head.

PHIL 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of philosophy. May be repeated for credit. **Prerequisite:** Approval of instructor.

PHIL 291 Research

Credits 0 to 3. 0 to 3 Other Hours. Research conducted under the direction of faculty member in the department of philosophy and humanities. May be taken two times for credit. **Prerequisites:** Freshman or sophomore classification and approval of department head.

PHIL 305 Philosophy of the Natural Sciences

Credits 3. 3 Lecture Hours. Critical analysis of scientific methods and achievements; the nature and types of explanation, discovery and confirmation, models and theories. **Prerequisite:** Junior or senior classification or approval of instructor.

PHIL 307 Philosophy of the Social Sciences

Credits 3. 3 Lecture Hours. Nature and objectivity of the social sciences, their paradigms and patterns of explanation. **Prerequisite:** Junior or senior classification or approval of instructor.

PHIL 314 Environmental Ethics

Credits 3. 3 Lecture Hours. Moral basis of duties to preserve or protect plants, animals and environmental systems; foundations of environmental law and policy; the idea of nature in philosophy; critique of social and economic analyses of environmental values. **Prerequisite:** Sophomore classification or approval of instructor; also taught at Galveston campus.

PHIL 315 Military Ethics

Credits 3. 3 Lecture Hours. Major ethical issues in modern military practice: ethics of leadership, just war theory, killing of the innocent and the moral status of the rules of war.

PHIL 317 Climate Ethics

Credits 3. 3 Lecture Hours. Ethical and value questions related to climate change and climate policy; moral responsibility for and theoretical approaches to climate change; climate justice; ethical analysis of mitigation, adaptation and geoengineering policies. **Prerequisites:** Junior or senior classification.

PHIL 320 Philosophy of Mind

Credits 3. 3 Lecture Hours. Relation of mind to body, nature of thought and knowing, the free will problem, death and immortality. **Prerequisite:** Junior or senior classification or approval of instructor.

PHIL 330 Philosophy of Art

Credits 3. 3 Lecture Hours. Theories of artistic creation and aesthetic response as exemplified in art forms such as painting, music, poetry, architecture, dance, theater, sculpture and motion pictures.

PHIL 331/RELS 331 Philosophy of Religion

Credits 3. 3 Lecture Hours. Philosophical problems of Western religion such as the existence of God, the problem of evil, types of theism, rational, empirical and mystical approaches to God. **Cross Listing:** RELS 331/PHIL 331.

PHIL 332 Social and Political Philosophy

Credits 3. 3 Lecture Hours. Metaphysical commitments and political theory, the nature and proper ends of the state, freedom, equality, authority, and justice, considering such writers as Plato, Aristotle, Machiavelli, Locke, Rousseau, Marx, Dewey. **Prerequisite:** Junior or senior classification or approval of instructor.

PHIL 334 Philosophy of Law

Credits 3. 3 Lecture Hours. Traditional legal issues such as definitions of law, relationship between law and morality, and punishment considered from a legal perspective. **Prerequisite:** Junior or senior classification or approval of instructor.

PHIL 336 Advanced Topics in Philosophy of Law

Credits 3. 3 Lecture Hours. Focused study of a specific topic in philosophy of law; critical engagement with conceptual and normative questions; sample topics include First Amendment debates, professional ethics in law, legal restriction of immigration, environmental law and privacy. May be taken three times for credit. **Prerequisites:** Junior or senior classification, or approval of instructor.

PHIL 341 Symbolic Logic

Credits 3. 3 Lecture Hours. Elementary symbolic logic beginning with propositional calculus and first order predicate logic, and their applications. **Prerequisite:** PHIL 240.

PHIL 342 Symbolic Logic II

Credits 3. 3 Lecture Hours. Advanced topics in logic such as the theory of identity, higher order logics, logic of sets, elements of modal logic. **Prerequisite:** PHIL 240 or PHIL 341, or approval of instructor.

PHIL 351 Theory of Knowledge

Credits 3. 3 Lecture Hours. Major topics in epistemology such as the problem of induction, perception theory, memory and the problem of other minds. **Prerequisites:** Junior or senior classification or approval of instructor.

PHIL 352/AFST 352 Africana Philosophy

Credits 3. 3 Lecture Hours. Presentation of the seminal ideas of several influential Africana thinkers; recovery of the neglected traditions in which these thinkers locate themselves. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** AFST 352/PHIL 352.

PHIL 353/AFST 353 Radical Black Philosophies of Race and Racism

Credits 3. 3 Lecture Hours. Critical evaluation of white supremacy, colonialism and the modern construction of race; examination of the historical background for contemporary theories of race. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** AFST 353/PHIL 353.

PHIL 361 Metaphysics

Credits 3. 3 Lecture Hours. Topics concerning the fundamental nature of reality such as what exists, the mental and the physical, universals and individuals, space and time, God. **Prerequisites:** Junior or senior classification or approval of instructor.

PHIL 371 Philosophy of Literature

Credits 3. 3 Lecture Hours. Philosophical analysis of the major recurrent themes in world literature including fate, the meaning of tragedy, death, odyssey, good and evil, time and eternity, hope and salvation; works selected from a variety of cultures and historical periods.

PHIL 376/FILM 376 Philosophy, Film and Evil

Credits 3. 3 Lecture Hours. Application of philosophical methods and analyses to the medium of film; survey of various depictions and treatments of evil within the genre of science fiction; investigation of depictions and treatments of evil arising from consideration of human encounters with alien others. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** FILM 376/PHIL 376.

PHIL 381 Ethical Theory

Credits 3. 3 Lecture Hours. Values and conduct such as moral relativism, self-interest, utilitarianism, rules, nature of valuation, ethical language and argumentation. **Prerequisite:** Junior or senior classification or approval of instructor; also taught at Galveston campus.

PHIL 383 Ethics of Artificial Intelligence

Credits 3. 3 Lecture Hours. Ethical, social, and epistemic aspects of the development of artificial intelligence (AI); foundational normative principles and their application; consequences of AI; responsible use and regulation. **Prerequisites:** Junior or senior classification, or approval of instructor.

PHIL 409 Studies in Gender and Philosophy

Credits 3. 3 Lecture Hours. Analysis, from a gender-studies perspective, of a single figure or concept in the history of philosophy. May be repeated 1 time for credit with a different focus. **Prerequisites:** Junior or senior classification or approval of instructor.

PHIL 410 Classical Philosophy

Credits 3. 3 Lecture Hours. Major philosophers from 600 B.C. to the end of the third century A.D. including the Pre-Socratics, Socrates, Plato, Aristotle, Hellenistic and Roman philosophy and the Neo-Platonists. **Prerequisite:** Junior or senior classification or approval of instructor.

PHIL 411 Medieval Philosophy

Credits 3. 3 Lecture Hours. Major philosophers from the early Christian centuries through the 14th century, emphasizing such writers as Augustine, Aquinas, Duns Scotus and William of Ockham. **Prerequisite:** Junior or senior classification or approval of instructor.

PHIL 412 Seventeenth-Century Philosophy

Credits 3. 3 Lecture Hours. Significant seventeenth-century texts in metaphysics, epistemology, moral psychology, and political philosophy; authors such as Descartes, Hobbes, Spinoza, Leibniz, and Locke. **Prerequisite:** Junior or senior classification or approval of instructor.

PHIL 413 Eighteenth-Century Philosophy

Credits 3. 3 Lecture Hours. Significant eighteenth-century texts from philosophers such as Berkeley, Rousseau, Hume, and Kant. **Prerequisite:** Junior or senior classification or approval of instructor.

PHIL 414 Nineteenth Century Philosophy

Credits 3. 3 Lecture Hours. Contributions of such philosophers as Hegel, Marx, Kierkegaard, Nietzsche, Husserl, Mill and Bradley. **Prerequisite:** Junior or senior classification or approval of instructor.

PHIL 415 American Philosophy

Credits 3. 3 Lecture Hours. The thought of philosophers such as Peirce, James, Royce, Santayana, Mead, Dewey and Whitehead. **Prerequisite:** Junior or senior classification or approval of instructor.

PHIL 416 Recent British and American Philosophy

Credits 3. 3 Lecture Hours. Major philosophers in contemporary Anglo-American thought such as Moore, Russell, Wittgenstein, Ayer, Quine, Austin and Ryle. **Prerequisites:** PHIL 240.

PHIL 417 Phenomenology

Credits 3. 3 Lecture Hours. Phenomenology from its nineteenth-century origins to the present; authors such as Brentano, Husserl, Scheler, Heidegger, Merleau-Ponty, Levinas, Henry, Marion. **Prerequisite:** Junior or senior classification or approval of instructor.

PHIL 418 Existentialism

Credits 3. 3 Lecture Hours. Existentialism from its nineteenth-century origins to the present; philosophers such as Kierkegaard, Nietzsche, Buber, Rosenzweig, Sartre, de Beauvoir, and Camus. **Prerequisite:** Junior or senior classification or approval of instructor.

PHIL 419 Current Continental Philosophy

Credits 3. 3 Lecture Hours. Major thinkers concerned with "postmodern" topics in hermeneutics, poststructuralism, critical theory, deconstructionism, contemporary Marxist strategies, semiotics and feminist theory. **Prerequisite:** Junior classification or approval of instructor.

PHIL 424 Philosophy of Language

Credits 3. 3 Lecture Hours. The nature of language; the various uses of language and their philosophical import; the nature of meaning, truth, reference and issues surrounding formal representations of natural languages. **Prerequisites:** PHIL 240 and junior or senior classification; or approval of instructor.

PHIL 425 Philosophical Inquiry in Schools

Credits 3. 3 Lecture Hours. In-depth engagement with the theory and practice of pre-college (K-12) philosophy. **Prerequisites:** Junior or senior classification or approval of instructor.

PHIL 451 Probability, Decision Theory and Game Theory - How Should I Choose

Credits 3. 3 Lecture Hours. Formal epistemology, including the relation between full and partial belief, Bayesian and other interpretations of probability, and confirmation theory; decision theory and game theory, including topics such as risk vs uncertainty; utility and expected utility; causal and evidential decision theory; zero sum and nonzero sum games such as prisoner's dilemma. **Prerequisite:** 3 hours of core MATH and 3 hours of PHIL.

PHIL 452 Social Choice, Polarization and Democracy - How Should We Choose

Credits 3. 3 Lecture Hours. Social choice theory; strategic voting, gerrymandering; Arrow's impossibility theorem; Gibbard–Satterthwaite theorem; interpersonal utility comparison; the Rawls-Harsanyi debate; political polarization; echo chambers. **Prerequisite:** 3 hours of core MATH and 3 hours of PHIL.

PHIL 464/RELS 464 Modern Jewish Thought and Philosophy

Credits 3. 3 Lecture Hours. An overview of modern Jewish thought and philosophy spanning Jewish European thinkers from the 18th century to the 20th century. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** RELS 464/PHIL 464.

PHIL 465/RELS 465 Ethics After the Holocaust

Credits 3. 3 Lecture Hours. Analysis of the Holocaust as a challenge to previous ethical theories; ethical theories developed in response to the Holocaust. **Prerequisites:** Junior or senior classification, or approval of instructor. **Cross Listing:** RELS 465/PHIL 465.

PHIL 470 Animal Welfare, Ethics and Law

Credits 3. 3 Lecture Hours. Key conceptions of animal welfare; approaches to animal ethics; analysis of important ideas in animal law; consideration of animal contexts such as agricultural, experimental, wild, companion and zoo animals. **Prerequisites:** Junior or senior classification, or approval of instructor.

PHIL 480 Medical Ethics

Credits 3. 3 Lecture Hours. Critical analysis of major ethical issues in medicine including truth-telling, confidentiality, paternalism, genetics, abortion, infanticide, euthanasia and social justice in health care.

PHIL 482 Ethics and Engineering

Credits 3. 2 Lecture Hours. 2 Lab Hours. Development of techniques of moral analysis and their application to ethical problems encountered by engineers, such as professional employee rights and whistle blowing; environmental issues; ethical aspects of safety, risk and liability and conflicts of interest; emphasis on developing the capacity for independent ethical analysis of real and hypothetical cases. **Prerequisite:** Junior classification.

PHIL 484 Professional Internship

Credits 0 to 6. 0 to 6 Other Hours. Practical experience in an institutional or organizational setting appropriate to analysis and understanding of issues in some area of applied philosophy. May be taken five times for credit. **Prerequisite:** Approval of instructor and department head.

PHIL 485 Directed Studies

Credits 0 to 6. 0 to 6 Other Hours. Directed studies in specific problem areas of philosophy. **Prerequisite:** Approval of department head.

PHIL 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of philosophy; also taught at Galveston campus. May be repeated for credit.

PHIL 491 Research

Credits 0 to 3. 0 to 3 Other Hours. Research conducted under the direction of faculty member in the department of philosophy and humanities. May be taken two times for credit. **Prerequisites:** Junior or senior classification and approval of dean of college.

PHIL 497 Independent Honors Studies

Credits 1 to 3. 1 to 3 Other Hours. Directed independent studies in specific philosophical problems. **Prerequisites:** Junior or senior classification either as Honors students or with overall GPR of 3.25; letter of approval from head of student's major department.

PHLT - Public Health (PHLT)

PHLT 265 First Generation Scholars I

Credit 1. 1 Lecture Hour. First year experience; coverage of a range of topics for success inside and outside of the college classroom such as, self-efficacy, self-awareness, sense of purpose, active engagement in and out the classroom and social integration. **Prerequisite:** Approval of instructor; freshman classification; PHLT majors.

PHLT 266 First Generation Scholars II

Credit 1. 1 Lecture Hour. First year experience; coverage of a range of topics for success inside and outside of the college classroom such as, self-efficacy, self-awareness, sense of purpose, active engagement in and out the classroom and social integration. **Prerequisite:** Approval of instructor; freshman classification; PHLT majors only.

PHLT 270 Broad Street Learning Community I

Credits 3. 3 Lecture Hours. Introduction to the program, development of critical thinking skills and international perspectives; introductory for the Public Health Studies Broad Street Honors Learning Community. **Prerequisites:** Admission to Broad Street Society Honors Learning Community; public health major.

PHLT 289 Special Topics In...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of public health. May be taken three times for credit.

Prerequisite: PHLT major or approval of instructor.

PHLT 301 Public Health Concepts

Credit 1. 1 Lecture Hour. Familiarization with public health including aspects such as different disciplines within the profession; local, national and international agencies that have interest in public health and public health code of ethics.

PHLT 302 Foundations of Public Health

Credits 3. 3 Lecture Hours. History, philosophy, development and careers of public health; core values, ethics, concepts, functions and essential services of public health; population health and health improvement.

Prerequisites: Public health major or minor; junior or senior classification; or approval of instructor.

PHLT 303 Social Context of Population Health

Credits 3. 3 Lecture Hours. Exploration of social determinants of population health and the socio-cultural roots of health improvement; socio-economic, behavioral and other factors that impact human health and contribute to health improvement and health disparities.

Prerequisites: Public health major or minor; junior or senior classification.

PHLT 304 Biological Basis of Public Health Diseases & Disorders

Credits 3. 3 Lecture Hours. Biological Basis of Public Health Diseases & Disorders. Overview of the underlying science of human health and disease, considering biological mechanisms in the individual and in populations; topics include a broad set of categories of adverse health events: infectious and chronic diseases, exposure to pathogens and toxins, nutritional deficiencies, child and maternal health, biological bases of mental and behavioral health and addiction; examination of the interactions between biologic and sociocultural factors and the biology of epidemics; foundational understanding of opportunities to promote and protect health across the life course; application of disease knowledge in community and allied health professions. **Prerequisites:** Public health major; junior or senior classification.

PHLT 305 Epidemiology in Public Health

Credits 3. 3 Lecture Hours. Principles of epidemiology, a systematic approach to collecting and evaluating information on distributions of health outcomes in populations; history of epidemiology, descriptive epidemiology, epidemiologic methods, association and causation, evidence-based public health and applications. **Prerequisites:** Public Health major or minor; junior or senior classification.

PHLT 306 Border Health

Credits 3. 3 Lecture Hours. United States-Mexico border public health system; includes issues important to public health at the border; addresses health challenges. **Prerequisite:** Public health major; junior or senior classification; or approval of instructor.

PHLT 307 Public Health in the Global Context

Credits 3. 3 Lecture Hours. Frameworks for understanding public health on a global scale; description of current and emerging global health priorities, such as emerging infectious diseases and chronic diseases; health systems reforms; cultural competence, human rights and ethics in global health; science and technological innovation for global health; global institutions and partnerships. **Prerequisite:** Public health major; junior or senior classification; or approval of instructor.

PHLT 308 Comparative Global Health Systems

Credits 3. 3 Lecture Hours. Public health issues from population health and comparative perspectives at the global level; exploration of different public health systems in developing and developed countries.

Prerequisites: Public health major; junior or senior classification; or approval of instructor.

PHLT 309 Population Health Promotion

Credits 3. 3 Lecture Hours. Exploration of the application of social determinants of health to population health promotion; identification of socio-economic, behavioral, cultural, societal and political factors that influence population health promotion; utilization of a socio-ecological approach in health promotion to address major health-related needs and concerns of populations; use public health planning models, theories and methods for effective health promotion. **Prerequisite:** Public health major; junior or senior classification; or approval of instructor.

PHLT 310 Public Health Writing

Credit 1. 1 Lecture Hour. Strategies to become more familiar with types of writing required as public health students or public health professionals; strengthens and increases general writing skills; establishes a foundation for continued development in writing. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** Public health major; junior or senior classification; or approval of instructor.

PHLT 311 Narrative Approach to Public Health

Credit 1. 1 Lecture Hour. Familiarization with the writing style required for public health; instruction in writing styles and narrative techniques to increase and strengthen writing abilities in public health disciplines such as environmental and occupational health, health promotion and community health sciences, health policy and management, epidemiology and biostatistics. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** Public health major; junior or senior classification; or approval of instructor.

PHLT 313 Health Care and Public Health System

Credits 3. 3 Lecture Hours. Two distinct systems – health care system: an individual and medical services model and the public health system: population level disease prevention and health education. **Prerequisites:** Public health major; junior or senior classification; or approval of instructor.

PHLT 314 Public Health Data Management and Assessment I

Credits 2. 2 Lecture Hours. Familiarization with using the CDC software Epi-Info for managing, analyzing and assessing population health data; focus on using Epi-Info to produce descriptive data reports including tables and graphs. **Prerequisite:** Public health major; junior or senior classification; or approval of instructor.

PHLT 315 Public Health Data Management and Assessment II

Credits 2. 2 Lecture Hours. Continuation of PHLT 314; familiarization with using the CDC software Epi-Info for managing, analyzing and assessing population health data; focus on using Epi-Info to generate inferential statistics such as confidence intervals and p-values. **Prerequisite:** Public health major; grade of C or better in PHLT 314.

PHLT 316 Public Health Data Management and Assessment

Credits 3. 3 Lecture Hours. Familiarization with descriptive statistics and with using the CDC software Epi-Info for managing, analyzing and assessing population health data; focus on using Epi-Info to produce descriptive data reports including tables and graphs; to analyze and assess data for decision making. **Prerequisites:** Public health major or minor; junior or senior classification.

PHLT 322 Concepts in Health Education

Credits 3. 3 Lecture Hours. Preparation as peer health educators and campus community leaders; experiential learning; includes various health topics, program development, presentation and public speaking, communication, and group facilitation. **Prerequisites:** Grade of C or better in PHLT 302 or concurrent enrollment.

PHLT 330 The Environment and Public Health

Credits 3. 3 Lecture Hours. Public health core knowledge address factors that pose risks and hazards in homes and workplaces; methods for defining environmental contamination; identifying contaminants, pathogens and toxins; assessing risks and causality; ameliorating hazards. **Prerequisites:** Public health major or minor; junior or senior classification.

PHLT 331 Occupational Safety and Health I

Credits 3. 3 Lecture Hours. Regulations and topics of relevance to occupational health professionals; includes legislation and regulations, workers' compensation, accident investigation, industrial hygiene, ergonomics and fire prevention with an emphasis on the health professionals' role. **Prerequisites:** Public health major; junior or senior classification; or approval of instructor.

PHLT 332 Occupational Safety and Health II

Credits 3. 3 Lecture Hours. Occupational safety and health topics including behavior-based safety, workplace violence, preparedness, hazardous materials, construction, transportation, required written programs and professional resources. **Prerequisites:** Grade of C or better in PHLT 331; public health major or minor.

PHLT 333 Accident Investigation

Credits 3. 3 Lecture Hours. Principles of accident investigation and how accidents happen in the workplace; integrates procedural, systematic, corrective and formative applications for the occupational health professional. **Prerequisite:** Public health major; junior or senior classification; or approval of instructor.

PHLT 334 Fire Safety and Workplace Hazards

Credits 3. 3 Lecture Hours. Principles of fire safety and other workplace hazards such as electrical hazards, chemical hazards, respiratory hazards, falls, confined spaces, bloodborne pathogens, hearing loss, ergonomics and machine hazards. **Prerequisite:** Public health major; junior or senior classification; or approval of instructor.

PHLT 335 Hazardous Materials

Credits 3. 3 Lecture Hours. Principles of managing materials in the workplace; role of the health and safety professional in hazardous material management and hazard communication. **Prerequisite:** Public health major; junior or senior classification; or approval of instructor.

PHLT 336 Health Disparities and Diversity in Society

Credits 3. 3 Lecture Hours. Exploration of in-depth racial, ethnic, and cultural dimensions that underlie health and health disparities; emphasis on culture, social economic status and governmental policies as they influence the adaptation of health practices. **Prerequisites:** Junior or senior classification.

PHLT 342/HLTH 342 Human Sexuality

Credits 3. 3 Lecture Hours. Many aspects of human sexuality; physiology and function of human reproductive system, factors involved in learning sex roles, biological and emotional motivations associated with the sexual aspects of life and their relationship to marriage and family planning. **Prerequisites:** Junior or senior classification. **Cross Listing:** HLTH 342/PHLT 342.

PHLT 353/HLTH 353 Drugs and Society

Credits 3. 3 Lecture Hours. Use and abuse of drugs in today's society; physiological, sociological and psychological factors involved. **Prerequisite:** Grade of C or better in BIOL 320, HLTH 210, HLTH 231, and HLTH 240. **Cross Listing:** HLTH 353/PHLT 353.

PHLT 354/HLTH 354 Medical Terminology for the Health Professions

Credits 3. 3 Lecture Hours. Designed for students interested in pursuing a career in a health, medical, scientific or other helping profession; develop medical word power skills combined with related health and disease knowledge. **Prerequisite:** Junior or senior classification. **Cross Listing:** HLTH 354/PHLT 354.

PHLT 360 Women's Health

Credits 3. 3 Lecture Hours. A broad range of health issues that are either unique to women or of special importance to women; information for the health consumer; preparation as an advocate of healthy lifestyles; awareness of the role health plays in the life of all women. **Prerequisites:** Junior or senior classification. **Cross Listing:** HLTH 334 and WGST 334.

PHLT 363/HLTH 333 Spirituality and Health

Credits 3. 3 Lecture Hours. Exploration of the relationship between spirituality, religion, health, health education and spiritual health; identification of techniques to measure spiritual health/wellness and enlighten healthcare professionals to the role spiritual health plays in healing; identification of spirituality topics important to health care professionals. **Prerequisites:** Junior or senior classification; School of Public Health majors. **Cross Listing:** HLTH 333/PHLT 363.

PHLT 370 Broad Street Learning Community II

Credits 3. 3 Lecture Hours. International perspectives on public health and healthcare, comparative historical, political and cultural effects on public health; second course in the Broad Street Learning Community sequence. **Prerequisites:** Grade of B or better in PHLT 270.

PHLT 403/HLTH 403 Consumer Health

Credits 3. 3 Lecture Hours. Selection, evaluation and understanding of health information, medical services, advertising of products and sociocultural factors in consumer health protection. **Prerequisite:** Grade of C or better in HLTH 210. **Cross Listing:** HLTH 403/PHLT 403.

PHLT 405/HLTH 405 Rural Health

Credits 3. 3 Lecture Hours. Issues facing rural health care; emphasis on understanding the geographical characteristics of rural communities and their affect on health care delivery. **Prerequisites:** Junior or senior classification; School of Public Health major. **Cross Listing:** HLTH 405/PHLT 405.

PHLT 410 Public Health Communication

Credits 3. 3 Lecture Hours. Exploration of different communication approaches for addressing public health challenges; basic concepts of public health-specific communication, including risk communication, the use of mass media and evaluation of public health communication programs. **Prerequisites:** PHLT 310; public health major.

PHLT 411 Project Management in Public Health

Credits 3. 3 Lecture Hours. Exploration of successful project management and administration in public health settings; includes project development, budgeting and implementation. **Prerequisites:** Public health major; junior or senior classification; or approval of instructor.

PHLT 412 Health Advocacy and Policy

Credits 3. 3 Lecture Hours. Concepts of legal, ethical, economic and regulatory dimensions of public health policy; the roles, influences and responsibilities of the different agencies and branches of government; advocacy for the public's health at all levels of society. **Prerequisites:** Grade of C or better in PHLT 313; public health major; junior or senior classification.

PHLT 413 Public Health Informatics

Credits 3. 3 Lecture Hours. Broad range of knowledge and skills encompassed by PHI; bridging public health data/information needs, information technology and stakeholders; creating user requirements to guide system design; evidence-based public health; electronic health records. **Prerequisites:** Grade of C or better in PHLT 302.

PHLT 414 Applications of Epidemiology in Public Health

Credits 3. 3 Lecture Hours. Application of the concept of distribution, determinants and measurement of health and disease outcomes in populations in real life situations through lectures, case studies and presentations. **Prerequisites:** Grade of C or better in PHLT 305; public health major.

PHLT 415 Emergency Management in Public Health

Credits 3. 3 Lecture Hours. Principles and practices of emergency management at the local, state, national and international levels; explores stages of emergency management such as preparedness, response and recovery; includes population health and the basic processes, approaches and interventions; emergency management systems in the United States; actors in emergency management. **Prerequisites:** Public health major; junior or senior classification; or approval of instructor.

PHLT 416 Public Health Leadership and Ethics

Credits 3. 3 Lecture Hours. Overview of major leadership and ethical theories, current leadership and ethical issues and their impact on public health practice. **Prerequisite:** Public health major; junior or senior classification; or approval of instructor.

PHLT 420/HLTH 415 Health Education Methodology

Credits 3. 3 Lecture Hours. Theory and practice in the development and use of creative and traditional health education strategies in secondary schools and community settings; emphasis is given to cognitive, affective and behavioral teaching strategies. **Prerequisite:** Grade of C or better in HLTH 231, BIOL 320, and COMM 203; grade of C or better in HLTH 222, HLTH 240, HLTH 332, or HLTH 331; grade of C or better in ENGL 103 or ENGL 104. **Cross Listing:** HLTH 415/PHLT 420.

PHLT 425/HLTH 425 Health Program Evaluation

Credits 3. 3 Lecture Hours. Theory and practice in evaluation of health programs in school and community; analysis of test results; evaluation of standardized health tests. **Prerequisite:** Grade of C or better in HLTH 222, HLTH 231, HLTH 240, HLTH 331, BIOL 320, and COMM 203; grade of C or better in ENGL 103 or ENGL 104. **Cross Listing:** HLTH 425/PHLT 425.

PHLT 426/MKTG 443 The Business of Healthcare

Credits 3. 3 Lecture Hours. Preparation for contributing to the healthcare system by gaining an understanding of selected business of healthcare topics such as the role of healthcare in the economy, the cost of healthcare, the patient experience, technology and ethics. **Prerequisites:** Business and Public Health majors; junior or senior classification; approval of instructor. **Cross Listing:** MKTG 443/PHLT 426.

PHLT 432 Human Factors and Ergonomic Health and Safety

Credits 3. 3 Lecture Hours. Principles of ergonomics including principles of anatomy, physiology, instrument design, and work environments; emphasis on ergonomic design, implementing ergonomic programs. **Prerequisites:** Public health major or minor; junior or senior classification.

PHLT 433 Industrial Inspections and Audit Techniques

Credits 3. 3 Lecture Hours. Principles of conducting industrial audits for fire, safety and security; emphasis on the role of the health and safety professional, assessing safety programs and meeting regulatory requirements. **Prerequisites:** Public health major; junior or senior classification; or approval of instructor.

PHLT 434 Project Cost Benefit and Economics

Credits 3. 3 Lecture Hours. Estimation and management of project costs; emphasis on improving accuracy of cost projection, making better modifications to cost on work in-progress. **Prerequisites:** Public health major; junior or senior classification; or approval of instructor.

PHLT 436 Infectious Disease in the Developing World: Risks, Challenges, and Solutions

Credits 3. 3 Lecture Hours. Study of the challenges of infectious disease control in the developing world; topics include common infectious diseases, how they spread, social and economic consequences and the factors that influence prevalence. **Prerequisites:** Public Health Studies major; junior or senior classification, or approval of instructor.

PHLT 440/HLTH 440 Contemporary Issues for Community Health Interns

Credits 3. 3 Lecture Hours. Preparatory course for advanced students in the community health internship program. **Prerequisites:** Grade of C or better in HLTH 222, HLTH 231, HLTH 240, HLTH 331, BIOL 320, and COMM 203; grade of C or better in ENGL 103 or ENGL 104; admission into internship program. **Cross Listing:** HLTH 440/PHLT 440.

PHLT 441 Strategies for Population Health Improvement

Credits 3. 3 Lecture Hours. The three core functions of public health and strategies for improving population health; case studies exploring multiple types of interventions; engagement in class discussion, break-out groups and group assignments. **Prerequisites:** Grade of C or better in PHLT 411; public health major; junior or senior classification.

PHLT 445 Applications of Public Health

Credits 3. 3 Lecture Hours. Combines knowledge and skills related to public health experience and coursework to address public health issues; process of developing, implementing and evaluating public health interventions; role assignment and responsibilities in group assignments and presentations. **Prerequisites:** Grade of C or better in PHLT 441; public health major; junior or senior classification.

PHLT 470 Global Public Health Systems and Practice Experiences

Credits 1 to 3. 1 to 3 Lecture Hours. Study abroad experiences led by School of Public Health faculty in select countries; lectures prior to departing and lectures and classes in country; engage in public health practice and research activities in country; visit public health agencies and programs in country. May be taken for credit up to six hours. **Prerequisite:** Junior or senior classification; approval of instructor.

PHLT 481 Seminar

Credit 1. 1 Other Hour. Discussions of the transition from the college environment to professional school and/or career environments, including professional development. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** Grade of C or better in PHLT 302; grade of C or better in ENGL 103 or ENGL 104; junior or senior classification.

PHLT 484 Internship

Credits 0 to 12. 0 to 12 Other Hours. Internship at a selected community, public, or private health agency; on-the-job training in the areas of public health studies industry; development of evaluations, objectives and goals determined based on the requirements of the degree program.

Prerequisites: Junior or senior classification; grade of C or better in public health coursework; instructor approval; Public Health major.

PHLT 485 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Directed study of selected problems in the area of public health studies. May be taken four times for credit.

Prerequisite: Approval of instructor.

PHLT 489 Special Topics In...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of public health. May be repeated for credit.

Prerequisites: PHLT major; junior or senior classification or approval of instructor.

PHLT 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in public health studies. May be taken two times for credit. **Prerequisite:** PHLT 485; junior or senior classification and approval of instructor; 3.0 TAMU GPA.

PHYS - Physics (PHYS)

PHYS 101 Freshman Physics Orientation

Credit 1. 1 Lecture Hour. Critical thinking skills and problem solving in physics: time management and teaming skills. **Prerequisite:** Physics majors; non-majors requires approval of instructor.

PHYS 102 Physics Orientation

Credit 1. 1 Lecture Hour. Critical thinking skills and problem solving in physics: time management and teaming skills. For physics majors. Registration by non-majors requires approval of instructor.

PHYS 104 Contemporary Issues in Science - Cosmos, Earth and Humanity

Credits 3. 3 Lecture Hours. Science for citizens; interdisciplinary survey of contemporary issues in the science of our universe or cosmos, Earth and humanity, including the big bang, evolution, genetics, vaccines and drugs; future outlook on humanity, including artificial intelligence, cryptography and cybersecurity; critically analyze science presented in the news, on television and on social media; ethical implications of research. **Cross Listing:** ARSC 104 and BIOL 104.

PHYS 109/ASTR 109 Big Bang and Black Holes

Credits 3. 3 Lecture Hours. Designed to give an intuitive understanding of the Big Bang and Black Holes, without mathematics, and de-mystify them for the non-scientist. **Cross Listing:** ASTR 109/PHYS 109.

PHYS 119/ASTR 119 Big Bang and Black Holes: Laboratory Methods

Credit 1. 2 Lab Hours. Hands-on understanding of the concepts surrounding the Big Bang and Black Holes; emphasis on the evidence-based decision making process, methods and presentation; for non-scientists. Companion course for ASTR 109/PHYS 109/PHYS 109/ASTR 109. **Prerequisite:** ASTR/PHYS 109/ASTR 109 or registration therein. **Cross Listing:** ASTR 119/PHYS 119.

PHYS 123 Physics for Future Presidents

Credits 3. 3 Lecture Hours. Physics needed to be an effective policy maker or world leader but appropriate for any citizen, since all citizens need to understand the world in which they live and work; fundamental principles of physics made comprehensible and usable by those not in science- or math-related fields. **Prerequisite:** Basic math skills; also taught at Galveston campus.

PHYS 125 Soft Matter Physics for Non-physicists

Credits 3. 2 Lecture Hours. 2 Lab Hours. Modern physics in action with hands-on physics experience in simple experiments for non-physics majors; introduction to thermodynamics and soft matter physics; heat, temperature, thermodynamic efficiency, phase transitions, mechanical properties of soft matter, heat transfer mechanisms; physical measurements.

PHYS 148 Introduction to Quantum Mechanics

Credits 3. 3 Lecture Hours. The basic level of concepts of quantum mechanics such as wave-particle duality, complementarity, quantum interference and entanglement, and their applications to fields such as quantum communication and quantum computing. **Prerequisites:** High school physics and calculus.

PHYS 150 Introduction for Programming for Physics

Credits 3. 3 Lecture Hours. Physics-oriented introductory programming; basics of programming and applications of programming for physics; programming in the context of physics, such as variables, expressions, flow control, functions and data visualization, applied to physics topics such as energy minimization, Newtonian dynamics and chaos.

PHYS 201 College Physics

Credits 4. 3 Lecture Hours. 3 Lab Hours. (PHYS 1301 and 1101, 1401) College Physics. Fundamentals of classical mechanics, heat, and sound. Primarily for architecture, education, premedical, pre dental, and preveterinary medical students; also taught at Galveston campus.

PHYS 202 College Physics

Credits 4. 3 Lecture Hours. 3 Lab Hours. (PHYS 1302 and 1102, 1402) College Physics. Continuation of PHYS 201. Fundamentals of classical electricity and light; introduction to contemporary physics. **Prerequisite:** PHYS 201; also taught at Galveston campus.

PHYS 205 Concepts of Physics

Credits 4. 3 Lecture Hours. 3 Lab Hours. General survey physics course for K-8 preservice teachers integrating physics content and laboratory activities relevant to physics-related subject matter included in the current Texas and national standards for elementary school science; includes aspects of mechanics, waves, electricity, magnetism and modern physics. **Prerequisite:** Major in interdisciplinary studies or interdisciplinary technology or approval of instructor.

PHYS 206 Newtonian Mechanics for Engineering and Science

Credits 3. 3 Lecture Hours. (PHYS 2325, PHYS 2425*) Newtonian Mechanics for Engineering and Science. Calculus-based introductory Newtonian mechanics; laws of physical motion for solution of science and engineering problems. **Prerequisites:** Grade of C or better in MATH 151 or MATH 171, or equivalent; also taught at Galveston and Qatar campuses.

PHYS 207 Electricity and Magnetism for Engineering and Science

Credits 3. 3 Lecture Hours. (PHYS 2326, PHYS 2426*) Electricity and Magnetism for Engineering and Science. Calculus-based electricity and magnetism; electromagnetic phenomena; basic laws of electricity and magnetism; science and engineering problems involving charges, electromagnetic fields, and electrical circuits. **Prerequisites:** Grade of C or better in PHYS 206; grade of C or better in MATH 152 or MATH 172 or equivalent; also taught at Galveston and Qatar campuses.

PHYS 216/ENGR 216 Experimental Physics and Engineering Lab II - Mechanics

Credits 2. 1 Lecture Hour. 3 Lab Hours. Description and application of laws of physical motion to the solution of science and engineering problems; using sensing, control and actuation for experimental verification of physics concepts while solving engineering problems. **Prerequisites:** Grade of C or better in MATH 151 or MATH 171 or equivalent; grade of C or better in ENGR 102; grade of C or better and concurrent enrollment in PHYS 206; also taught at Galveston campus. **Cross Listing:** ENGR 216/PHYS 216.

PHYS 217/ENGR 217 Experimental Physics and Engineering Lab III - Electricity and Magnetism

Credits 2. 1 Lecture Hour. 3 Lab Hours. Electromagnetism and electromechanical systems; use of sensing, control and actuation to demonstrate key physical relationships through the transducer relationships linking pressure, temperature and other physical stimuli to changes in electric and magnetic fields. **Prerequisites:** Grade of C or better in MATH 152 or MATH 172, or equivalent; grade of C or better in PHYS 206 or equivalent; grade of C or better in PHYS 216/ENGR 216 or ENGR 216/PHYS 216; grade of C or better and concurrent enrollment in PHYS 207; also taught at Galveston campus. **Cross Listing:** ENGR 217/PHYS 217.

PHYS 221 Optics and Thermal Physics

Credits 3. 3 Lecture Hours. Wave motion and sound, geometrical and physical optics, kinetic theory of gases, laws of thermodynamics.

Prerequisites: PHYS 207 or PHYS 208, or concurrent enrollment; MATH 221, MATH 251, or MATH 253, or concurrent enrollment; MATH 308 or concurrent enrollment; also taught at Qatar campus.

PHYS 222 Modern Physics for Engineers

Credits 3. 3 Lecture Hours. Atomic, quantum, relativity and solid state physics. **Prerequisites:** PHYS 207 or PHYS 208; MATH 308 or concurrent enrollment; also taught at Qatar campus.

PHYS 225 Electronic Circuits and Applications

Credits 3. 1 Lecture Hour. 4 Lab Hours. Linear circuit theory and applications of solid-state diodes, bipolar and field-effect transistors, operational amplifiers and digital systems. **Prerequisites:** PHYS 207 and PHYS 227, or PHYS 208; MATH 308.

PHYS 226 Physics of Motion Laboratory for the Sciences

Credit 1. 2 Lab Hours. (PHYS 2125, PHYS 2425*) Physics of Motion Laboratory for the Sciences. The first semester laboratory to accompany a two-semester course sequence in introductory physics; topics include material covered in a typical calculus-based introductory physics course on the principles of mechanics and motion. **Prerequisites:** MATH 151 or MATH 171; concurrent enrollment in PHYS 206; also taught at Galveston campus.

PHYS 227 Electricity and Magnetism Laboratory for the Sciences

Credit 1. 2 Lab Hours. (PHYS 2126, PHYS 2426*) Electricity and Magnetism Laboratory for the Sciences. The second semester laboratory to accompany a two-semester course sequence in introductory physics; topics include material covered in a typical calculus-based introductory physics course on the principles of electricity and magnetism. **Prerequisites:** MATH 152 or MATH 172; PHYS 206 or PHYS 218; concurrent enrollment in PHYS 207; also taught at Galveston campus.

PHYS 285 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Special work in laboratory or theory to meet individual requirements in cases not covered by regular curriculum; intended for use as lower-level credit. **Prerequisite:** Approval of instructor.

PHYS 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 6 Lab Hours. Selected topics in an identified area of physics. May be repeated for credit. **Prerequisite:** Approval of instructor.

PHYS 291 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in physics. May be repeated 2 times for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

PHYS 302 Advanced Mechanics I

Credits 3. 3 Lecture Hours. Classical mechanics of particles and rigid bodies; review of Newtonian mechanics and foundations of Lagrangian and Hamiltonian formalism. **Prerequisite:** PHYS 309 and PHYS 331; PHYS 332 or concurrent enrollment, or approval of instructor.

PHYS 303 Advanced Mechanics II

Credits 3. 3 Lecture Hours. Applications of Lagrangian and Hamiltonian methods to selected problems of classical mechanics. **Prerequisite:** PHYS 302.

PHYS 304 Advanced Electricity and Magnetism I

Credits 3. 3 Lecture Hours. Electrostatics; dielectrics; electrical current and circuits; magnetic fields and materials; induction; Maxwell's equations. **Prerequisites:** PHYS 331; PHYS 332 or concurrent enrollment, or approval of instructor.

PHYS 305 Advanced Electricity and Magnetism II

Credits 3. 3 Lecture Hours. Radiation and optics. Electromagnetic waves; radiation; reflection and refraction; interference; diffraction; special relativity applied to electrodynamics. **Prerequisite:** PHYS 304.

PHYS 309 Modern Physics

Credits 3. 3 Lecture Hours. Special relativity; concepts of waves and particles; introductory quantum mechanics. **Prerequisite:** PHYS 221; MATH 308; also taught at Qatar campus.

PHYS 327 Experimental Physics I

Credits 2. 1 Lecture Hour. 2 Lab Hours. Laboratory experiments in modern physics and physical optics with an introduction to current, state-of-the-art recording techniques. **Prerequisites:** PHYS 225; PHYS 309.

PHYS 328 Experimental Physics II

Credit 1. 1 Lecture Hour. 1 Lab Hour. Laboratory experiments in modern physics and physical optics with an introduction to current, state-of-the-art recording techniques. **Prerequisites:** PHYS 327 or concurrent enrollment.

PHYS 331 Theoretical Methods for Physicists I

Credits 3. 3 Lecture Hours. Applications involving vectors; vector and additional methods for advanced electricity and magnetism; relationship and solutions of classical wave equation, heat equation, and Schrodinger equation; harmonic motion on finite or periodic lattice and in continuum; tensor and matrix notation in classical mechanics and electricity and magnetism. **Prerequisite:** PHYS 221 and MATH 308; or approval of instructor.

PHYS 332 Theoretical Methods for Physicists II

Credits 3. 3 Lecture Hours. Methods to solve the important equations of theoretical physics, emphasizing the effects of boundary conditions and quantization on their solutions and restricted to the essential physical symmetries associated with free space, spheres, cylinders, and rectangles; if time permits, introduction to symmetries in physics and to asymptotic methods. **Prerequisites:** PHYS 331; physics majors.

PHYS 401 Computational Physics

Credits 3. 3 Lecture Hours. Introduction to computational and simulational techniques widely used in physics applications and research, including trajectory integration, wave motion analysis, molecular dynamics, Monte Carlo methods, statistical mechanics of spin systems, phase transitions, quantum evolution, bound state problems, and variational methods. **Prerequisites:** PHYS 332; knowledge of a high level language.

PHYS 408 Thermodynamics and Statistical Mechanics

Credits 3. 3 Lecture Hours. Basic concepts and principles of thermodynamics; introduction to methods of statistical mechanics to calculate properties of systems in thermodynamic equilibrium.

Prerequisite: PHYS 412.

PHYS 412 Quantum Mechanics I

Credits 3. 3 Lecture Hours. Postulates of wave mechanics; wave packets; harmonic oscillator; central field problem; hydrogen atom; approximation methods. **Prerequisites:** PHYS 302; PHYS 309; PHYS 332; junior or senior classification.

PHYS 414 Quantum Mechanics II

Credits 3. 3 Lecture Hours. Continuation of PHYS 412. Electron spin; addition of angular momenta; atomic structure; time dependent perturbations; collision theory; application of quantum mechanics to atomic, solid state, nuclear or high energy physics. **Prerequisite:** PHYS 412.

PHYS 415 Nuclear and Particle Physics

Credits 3. 3 Lecture Hours. Matter at the smallest scales and fundamental interactions between them; physics of atomic nuclei; physics of hadrons, quarks, leptons; fundamental strong and weak interactions; gauge bosons; state-of-the-art nuclear and particle physics; how knowledge was obtained; experimental confirmation of theoretical ideas; modern tools and instruments; foundations of nuclear technology; future perspectives. **Prerequisites:** Grade of C or better in PHYS 309.

PHYS 416 Physics of the Solid State

Credits 3. 3 Lecture Hours. A survey of solid state physics; an introduction to crystal structures and the physics of electrons, lattice vibrations and photons; applications to semiconductors; magnetism; superconductivity; physics of nanostructures; brief introduction to selected current topics in condensed matter physics. **Prerequisites:** PHYS 304 and PHYS 412.

PHYS 418 High Energy Physics

Credits 3. 3 Lecture Hours. A broad spectrum of elementary particle physics along with historical and recent publication, covering symmetry in quarks and leptons, fundamental interactions, relativistic kinematics, Feynman diagrams, Dirac equation, cross-sections for particle reactions, unification of fundamental forces, accelerators and detectors and other current topics. **Prerequisite:** Grade of C or better in PHYS 309 or equivalent.

PHYS 419 Physics of Optoelectronic Devices

Credits 3. 3 Lecture Hours. Basic concepts of light-matter interaction, optics of semiconductors, nanostructures with quantum confinement and their interaction with light; physical principles of selected state-of-the-art optoelectronic devices; emerging concepts and technologies; examples of modern, state-of-the-art devices and emerging technologies. **Prerequisites:** Grade of C or better in PHYS 309 or PHYS 222.

PHYS 425 Physics Laboratory

Credits 2. 6 Lab Hours. Experiments in nuclear, atomic, and molecular physics using modern instrumentation and equipment of current research. **Prerequisite:** PHYS 327 or equivalent.

PHYS 426 Physics Laboratory

Credits 2. 6 Lab Hours. Experiments in solid state and nuclear physics. Modern instrumentation and current research equipment are employed. **Prerequisite:** PHYS 327 or equivalent.

PHYS 485 Directed Studies

Credits 1 to 12. 1 to 12 Other Hours. Special work in laboratory or theory to meet individual requirements in cases not covered by regular curriculum. **Prerequisite:** Approval of instructor; also taught at Galveston campus.

PHYS 489 Special Topics in...

Credits 1 to 4. 1 to 4 Other Hours. Selected topics in an identified field of physics. May be repeated for credit. **Prerequisite:** Approval of instructor; also taught at Qatar campus.

PHYS 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in physics. May be repeated for credit. Registration in multiple sections of this course is possible within a given semester provided that the per semester credit hour limit is not exceeded. **Prerequisites:** Junior or senior classification and approval of instructor; also taught at Qatar campus.

PLPA - Plant Pathology (PLPA)

PLPA 291 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of faculty member in plant pathology. May be repeated 3 times for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

PLPA 301 Plant Pathology

Credits 3. 3 Lecture Hours. Introduction to fundamental principles of plant pathology; diagnosis, cause and control of plant diseases. **Prerequisites:** BIOL 113, BIOL 101, or BIOL 111.

PLPA 303 Plant Pathology Laboratory

Credit 1. 2 Lab Hours. Isolation, identification of plant pathogens and clinical diagnosis and control of plant diseases. **Prerequisite:** PLPA 301 or registration therein.

PLPA 334 Turfgrass Pathology

Credits 3. 3 Lecture Hours. 0 Lab Hours. Recognizing turfgrass problems and understanding biological mechanisms in the disease process; principles of disease management strategies. **Prerequisite:** Junior or senior classification.

PLPA 485 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Special problems for advanced undergraduates to permit study of subject matter not available in existing courses. **Prerequisites:** PLPA 301 and prior approval of instructor or department head.

PLPA 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of plant pathology. May be repeated for credit. **Prerequisite:** PLPA 301 or approval of instructor.

PLPA 491 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of faculty member in plant pathology. May be repeated 3 times for credit. Registration in multiple sections of this course are possible within a given semester provided that the per semester credit hour limit is not exceeded. **Prerequisites:** Junior or senior classification and approval of instructor.

POLS - Political Science (POLS)

POLS 200 Foundations of Political Science

Credits 3. 3 Lecture Hours. Survey of the scholarly discipline of political science and its theoretical foundations, principal subfields, major research questions and modes of scholarship.

POLS 203 Introduction to Political Theory

Credits 3. 3 Lecture Hours. Introduction to the study of political theory, with attention to major themes in the history of political thought; discussion of the nature of politics; examination of method in political theory and its relation to the discipline of political science.

POLS 206 American National Government

Credits 3. 3 Lecture Hours. (GOVT 2305) American National Government. Survey of American national government, politics, and constitutional development; also taught at Galveston and Qatar campuses.

POLS 207 State and Local Government

Credits 3. 3 Lecture Hours. (GOVT 2306) State and Local Government. Survey of state and local government and politics with special reference to the constitution and politics of Texas; also taught at Galveston and Qatar campuses.

POLS 209 Introduction to Political Science Research

Credits 3. 3 Lecture Hours. Introduction to the philosophy and practice of social science and to modes of research in major subfields of political science. **Prerequisite:** Political science majors must have completed POLS 209 before they enroll in their last 18 hours of 300- and 400-level POLS courses; may take no more than 6 hours of upper division (300- and 400-level courses) before completing POLS 209; political science majors.

POLS 229 Introduction to Comparative Politics

Credits 3. 3 Lecture Hours. A comparison of political institutions, processes and issues across a wide variety of political systems.

POLS 231 Introduction to World Politics

Credits 3. 3 Lecture Hours. Analysis of contemporary world from point of view of nation-state; political problems, factors involved in foreign policies and relations of nations; also taught at Galveston campus.

POLS 232 Introduction to Maritime Public Policy

Credits 3. 3 Lecture Hours. Introduction to maritime public policy; social, economic, political and cultural contexts of public policy; study of policy analysis and policymakers; examines public problems, policy choice, and limits of governmental action; Galveston campus.

POLS 233 Politics and Policy in the United States

Credits 3. 3 Lecture Hours. Survey of institutions of American government, mass political behavior, and policy fields of significant contemporary importance.

POLS 285 Directed Studies

Credits 0 to 3. 0 to 3 Other Hours. Individual instruction in selected aspects of political science not adequately covered by other courses. **Prerequisite:** Approval of department head.

POLS 289 Special Topics in...

Credits 3. 3 Other Hours. Selected topics in an identified area of political science and public policy. May be taken for credit seven times. **Prerequisite:** POLS 206 or approval of department head.

POLS 291 Research

Credits 0 to 6. 0 to 6 Other Hours. Research conducted under the direction of a faculty member in political science. May be taken three times for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

POLS 302 The Mass Media and Politics

Credits 3. 3 Lecture Hours. Examination of mass media impact on politics and political behavior, and governmental impact on the mass media. **Prerequisite:** POLS 206 or approval of department head; junior or senior classification. **Cross Listing:** COMM 302 and JOUR 302.

POLS 304 Latino Politics in the United States

Credits 3. 3 Lecture Hours. Survey of historical and contemporary issues in Latino politics in the U.S.; race and ethnicity in the context of U.S. politics; comparisons of racial and ethnic group experiences in the U.S. with those experienced by racial and ethnic groups elsewhere; Latino access to the political system through political participation. **Prerequisite:** Junior or senior classification.

POLS 306 Contemporary Political Problems and Issues

Credits 3. 3 Lecture Hours. Major contemporary political problems and issues with primary emphasis on the U.S. Each term one to three problems or issues will be examined in some depth. Students may register in up to but no more than two different sections of this course. May be repeated for credit. **Prerequisite:** POLS 206 or approval of department head. **NOTE:** POLS 306 courses taken in a study abroad program may not count toward this limit; please consult with the undergraduate advisor.

POLS 308 Game Theoretic Methods in Political Science

Credits 3. 3 Lecture Hours. Core concepts of game theory to study strategic interaction in politics; game theory using simple mathematical models to describe social situations, understand political and social phenomena; emphasis on model building skills and problem solving. **Prerequisites:** POLS 206 and junior or senior classification or approval of department head.

POLS 309 Polimetrics

Credits 3. 3 Lecture Hours. Theory, techniques, and application of quantitative analysis in political science; focus on quantitative techniques commonly used to evaluate empirical theories of politics. **Prerequisites:** POLS 209 and 9 additional hours of political science or approval of instructor.

POLS 312 Ethnic Conflict

Credits 3. 3 Lecture Hours. Examination of government institutions designed to structure ethnic relations; source of ethnic conflict; mechanisms to facilitate the peaceful resolution of ethnic conflict. **Prerequisite:** Junior or senior classification.

POLS 313 Public Opinion

Credits 3. 3 Lecture Hours. Role of public opinion in a democratic political system—its formation, properties and patterns, with special attention to problems of linking public opinion to public policy. **Prerequisite:** POLS 206 or approval of department head.

POLS 314 Interest Groups

Credits 3. 3 Lecture Hours. Role of interest groups in politics; types of groups and resources; internal dynamics; group strategies/tactics (including PACs); forms of indirect and direct lobbying; influence of groups in political arena. **Prerequisite:** POLS 206 or approval of department head.

POLS 315 Political Parties

Credits 3. 3 Lecture Hours. Organization, history, and activities of political parties and functions they serve in national, state and local politics in the United States and elsewhere. **Prerequisite:** POLS 206 or approval of department head.

POLS 316 Urban Politics

Credits 3. 3 Lecture Hours. Politics at the community level; urban and metropolitan political systems. **Prerequisites:** POLS 206 and POLS 207 or approval of department head.

POLS 317 Women in Politics

Credits 3. 3 Lecture Hours. Role of women in the political system; treatment of women in political theory; effect of law on women's status; women as political leaders; current policy issues of concern to women. **Prerequisite:** POLS 206.

POLS 318 Theories of International Relations

Credits 3. 3 Lecture Hours. Examination of major paradigms of international relations; focus on theory development and application to cases. **Prerequisites:** POLS 206, POLS 209, and junior or senior classification or approval of department head.

POLS 319 The American Presidency

Credits 3. 3 Lecture Hours. The American Presidency and the primary relationships and responsibilities of the office, dealing with the public, decision making, influencing Congress, and implementing policy. **Prerequisite:** POLS 206 or approval of department head.

POLS 320 Race and Politics in the United States

Credits 3. 3 Lecture Hours. The politics of race in the United States: contrast of the political experiences of racial groups with the ideals and realities of democratic political systems. **Prerequisites:** POLS 206 and POLS 207 and junior or senior classification.

POLS 322 Western European Government and Politics

Credits 3. 3 Lecture Hours. Political institutions and ideas of major European countries. Prospects for political integration. **Prerequisite:** POLS 206 or approval of department head.

POLS 323 Political Systems of Latin America

Credits 3. 3 Lecture Hours. Survey of the major features of the political process in Latin America; key political groups and sources and characteristics of their political power; studies of selected countries. **Prerequisite:** POLS 206 or approval of department head.

POLS 324 Politics of Global Inequality

Credits 3. 3 Lecture Hours. Examination of the causes and consequences of economic inequality between rich and poor states; evaluation of competing explanations for poverty of less-developed countries; development strategies employed by poor states; and structure of global economic relations. **Prerequisite:** Junior or senior classification.

POLS 325 African Politics

Credits 3. 3 Lecture Hours. Survey of African politics from pre-colonial period to contemporary era; examination of local experience of democracy, governance, economic development in light of varied colonial experiences, independence movements, international political economy, informal sources of political power. **Prerequisites:** POLS 206 and POLS 207; junior or senior classification.

POLS 326 Government and Politics of Eastern Europe

Credits 3. 3 Lecture Hours. Political, social and economic transformations in the post-Communist Eastern and Southern European countries; examination of the interrelations between political, economic and social issues that impact the building of new governments and institutions in these countries. **Prerequisites:** POLS 206 and POLS 207; junior or senior classification.

POLS 327 Congressional Politics

Credits 3. 3 Lecture Hours. Congressional elections, decision-making structure and processes in Congress, and their implications for representation and public policy in the United States. **Prerequisite:** POLS 206 or approval of department head.

POLS 328 Globalization and Democracy

Credits 3. 3 Lecture Hours. Examination of the political and economic origins of globalization; effects of globalization on advanced industrial democracies; effect on less developed nations; evaluation of the economic, social, cultural and political consequences of globalization. **Prerequisite:** Junior or senior classification.

POLS 333 International Cooperation

Credits 3. 3 Lecture Hours. Contemporary issues, problems, and solutions in international cooperation. **Prerequisites:** POLS 206; junior or senior classification or approval of department head.

POLS 335 International Conflict

Credits 3. 3 Lecture Hours. Examination of major theoretical explanations of war and conflict resolution. **Prerequisites:** POLS 206; junior or senior classification or approval of department head.

POLS 338 Government and Politics of the Former Soviet Union

Credits 3. 3 Lecture Hours. Major political issues of the post-communist transition in the former Soviet Union. **Prerequisite:** POLS 206 or approval of department head.

POLS 340/PSAA 340 Public Administration

Credits 3. 3 Lecture Hours. American public administration; development of public service; the political and constitutional context; organization theory; leadership and decision-making; personnel and resource staff functions; administrative law and regulation; ethics and administrative accountability. **Prerequisite:** Grade of C or better in POLS 206; junior or senior classification. **Cross Listing:** PSAA 340/POLS 340.

POLS 342 Politics and Bureaucracy

Credits 3. 3 Lecture Hours. Public bureaucracy in the context of a political environment; role of experts, the use of political power and problems of bureaucratic accountability and responsibility. **Prerequisite:** POLS 206 or approval of department head.

POLS 347 Politics of Energy and the Environment

Credits 3. 3 Lecture Hours. U.S. energy and environmental problems and politics and the political, legal, and institutional factors influencing their development and implementation. **Prerequisites:** POLS 206 or approval of department head; junior or senior classification or approval of instructor; also taught at Galveston campus.

POLS 349 Early Political Thought

Credits 3. 3 Lecture Hours. Political thought from Greek antiquity to Renaissance. **Prerequisite:** POLS 206 or approval of department head.

POLS 350 Modern Political Thought

Credits 3. 3 Lecture Hours. Political thought from Machiavelli to Marx. **Prerequisite:** POLS 206 or approval of department head.

POLS 352 Empirical Democratic Theory

Credits 3. 3 Lecture Hours. Examination of empirical political science theory about the nature and consequences of democratic government in the modern era; study of scientific theory that accounts for the rise, characteristics and behavior of democratic political systems. **Prerequisites:** POLS 206, POLS 207, and POLS 209; junior or senior classification.

POLS 353 Constitutional Rights and Liberties

Credits 3. 3 Lecture Hours. Legal issues, controversies and significant developments in constitutional rights and liberties, and the impact of these developments upon American politics, culture and social institutions. **Prerequisite:** POLS 206 or approval of department head; also taught at Galveston campus.

POLS 355 United States Constitutional Development

Credits 3. 3 Lecture Hours. Leading decisions of the Supreme Court. Trends in our constitutional development since 1789; expansion through judicial interpretation of powers delegated to national government. **Prerequisites:** POLS 206 and HIST 105 or approval of department head.

POLS 357 National Judicial Politics

Credits 3. 3 Lecture Hours. Political factors that influence judicial selection; decision making and policy-making roles and impact of the U.S. Supreme Court and Federal Court System. **Prerequisites:** POLS 206, POLS 209, and junior or senior classification or approval of department head.

POLS 358 Comparative Judicial Politics

Credits 3. 3 Lecture Hours. Survey of the major features of court systems of the world; examination of the role played by courts in the politics of selected nations of the world; comparison of judicial decision making in selected counties; the impact of courts in developing democracies. **Prerequisites:** POLS 206 and 207; junior or senior classification.

POLS 359 American Political Thought

Credits 3. 3 Lecture Hours. American political thought from colonial times to the present. **Prerequisite:** POLS 206 or approval of department head.

POLS 362 Latin American Political Thought

Credits 3. 3 Lecture Hours. Survey of various traditions in the history of Latin American political thought; key texts in the history of political theory in the Spanish-American continent. **Prerequisites:** POLS 206; junior or senior classification or approval of instructor.

POLS 364 Global Political Thought

Credits 3. 3 Lecture Hours. Global perspective on the history of political ideas and contemporary political philosophy; confrontation and conversion of East Asia and Middle Eastern concepts of political problems and Western perspectives; impact of culture on the shaping of political ideas. **Prerequisite:** Junior or senior classification.

POLS 365 Asian Governments and Politics

Credits 3. 3 Lecture Hours. Contemporary political systems of Asia, political institutions, actors and processes. **Prerequisite:** POLS 206 or approval of department head.

POLS 366 Political Conflicts of the Middle East

Credits 3. 3 Lecture Hours. The internal, regional and international politics of the Middle East; study of selected political conflicts; the influence of the region's cultures, religions, natural resources and outside political forces. **Prerequisites:** Grade of C or better in POLS 206; junior or senior classification or approval of instructor; Galveston campus.

POLS 367/WGST 367 Women in Government in Comparative Perspective

Credits 3. 3 Lecture Hours. Examination of women's representation in government based on comparison across multiple nation-states; focus on legislative and executive branches of democratic governments. **Prerequisites:** POLS 206; junior or senior classification or approval of department head. **Cross Listing:** WGST 367/POLS 367.

POLS 368 Latin American Legislatures

Credits 3. 3 Lecture Hours. Survey of the major features of the legislative branch in Latin America; examination of the role played by legislatures in the politics of selected countries; studies of executive-legislative relations in selected countries; participation by traditionally excluded groups in legislatures. **Prerequisites:** POLS 206, junior or senior classification or approval of department head.

POLS 369 Theories of Democracy

Credits 3. 3 Lecture Hours. Definitions and justifications of democratic political systems; criticisms of democratic legitimacy, difficulties encountered by actual democratic regimes; methodological problems of assessing the fulfillment of democratic goals. **Prerequisite:** POLS 206 or approval of instructor.

POLS 375 Campaigns and Elections

Credits 3. 3 Lecture Hours. Theories of voter choice; effects of mass media and campaign finance regulations on the conduct and outcome of elections; effects of elections on policy; emphasis on U.S. national elections. **Prerequisite:** POLS 206 or approval of department head.

POLS 412 International Political Economy

Credits 3. 3 Lecture Hours. Politics of international economic relations; interactions between political and economic realms in the contemporary world. **Prerequisites:** POLS 206; junior or senior classification or approval of department head.

POLS 413 American Foreign Policy

Credits 3. 3 Lecture Hours. Evolution of U.S. foreign policies since World War II. Policy process; role of executive, legislative, bureaucratic and private institutions; current foreign policy issues and problems. **Prerequisite:** POLS 206 or approval of department head.

POLS 415 Contemporary Issues in American Foreign Policy

Credits 3. 3 Lecture Hours. Detailed analysis of a selected aspect of American foreign policy. **Prerequisite:** POLS 206 or approval of department head.

POLS 420 Nuclear Politics

Credits 3. 3 Lecture Hours. Examination of nuclear weapons in world politics, including nuclear nonproliferation, deterrence and strategic stability, arms control and disarmament, decision-making in nuclear crises and contemporary nonproliferation challenges. **Prerequisite:** POLS 206; POLS 209 and junior or senior classification or approval of department head.

POLS 423 U.S.-Latin American Relations

Credits 3. 3 Lecture Hours. Political, economic and social relations between the United States and Latin American nations from independence to the present. **Prerequisites:** POLS 206, POLS 207 and POLS 323; junior or senior classification.

POLS 424 Comparative Governmental Institutions

Credits 3. 3 Lecture Hours. Study of the politics and structure of governmental institutions in a comparative venue; examination of the building blocks by which patterns of governments and institutions can be identified across various political systems of the world; role of institutions across different types of political systems and how they are affected by global economic factors. **Prerequisites:** POLS 206 and POLS 207; junior or senior classification.

POLS 429 Issues in World Politics

Credits 3. 3 Lecture Hours. Selected issues of importance in contemporary world politics. May be taken two times for credit as content varies. **Prerequisite:** POLS 206 or approval of department head.

POLS 432 The Politics of European Union

Credits 3. 3 Lecture Hours. Examination of the institutional, economic and political forces that led to the development of the European Economic Union; impact of the European Union on world affairs. **Prerequisites:** POLS 206 and POLS 207; junior or senior classification.

POLS 435 Voting Behavior

Credits 3. 3 Lecture Hours. Voting decisions, electoral behavior and consequences for the political system. **Prerequisite:** POLS 206 or approval of department head.

POLS 439 Foreign Policy Decision Making

Credits 3. 3 Lecture Hours. Examination of decision processes in contemporary world politics; individual, group and organizational aspects of decision making in the context of world events. **Prerequisites:** POLS 206, POLS 209, and junior or senior classification or approval of department head.

POLS 447 National Security Policy

Credits 3. 3 Lecture Hours. Need for national security policy, the factors involved in determining defense policy and the resulting problems; special attention to the United States. **Prerequisite:** POLS 206 or approval of department head.

POLS 454 Contemporary Political Ideas

Credits 3. 3 Lecture Hours. Contemporary political ideas such as liberalism, socialism, communism and fascism; role of ideology in political change. **Prerequisite:** POLS 206 or approval of department head.

POLS 455 Traditions of Political Theory

Credits 3. 3 Lecture Hours. Survey of particular schools or historical periods of normative political theory. May be taken three times. **Prerequisites:** POLS 206 and POLS 207; junior or senior classification.

POLS 461 Jurisprudence

Credits 3. 3 Lecture Hours. History of legal philosophy from the ancient Greeks to the present; exploration of recurring themes such as natural law, legal positivism, legal realism, sociological jurisprudence and Marxist jurisprudence; exposure to various issues, such as liberty, privacy, obedience, responsibility and punishment. **Prerequisite:** POLS 206 or approval of department head.

POLS 462/WGST 462 Women and the Law

Credits 3. 3 Lecture Hours. The legal status of American women from the adoption of the Constitution to the present: constitutional developments; the 19th Amendment and the proposed Equal Rights Amendment; employment; family law; reproductive rights; education; sexual equality in context of other claims to equality; law and social norms. **Prerequisite:** POLS 206 or approval of department head. **Cross Listing:** WGST 462/ POLS 462.

POLS 475 Government and the Economy

Credits 3. 3 Lecture Hours. Constitutional and legal framework of governmental involvement in economy; governmental budget in management of business cycle; regulation of business activities; governmental economic planning in democratic societies. **Prerequisite:** POLS 206 or approval of department head.

POLS 481 Research Seminar

Credits 3. 3 Other Hours. In-depth study of topics associated with particular sub-field of political science; experience designing and implementing major, original research project. **Prerequisites:** POLS 206, POLS 207, POLS 209, 9 credits in POLS at or above 300 level; junior or senior political science major or approval of instructor.

POLS 484 Internship

Credits 0 to 3. 0 to 3 Other Hours. Directed internship in a public organization to provide students with on-the-job training and applied research experience with professionals in settings appropriate to the student's degree plan and career objectives. May be taken for credit up to three hours. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisite:** Majors only; approval of department head.

POLS 485 Directed Studies

Credits 0 to 6. 0 to 6 Other Hours. Individual instruction in selected aspects of political science not adequately covered by other courses. **Prerequisite:** Approval of department head; also taught at Qatar campus.

POLS 489 Special Topics in...

Credits 1 to 4. 1 to 4 Other Hours. Selected topics in an identified area of political science and public policy. May be repeated for credit. **Prerequisite:** POLS 206 or approval of department head.

POLS 491 Research

Credits 0 to 6. 0 to 6 Other Hours. Research conducted under the direction of a faculty member in political science. May be taken three times for credit. **Prerequisites:** Junior or senior classification and approval of instructor.

POLS 497 Independent Honors Studies

Credits 0 to 4. 1 to 4 Other Hours. Directed independent studies for upper division Honors students, regardless of academic major, in selected aspects of political science. **Prerequisites:** Junior or senior classification either as Honors student or with overall GPR of 3.25; letter of approval from head of student's major department.

PORT - Portuguese (PORT)

PORT 101 Beginning Portuguese I

Credits 4. 4 Lecture Hours. 1 Lab Hour. (PORT 1411) Beginning Portuguese I. Elementary language study with aural, oral, written, and reading practice; preparation for conversation; part of class preparation done in language laboratory. Students with prior knowledge of or instruction in Portuguese are required to take a placement test before enrolling for the first time in a college Portuguese course.

PORT 102 Beginning Portuguese II

Credits 4. 4 Lecture Hours. 1 Lab Hour. (PORT 1412) Beginning Portuguese II. Continuation of PORT 101; part of class preparation done in language laboratory. Students with prior knowledge of or instruction in Portuguese are required to take a placement test before enrolling for the first time in a college Portuguese course. **Prerequisite:** PORT 101 with a grade of C or better.

PORT 201 Intermediate Portuguese I

Credits 3. 3 Lecture Hours. (PORT 2311) Intermediate Portuguese I. Readings of average difficulty; review of grammar, practice in conversation and composition. Students with prior knowledge of or instruction in Portuguese are required to take a placement test before enrolling for the first time in a college Portuguese course. **Prerequisite:** PORT 102 with a grade of C or better.

PORT 202 Intermediate Portuguese II

Credits 3. 3 Lecture Hours. (PORT 2312) Intermediate Portuguese II. Continuation of PORT 201 with more advanced material. Students with prior knowledge of or instruction in Portuguese are required to take a placement test before enrolling for the first time in a college Portuguese course. **Prerequisite:** PORT 201 with a grade of C or better.

POSC - Poultry Science (POSC)

POSC 201 General Avian Science

Credits 3. 3 Lecture Hours. Introduction to the poultry industry to include past, present and future industry dynamics; avian anatomy/physiology as they impact commercial production; management principles and practices of breeding, incubation, brooding, nutrition, disease control and marketing technology.

POSC 285 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Directed studies in specific problem areas of poultry science. **Prerequisite:** Approval of instructor.

POSC 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of poultry science. May be repeated for credit. **Prerequisite:** Approval of instructor.

POSC 291 Research

Credits 1 to 2. 1 to 2 Other Hours. Research conducted under the direction of faculty member in poultry science. May be repeated 2 times for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor and department head.

POSC 302 Avian Science Laboratory

Credit 1. 2 Lab Hours. Field trips and application of basic skills in production of poultry meat and eggs. Recommended supplement to POSC 201. **Prerequisite:** Junior or senior classification or approval of instructor.

POSC 304 Judging

Credits 3. 6 Other Hours. Intensive, individualized training in selection standards for meat and egg strains of poultry, grading standards for egg and live and ready-to-cook poultry, and organizing and managing poultry shows; practice requires visits to processing plants. May be repeated for credit. **Prerequisite:** Junior or senior classification or approval of instructor.

POSC 308 Avian Anatomy and Physiology

Credits 3. 2 Lecture Hours. 3 Lab Hours. Anatomy and physiology of the major body systems of the bird, including the cardiovascular, gastrointestinal, respiratory, endocrine and reproductive systems; influence of the environment on bird physiology, including effects of stress. Laboratory exercises include dissection and microscopic analysis of the major body system and assessment of environmental conditions. **Prerequisites:** BIOL 111; POSC 201; junior or senior classification or approval of instructor.

POSC 309 Poultry Meat Production

Credits 4. 3 Lecture Hours. 2 Lab Hours. Modern integrated broiler and turkey production; housing and equipment, nutrition, flock health, pest control, grower relations, marketing and financial management; lab involves blood testing, growth trials, posting birds, processing, and observation of a local integrated poultry operation. **Prerequisite:** Junior or senior classification or approval of instructor.

POSC 313 Game Birds and Ornamental Fowl

Credits 3. 3 Lecture Hours. Commercial game bird production; nutrition, incubation, rearing, breeder care, diseases, marketing, housing requirements and economic considerations; management of rare and ornamental fowl. **Prerequisite:** Junior or senior classification or approval of instructor.

POSC 319 Breeder and Hatchery Management

Credits 3. 2 Lecture Hours. 2 Lab Hours. Housing and equipment, incubation technology, embryology, nutrition and flock health; lab involves hatchery management, blood testing, semen evaluation, artificial insemination, basic embryology and observation of a local hatchery. **Prerequisite:** Grade of C or better in POSC 308; junior or senior classification or approval of instructor.

POSC 326 Commercial Egg Industry

Credits 3. 3 Lecture Hours. Production, management, marketing, economics and integration of commercial laying hen operations. **Prerequisite:** Junior or senior classification or approval of instructor.

POSC 333 Instincts and Behavior

Credits 3. 3 Lecture Hours. Investigation of the reasoning behind evolved reproductive strategies with integration of veterinary and avian science perspectives; examination of individual differences in behavior and their development in particular environments. **Prerequisite:** Junior or senior classification or approval of instructor.

POSC 381 Investigation of Professional Development in Poultry Science

Credits 2. 2 Other Hours. An investigation of career options and the research process as applied to poultry science. **Prerequisite:** Junior or senior classification or approval of instructor.

POSC 405 Egg and Poultry Meat Processing

Credits 3. 3 Lecture Hours. Principles of egg and poultry meat processing, understanding egg and poultry meat markets, egg and meat grading, product safety, packaging and consumer acceptance of shell eggs and poultry meat, specifically turkey and broilers. **Prerequisite:** Junior or senior classification or approval of instructor.

POSC 406 Poultry Further Processing

Credits 4. 3 Lecture Hours. 2 Lab Hours. Science and practice of value-added products; physical, chemical, microbiological and functional characteristics of value-added poultry products as they affect consumer acceptance, efficiency of production and regulatory approval. **Prerequisites:** CHEM 222; DASC 326 or FSTC 326/ANSC 326; POSC 309; POSC 405; junior or senior classification or approval of instructor.

POSC 411 Poultry Nutrition

Credits 3. 3 Lecture Hours. Principles of poultry nutrition with emphasis on all major nutrient classes and their relationships with the avian digestive system. **Prerequisites:** CHEM 222 or equivalent; junior or senior classification or approval of instructor.

POSC 412 Poultry Feed Formulation

Credit 1. 1 Lecture Hour. Practical feeding of poultry with emphasis on specific nutrient requirements of various species and computer least cost diet formulations. **Prerequisites:** POSC 411; junior or senior classification or approval of instructor.

POSC 414 Avian Genetics and Breeding

Credits 3. 2 Lecture Hours. 2 Lab Hours. Basic concepts of avian genetics and breeding principles, inheritance of economically important qualitative and quantitative traits; statistical analysis of breeding results; application of molecular genetics, mating systems analyses, breeder management; and incubation of hatching eggs. **Prerequisites:** BIOL 111; junior or senior classification or approval of instructor.

POSC 427 Animal Waste Management

Credits 3. 3 Lecture Hours. An applied approach to current and emerging issues relating to responsible management of animal waste; the role of biological aspects of production management decisions evaluated in an examination of regulatory and environmental requirements; current case studies and exposure to field situations. Field trips may be required for which departmental fees may be assessed. **Prerequisite:** Junior or senior classification or approval of instructor.

POSC 429 Advanced Food Bacteriology

Credits 4. 3 Lecture Hours. 2 Lab Hours. Microbiology of foodborne human pathogens of food animals, raw and processed food, and human disease; methods to control incidence of pre- and post-harvest contamination. **Prerequisites:** ANSC 326/FSTC 326, FSTC 326/ANSC 326, BIOL 351 or VTPB 405; junior or senior classification.

POSC 444 International Poultry Production

Credits 3. 3 Lecture Hours. Two-week intensive and comparative on-site study of international poultry production; rearing and husbandry, housing and equipment, nutrition, flock health and processing. **Prerequisite:** Junior or senior classification.

POSC 454 Animal Welfare

Credits 3. 3 Lecture Hours. Issues from an animal's perspective; opportunities to study the general questions that typically affect the welfare of an animal; insight to practices that can be used to improve the welfare of an animal. **Prerequisite:** Junior or senior classification.

POSC 481 Poultry Science Systems

Credits 2. 1 Lecture Hour. 2 Lab Hours. Individual and team approaches for the collection, interpretation, synthesis and presentation of information on integration of all aspects of the poultry industry to address issues facing it; emphasis on oral and written communication. **Prerequisite:** Senior classification.

POSC 484 Internship

Credits 0 to 5. 0 to 5 Other Hours. A supervised internship in the poultry industry to provide practical experience in a real world setting that is consistent with the student's professional interests. **Prerequisites:** Junior or senior classification and approval of department head.

POSC 485 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Directed study of selected problems not covered by other courses in the department. Content of course will be adapted to interest and needs of students. **Prerequisites:** Junior or senior classification and approval of instructor.

POSC 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of poultry science. May be repeated for credit. **Prerequisites:** Junior or senior classification and approval of instructor.

POSC 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in poultry science. May be repeated 3 times for credit. Registration in multiple sections of this course are possible within a given semester provided that the per semester credit hour limit is not exceeded. **Prerequisites:** Junior or senior classification and approval of instructor and department head.

PVFA - Perf Vis Fine Arts (PVFA)

PVFA 101 First Year Experience

Credits 0. 0 Lecture Hours. Development of self-efficacy, self-awareness and a sense of purpose; active engagement in the learning environment inside and outside of the classroom; social integration within the university community. Must be taken on a satisfactory/unsatisfactory basis.

PVFA 111 Creating with Care

Credits 3. 3 Lecture Hours. Foundations of care and respect in art making and creative practices; strategies for fostering inclusive and equitable performance works and workspaces; safety and consent in staging intimacy and combat on stage and screen.

PVFA 201 Introduction to Artificial Intelligence in the Arts

Credits 3. 2 Lecture Hours. 2 Lab Hours. Investigation of how artificial intelligence (AI) can be integrated into the creative processes; understanding the basics of AI and how these technologies can enhance and transform their artistic practice; exploration of accessible AI tools, techniques, and methodologies across various artistic fields including visual arts, music, dance, theatre, and design; hands-on exercises and projects to learn how AI can collaborate with human creativity.

PVFA 240 Archiving and Documenting the Performing and Visual Arts

Credits 3. 3 Lecture Hours. Introduction to archiving and documenting artistic processes, performances, and materials; discussion of archival and preservation principles and practices; consideration of ethical, political, and social issues in archiving and documenting the arts; examination of examples of archives and repositories related to the performing and visual arts.

PVFA 289 Special Topics in...

Credits 1 to 4. 1 to 4 Other Hours. Selected topics in an identified area of performance, visualization and fine arts. May be repeated for credit. **Prerequisites:** Approval of instructor.

PVFA 291 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of a faculty member in performance, visualization and fine arts. May be taken two times for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

PVFA 300 School of Performance, Visualization & Fine Art Study Abroad

Credits 1 to 18. 1 to 18 Other Hours. School of Performance, Visualization & Fine Art Study Abroad. For students in approved study abroad programs participating in reciprocal educational exchange programs. May be repeated for credit. **Prerequisites:** Junior or senior classification; approval of assistant dean for international programs and initiatives.

PVFA 301 Artificial Intelligence, Ethics and Social Impact in the Arts

Credits 3. 3 Lecture Hours. Examination of the ethical challenges of Artificial Intelligence in creative fields, including on AI authorship, deepfakes, fairness in AI art, and the future of work; investigation of how AI reshapes creativity and its broader social impact. **Prerequisites:** PVFA 201; junior or senior classification or approval of instructor.

PVFA 310 Performance in Virtual and Augmented Realities

Credits 3. 1 Lecture Hour. 6 Lab Hours. Engage in virtual and augmented realities from the performer's perspective; understand and explore the dimensions of space, time, and energy within virtual installations; investigate and expand the limitations of technology to satisfy the needs of the performer; create performances based on the influence and limitations of technology. **Prerequisites:** Junior or senior classification or instructor approval.

PVFA 409 Artificial Intelligence in the Arts Capstone

Credits 3. 1 Lecture Hour. 5 Lab Hours. Culminating project that emphasizes an innovative and comprehensive solution for a complex problem in Artificial Intelligence (AI) and creative work; appropriate publication and exhibition venues; development of a detailed outline of the goal and completion schedule. **Prerequisites:** PVFA 201 and PVFA 301; junior or senior classification or instructor approval.

PVFA 483 Interdisciplinary Arts Practicum

Credits 1 to 3. 1 to 3 Other Hours. Faculty-supervised, project-based, collaborative art making experience with artist(s) in residence. May be taken four times for credit. **Prerequisites:** Junior or senior classification or approval of instructor.

PVFA 485 Directed Studies

Credits 1 to 6. 1 to 6 Other Hours. Directed studies in identified areas of performance, visualization and fine arts. May be repeated for credit. **Prerequisites:** Junior or senior classification; approval of assistant dean for international programs and initiatives.

PVFA 489 Special Topics in...

Credits 0 to 4. 0 to 4 Other Hours. Selected topics in an identified field of performance, visualization and fine arts. May be taken up to 9 credit hours. **Prerequisites:** Junior or senior classification; approval of assistant dean for international programs and initiatives.

PVFA 491 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of a faculty member in performance, visualization and fine arts. May be taken two times for credit. **Prerequisites:** Junior or senior classification; approval of assistant dean.

RDNG - Reading (RDNG)

RDNG 291 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of faculty member in reading. May be repeated two times for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

RDNG 351 Foundational Skills of Decoding for Elementary Students

Credits 3. 3 Lecture Hours. Foundational skills of decoding including print awareness, phonological and phonemic awareness, phonics and fluency. **Prerequisite:** Concurrent enrollment in RDNG 373.

RDNG 371 Multicultural and Interdisciplinary Literature for Middle Grades

Credits 3. 3 Lecture Hours. Focuses on multicultural and interdisciplinary literature appropriate for middle grades students; implements and evaluates effective multicultural, interdisciplinary instruction through selection, use and development of literature in middle grades classroom. **Prerequisite:** Junior classification.

RDNG 372 Reading and Writing across the Middle Grades Curriculum

Credits 3. 3 Lecture Hours. Foundational skills of both reading and writing for middle grades; includes theoretical models of reading and writing; instructing middle grade students in teaching evidence-based strategies for vocabulary development, comprehension of literary text, comprehension of informational text, writing informational and persuasive essays, science lab reports, historical perspectives, and constructed responses. **Prerequisite:** Junior or senior classification.

RDNG 373 Foundational Skills of Language Comprehension for Elementary Students

Credits 3. 3 Lecture Hours. Foundational skills of oral language development, vocabulary development, comprehension of literary text, comprehension of informational text, and beginning strategies and reading comprehension skills. **Prerequisite:** Concurrent enrollment in RDNG 351.

RDNG 460 Language and Reading

Credits 3. 3 Lecture Hours. Relationship between language and reading, dialect and reading, and linguistics.

RDNG 465 Reading in the Middle and Secondary Grades

Credits 3. 3 Lecture Hours. Reading needs of middle and secondary school students with emphasis upon curriculum organization for reading development and assessment of student progress in content area reading. **Prerequisites:** Junior or senior classification; SEED minor.

RDNG 467 Reading and the Language Arts

Credits 3. 2 Lecture Hours. 3 Lab Hours. Recent trends, issues and research on the impact of listening, oral language, process writing, grammar, spelling and handwriting on the development of reading strategies and communicative competence. Application of research in field settings. **Prerequisites:** RDNG 351 and RDNG 473; admission to teacher education; must be taken concurrently with TEFB 410, TEFB 412 and TEFB 413.

RDNG 468 Essential Foundations of Language and Literacy for All Learners

Credits 3. 3 Lecture Hours. Relationship among literacy, language, dialect and linguistics; role of the child, community and school through stages of literacy and second language learning; literacy instructional procedures for all learners including dyslexia. **Prerequisite:** EDUC majors.

RDNG 470 Reading/Language Arts Methods in Middle Grades Education

Credits 3. 2 Lecture Hours. 6 Other Hours. Investigate current trends and issues in teaching listening, oral language, process writing, spelling, grammar and handwriting; explores relationships among the development of various language arts and the development of reading strategies and communicational competencies of middle school learners; application of best instructional practices informed by research. **Prerequisite:** Senior classification; admission to teacher education; concurrent enrollment in MEFB 450, MEFB 452, and RDNG 490.

RDNG 472 Teaching Writing in Elementary and Middle Grade Classrooms

Credits 3. 3 Lecture Hours. Focuses on effective methods of writing instruction and assessment for the middle grades; reviews and reinforces sound writing practices; exposes students to theory and research in the area of writing instruction. **Prerequisite:** Junior or senior classification.

RDNG 473 Assessment in Reading Instruction

Credits 3. 3 Lecture Hours. Evaluation and use of commonly used achievement tests, development of criterion referenced tests and interpretation and construction of informal measures for assessing reading skills. **Prerequisites:** Grade of C or better in RDNG 351 and RDNG 373.

RDNG 490 Assessment in Reading Instruction in Middle Grades

Credits 3. 2 Lecture Hours. 6 Other Hours. Evaluation of middle grades students reading performance; selection, understanding, and implementation of formal and informal evaluation procedures in classroom reading assessment, diagnosis, and instruction. **Prerequisite:** Concurrent enrollment and grade of C or better in MEFB 452; concurrent enrollment and grade of C or better in MEFB 450 and RDNG 470, or MEFB 460 and MEFB 470; admission to teacher education; senior classification.

RDNG 491 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of faculty member in reading. May be repeated 2 times for credit. **Prerequisites:** Junior or senior classification and approval of instructor.

RELS - Religious Studies (RELS)

RELS 200 Religions of the World

Credits 3. 3 Lecture Hours. Introduction to academic study of religion and some of the world's major religions; emphasis on the nature of religion, diversity of practice across religious traditions, religious appropriation and functions of religion.

RELS 201/JWST 201 Introduction to Jewish Studies

Credits 3. 3 Lecture Hours. Exploration of Jewish history, culture, identity, and art throughout the millennia and in the modern world; focus on material in multiple media and approaches from a variety of disciplines.

Cross Listing: JWST 201/RELS 201.

RELS 202 Religion in America

Credits 3. 3 Lecture Hours. Survey of major themes in religion in America; examines how religion has influenced and been influenced by American history, culture, economics, politics and social consciousness.

RELS 209 Religions of the Ancient World

Credits 3. 3 Lecture Hours. Religious traditions, ideas and practices of ancient cultures; connections to modern religious traditions.

RELS 212/HIST 212 Holy War

Credits 3. 3 Lecture Hours. Concepts of holy war in Jewish, Christian and Muslim history; language and literature of holy war; motivations for waging holy war; the relationship between war, martyrdom, pilgrimage and sainthood; religious orders engaging in holy war; political aims of holy war; practices of holy war; perspectives of those attacked in holy wars. **Cross Listing:** HIST 212/RELS 212.

RELS 220 History of Christianity: Origins to the Reformation

Credits 3. 3 Lecture Hours. History of Christian doctrine, ecclesiastical organization, and religious practice, origins through Reformation, with emphasis on religion and society; life and teachings of Jesus; apostolic church; patristic period; Christianization of Roman Empire and northern Europe; monasticism; medieval church; Gregorian reform; heresy; papal monarchy; schism and conciliarism; reformations of the sixteenth century. **Cross Listing:** CLAS 220 and HIST 220.

RELS 221/HIST 221 History of Islam

Credits 3. 3 Lecture Hours. Key themes in Islam and Islamic history; Orientalism; pre-Islamic Arabia; the Qur'an; Sunni-Shi'i sectarian divisions; Islamic law; theology; sciences; mystical traditions; rituals of the Muslim faith; cross-cultural and religious encounters; holy war; ritual practices; fundamentalism; women in Islam; Islam in the West. **Cross Listing:** HIST 221/RELS 221.

RELS 222/HIST 222 History of Christianity, Reformation to Present

Credits 3. 3 Lecture Hours. History of Christian religion from the era of the Reformation (sixteenth century) to the present, with emphasis on social, cultural, political and economic history in relation to Christian structures and theological movements. **Cross Listing:** HIST 222/RELS 222.

RELS 251/CLAS 251 Classical Mythology

Credits 3. 3 Lecture Hours. Introduction to the most important myths of Greeks and Romans; ancient and modern methods of interpreting myths; the role of myths in ancient literature; readings in English. **Cross Listing:** CLAS 251/RELS 251.

RELS 257/COMM 257 Communication, Religion and the Arts

Credits 3. 3 Lecture Hours. Introduction to artistic, religious communication; survey of communication art and media art practices across religious contexts; consideration of communication aesthetics that mediate religious experience. **Cross Listing:** COMM 257/RELS 257.

RELS 285 Directed Studies

Credits 0 to 3. 0 to 3 Other Hours. Readings and/or assigned projects for specific needs of students minoring in religious studies; directed independent or individual study in an identified area of religious studies. **Prerequisite:** Approval of instructor.

RELS 289 Special Topics in...

Credits 1 to 4. 1 to 4 Other Hours. Selected topics in an identified area of religious studies. May be repeated for credit.

RELS 291 Research

Credits 0 to 3. 0 to 3 Other Hours. Research conducted under the direction of a faculty member in Liberal Arts. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

RELS 304/HUMA 304 Asian Religions

Credits 3. 3 Lecture Hours. Beliefs and practices of Hinduism, Jainism, Sikhism, Buddhism, Confucianism, Taoism and Shinto with particular attention to their philosophical presuppositions. **Cross Listing:** HUMA 304/RELS 304.

RELS 312 Contemplation in the Modern World

Credits 3. 3 Lecture Hours. Interdisciplinary approach to examining contemplative practices: origins in philosophy and religious traditions, goals and techniques of contemplation, contemplation in relation to cultural and social problems or needs.

RELS 317/ANTH 317 Introduction to Biblical Archaeology

Credits 3. 3 Lecture Hours. Application of archaeology in biblical research; basic overview of the material cultures that are the setting for the biblical narratives. **Cross Listing:** ANTH 317/RELS 317.

RELS 321 Political Islam and Jihad

Credits 3. 3 Lecture Hours. Interaction between Islamic movements and politics in various Middle Eastern countries; the meaning and evolution of jihad; the role of Islam as a tool for political and social mobilization. **Prerequisite:** Junior or senior classification, or approval of instructor. **Cross Listing:** HUMA 321 and INTA 321.

RELS 326/SOCI 326 Sociology of Religion

Credits 3. 3 Lecture Hours. Institution of religion and religious-related behavior; relationship between dynamic and structural religion and contemporary society. **Prerequisite:** SOCI 205. **Cross Listing:** SOCI 326/RELS 326.

RELS 331/PHIL 331 Philosophy of Religion

Credits 3. 3 Lecture Hours. Philosophical problems of western religion such as the existence of God, the problem of evil, types of theism, rational, empirical, and mystical approaches to God. **Cross Listing:** PHIL 331/RELS 331.

RELS 340/ANTH 340 Folklore and the Supernatural

Credits 3. 3 Lecture Hours. Traditional expressions of the supernatural such as superstition, belief tale and divination classified as folklore genres and their relationships to the cultures in which they develop; theories drawn from anthropology, folklore and related social sciences.

Prerequisite: Junior or senior classification or approval of instructor.

Cross Listing: ANTH 340/RELS 340.

RELS 347/HIST 347 Rise of Islam, 600-1258

Credits 3. 3 Lecture Hours. Late-Antiquity; Pre-Islamic Arabia; the rise of Islam and a historical survey of the development of the Islamicate civilizations from c. 600 to the Mongol Conquests c. 1258 with an emphasis on politics, religion, society and culture. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** HIST 347/RELS 347.

RELS 350 Religions, Utopias, and Happiness

Credits 3. 3 Lecture Hours. Thematic exploration of the science of happiness; exploration and critique of self-help culture; consideration of religious contributions to happiness; evaluation of individual and collective notions of happiness. **Prerequisites:** Junior or senior classification.

RELS 356 Ritual and Expression in Ancient Religions

Credits 3. 3 Lecture Hours. Expressive practices such as rituals, re-enactments, processions and dance in ancient religious traditions. **Prerequisites:** Junior or senior classification.

RELS 360/ENGL 365 The Bible as Literature

Credits 3. 3 Lecture Hours. Narrative, structural, and thematic study of the Hebrew and Christian Scriptures in English translation. **Prerequisite:** Junior or senior classification. **Cross Listing:** ENGL 365/RELS 360.

RELS 365/HIST 365 Religion in Early America

Credits 3. 3 Lecture Hours. Religion in North America from colonial beginnings to eve of Civil War; relations between European Christianity, Native Americans and African Americans; religious pluralism, reform movements, social and political change. **Prerequisite:** Junior or senior classification. **Cross Listing:** HIST 365/RELS 365.

RELS 366/HIST 366 Religion in Modern America

Credits 3. 3 Lecture Hours. Religion in America from the Civil War to contemporary period; relationship of religion and racial formation, capitalism, gender, sexuality, immigration; religious pluralism; evangelicalism; role of religious politics and social movements.

Prerequisite: Junior or senior classification. **Cross Listing:** HIST 366/RELS 366.

RELS 367 Christianity and American Identity

Credits 3. 3 Lecture Hours. Examination of interaction of religious ideas, especially Christian, with claims and conceptions of American identity and vice-versa; themes include American founding, civil religion and Americanization. **Prerequisites:** Junior or senior classification, or approval of instructor.

RELS 390 Researching Religion

Credits 3. 3 Lecture Hours. Methods and approaches to inquiries in the study of religion; historical and contemporary topics and issues in the study of religion; analysis of artifacts, documents and primary sources; current scholarship in the study of religion.

RELS 392/ENGL 392 Studies in Literature, Religion and Culture

Credits 3. 3 Lecture Hours. Exploration of literature treating significant religious topics in the context of cultural setting; features current faculty research on such topics as Tolkien and the making of myth, C.S. Lewis, texts and cultures of the Middle East and Victorian women writers and religion. May be repeated one time for credit. **Prerequisites:** 3 credits of literature at 200-level or above; junior or senior classification. **Cross Listing:** ENGL 392/RELS 392.

RELS 403/ANTH 403 Anthropology of Religion

Credits 3. 3 Lecture Hours. Cross-cultural, theoretical analysis of religion as a cultural phenomenon; exploring the relationships between religion, culture, society and the individual; also taught at Galveston campus. **Cross Listing:** ANTH 403/RELS 403.

RELS 418 Intellectual History from the Ancient Near East to the Early Middle Ages

Credits 3. 3 Lecture Hours. Political, social, cultural and religious histories of significant figures, groups, schools of thought and movements in western Afro-Eurasia from the Assyrian Empire to the later Roman Empire; developments in political theory, literature, sociology, arts, architecture, music, philosophy, law, sciences and education. **Prerequisite:** Junior or senior classification. **Cross Listing:** CLAS 418 and HIST 418.

RELS 419/HIST 419 Intellectual History, 500 to 1600

Credits 3. 3 Lecture Hours. Political, social, cultural and religious histories of significant figures, groups, schools of thought and movements in western Afro-Eurasia from the rise of Islam to the Renaissance; developments in political theory, literature, sociology, arts, architecture, music, philosophy, law, sciences and education. **Prerequisite:** Junior or senior classification. **Cross Listing:** HIST 419/RELS 419.

RELS 420 Nature, Sustainability and Religion

Credits 3. 3 Lecture Hours. Interaction between religion and the environment; examination of religious traditions and their concepts of the natural world; emphasis on cultural contexts and environmental sustainability. **Prerequisite:** Junior or senior classification.

RELS 425/HIST 425 The Sacred and Profane in History

Credits 3. 3 Lecture Hours. Case studies of the sacred in varied times and regions; holy persons; holy places; holy objects; language and literature of the sacred; competing concepts of the holy within society; gender and the holy; institutions promoting holy people and places; the impact of social, political, cultural and intellectual developments on the relationship between the sacred and the profane. **Prerequisites:** Junior or senior classification. **Cross Listing:** HIST 425/RELS 425.

RELS 430/AFST 430 African American Muslim Culture

Credits 3. 3 Lecture Hours. Exploration of popular culture and its impact on African American Muslims' intersectional identity formation and faith tradition through films, documentaries, readings, and lectures on and about Muslims emanating from enslaved narratives and the colonial period to the contemporary era. **Prerequisites:** Junior or senior classification, or approval of instructor. **Cross Listing:** AFST 430/RELS 430.

RELS 436/ANTH 436 Ancient Egypt I

Credits 3. 3 Lecture Hours. Archaeology and history of ancient Egypt from earliest times to the end of the New Kingdom period. **Prerequisites:** Junior or senior classification or approval of instructor. **Cross Listing:** ANTH 436/RELS 436.

RELS 438/ANTH 438 Ancient Egypt II

Credits 3. 3 Lecture Hours. Archaeology and history of ancient Egypt from the end of the New Kingdom to the end of the Graeco-Roman period. **Prerequisites:** Completion of ANTH 436/RELS 436 or RELS 436/ANTH 436 recommended but not required; junior or senior classification or approval of instructor. **Cross Listing:** ANTH 438/RELS 438.

RELS 464/PHIL 464 Modern Jewish Thought and Philosophy

Credits 3. 3 Lecture Hours. An overview of modern Jewish thought and philosophy spanning Jewish European thinkers from the 18th century to the 20th century. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** PHIL 464/RELS 464.

RELS 465/PHIL 465 Ethics After the Holocaust

Credits 3. 3 Lecture Hours. Analysis of the Holocaust as a challenge to previous ethical theories; ethical theories developed in response to the Holocaust. **Prerequisites:** Junior or senior classification, or approval of instructor. **Cross Listing:** PHIL 465/RELS 465.

RELS 471/HISP 471 Hispanic Religions

Credits 3. 3 Lecture Hours. Exploration of the history and practice of Hispanic religion, including spirit possession, evil eye, consumption of sacred substances, healing traditions, ex-votos, relics, prophecy, omens, monsters, astrology, witchcraft, the Inquisition, festivals, pilgrimage, mystics and religious contributions of diverse ethnic groups. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** HISP 471/RELS 471.

RELS 474/HISP 474 Diversity Lessons from Medieval Spain

Credits 3. 3 Lecture Hours. Crucible of cultures—Christian, Jewish, and Muslim—that was medieval Spain and modern implications of that experience in diversity. **Prerequisites:** ENGL 104 and junior or senior classification. **Cross Listing:** HISP 474/RELS 474.

RELS 480/COMM 480 Religious Communication

Credits 3. 3 Lecture Hours. The role of religious communication as manifested in speeches, sermons, debates, campaigns, and social movements throughout history. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** COMM 480/RELS 480.

RELS 481 Advanced Seminar in Religious Studies

Credits 3. 3 Lecture Hours. Intensive reading, study and discussion of topics in religious studies; interdisciplinary methods. May be taken four times for credit. **Prerequisites:** Junior or senior classification, or approval of instructor.

RELS 484 Internship

Credits 0 to 4. 0 to 4 Other Hours. Directed internship in a public or private organization to provide students with applied experience; opportunity to observe first hand issues and problems covered in religious studies courses; designed to enhance and clarify the student's career objectives. May be taken for credit up to six hours. **Prerequisites:** Approval of instructor.

RELS 485 Directed Studies

Credits 0 to 6. 0 to 6 Other Hours. Readings and/or assigned projects for specific needs of students minoring in religious studies; directed independent or individual study in an identified area of religious studies. **Prerequisite:** Junior or senior classification; approval of instructor.

RELS 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of religious studies. May be repeated for credit. **Prerequisite:** Junior or senior classification, or approval of instructor.

RELS 491 Research

Credits 0 to 3. 0 to 3 Other Hours. Research conducted under the direction of a faculty member in Liberal Arts. May be taken 3 times for credit. **Prerequisites:** Junior or senior classification and approval of instructor.

RPTS - Rec, Park & Tourism Sci (RPTS)

RPTS 209 Park and Tourism Operations

Credits 3. 2 Lecture Hours. 2 Lab Hours. Planning, execution and supervision of field maintenance and operations.

RPTS 304 Administration of Recreation Resource Agencies

Credits 3. 3 Lecture Hours. Contemporary issues and related administrative practices associated with the provision of recreation services and settings; addresses principles associated with recreation resource agency administration; personnel and customer-related administrative issues in recreation resource agencies; concepts and principles relevant to commercial and non-profit recreation resource agencies. **Prerequisites:** RPTS 201.

RPTS 321 Event Management and Operations II

Credits 3. 3 Lecture Hours. Advanced principles and applications of event management, including practical knowledge relating to contracting, media, fund raising, compliance and oversight, risk management, site logistics, sponsorships and vendor management. **Prerequisites:** HMGT 211 and HMGT 320.

RPTS 324 Event Management Final Assessment

Credits 0. 0 Other Hours. Demonstration of academic knowledge in management of events; document event coordination experience through completion of volunteer work and a website portfolio. **Prerequisites:** Enrollment in Professional Event Manager certificate; grade of C or better in HMGT 211 and HMGT 320; grade of C or better in RPTS 321 or concurrent enrollment.

RPTS 403 Financing and Marketing Recreation, Park and Tourism Resources

Credits 4. 3 Lecture Hours. 2 Lab Hours. Public sources of funding for facility development and of approaches to marketing recreation, park, and tourism services; applying knowledge to case study situations. **Prerequisites:** RPTS 304 or RPTS 423; senior classification.

RPTS 404/SOCI 404 Sociology of the Community

Credits 3. 3 Lecture Hours. Organization of American communities examining the bases of community, types of communities and the changes faced by communities. **Prerequisite:** SOCI 205; SOCI-404 also taught at Galveston campus. **Cross Listing:** SOCI 404/RPTS 404.

RPTS 460/ECCB 460 Nature, Values, and Protected Areas

Credits 3. 3 Lecture Hours. Writing-intensive discussion of the ways in which protected areas reflect human values about nature; identify stakeholders in and around protected areas, exploring how interests either conflict or coincide; evaluate social, economic, cultural, and ecological trade-offs of different approaches to conservation.

Prerequisite: Junior or senior classification or approval of instructor.

Cross Listing: ECCB 460/RPTS 460.

RUSS - Russian (RUSS)

RUSS 101 Beginning Russian I

Credits 4. 3 Lecture Hours. 2 Lab Hours. (RUSS 1411) Beginning Russian I. Elementary language study with oral, written and reading practice.

Attention given to background for conversation. Part of class preparation will be done in language laboratory.

RUSS 102 Beginning Russian II

Credits 4. 3 Lecture Hours. 2 Lab Hours. (RUSS 1412) Beginning Russian II. Continuation of RUSS 101. Part of class preparation will be done in language laboratory. **Prerequisite:** RUSS 101.

RUSS 201 Intermediate Russian I

Credits 3. 3 Lecture Hours. (RUSS 2311) Intermediate Russian I. Continuation and review of grammar, selected readings; material to develop conversational and reading ability. **Prerequisite:** RUSS 102.

RUSS 202 Intermediate Russian II

Credits 3. 3 Lecture Hours. (RUSS 2312) Intermediate Russian II. Continuation of RUSS 201. Readings taken from standard works. **Prerequisite:** RUSS 201.

RUSS 211 Russian Conversation

Credits 3. 3 Lecture Hours. Development of conversational skills in Russian; building of active vocabulary; exercises with emphasis on correct diction; oral presentations; skits; dialogues; discussion of current events; conducted in Russian. **Prerequisite:** RUSS 102 or equivalent.

RUSS 221 Field Studies I

Credits 3. 3 Lecture Hours. Russian language and culture, taught in the former Soviet Union; supervised travel of cultural interest; participation in courses and activities at a Russian university or institute; exams, written and oral reports. **Prerequisites:** RUSS 102 with a grade of B or higher; concurrent enrollment in RUSS 222.

RUSS 222 Field Studies II

Credits 3. 3 Lecture Hours. Russian language and literature taught in the former Soviet Union in cooperation with a Russian university or institute; exams, written and oral reports. **Prerequisites:** RUSS 102 with a grade of B or higher; concurrent enrollment in RUSS 221.

RUSS 245/FILM 245 Contemporary Russia in Its Own Films

Credits 3. 3 Lecture Hours. Exploration of contemporary Russian and late Soviet films; focus on present-day cultural conditions in the Russian Federation and in the diaspora; taught in English. **Cross Listing:** FILM 245/RUSS 245.

RUSS 285 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Individual supervision of readings or assigned projects in Russian, selected for each student individually.

Prerequisite: Approval of instructor and department head.

RUSS 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of Russian. May be repeated for credit. **Prerequisite:** Approval of instructor.

RUSS 301 Advanced Grammar and Composition I

Credits 3. 3 Lecture Hours. Review of grammar at an advanced level; readings of literary texts for analysis and emulation; development of oral and written skills; required for modern languages majors in Russian; conducted in Russian. **Prerequisite:** RUSS 202 or RUSS 222 or registration therein.

RUSS 302 Advanced Grammar and Composition II

Credits 3. 3 Lecture Hours. Continuation of RUSS 301; review of grammar at an advanced level; readings of literary texts for analysis and emulation; development of oral and written skills; required for modern languages majors in Russian; conducted in Russian. **Prerequisite:** RUSS 202 or RUSS 222 or concurrent enrollment.

RUSS 322 Masterpieces of Russian Literature

Credits 3. 3 Lecture Hours. Selected works of Russian literature, representative of its major authors and most important literary movements; literary analysis and evaluation of each work's cultural background; conducted in Russian. **Prerequisite:** RUSS 202 or RUSS 222 or registration therein. May be retaken with approval of department head.

RUSS 410 Seminar in Russian Studies

Credits 3. 3 Lecture Hours. Exploration of a significant topic, event, or period in Russian literature and culture; taught in English. May be repeated for credit. **Prerequisite:** RUSS 202 or RUSS 222; junior or senior classification, or approval of instructor.

RUSS 441/EURO 441 The Russian Novel I - Tolstoy and Dostoevsky

Credits 3. 3 Lecture Hours. Study of the major works of Tolstoy and Dostoevsky; discussion of the literary nature and purpose of novels, especially in the context of Russian culture; taught in English.

Prerequisites: RUSS 201 or concurrent enrollment; junior or senior classification, or approval of instructor. **Cross Listing:** EURO 441/ RUSS 441.

RUSS 442/EURO 442 The Russian Novel II - The Twentieth Century

Credits 3. 3 Lecture Hours. Study of major Russian novels from ca. 1900 to the end of Stalinism; exploration of topics relevant to Russia's experience in the 20th century; taught in English. **Prerequisites:** RUSS 201 or concurrent enrollment; junior or senior classification, or approval of instructor. **Cross Listing:** EURO 442/RUSS 442.

RUSS 443/EURO 443 Contemporary Russian Prose

Credits 3. 3 Lecture Hours. Study of Russian and Soviet 20th century prose literature, with emphasis on post-Stalinist and post-glasnost writers; taught in English. **Prerequisite:** Junior or senior classification, or approval of instructor. **Cross Listing:** EURO 443/RUSS 443.

RUSS 444/EURO 444 Russian Drama

Credits 3. 3 Lecture Hours. Introduction to the masterpieces of Russian drama from the 19th century to the present; includes such authors as Pushkin, Chekhov, Gorky, Arbuzov, Rozov and Petrushevskaya; taught in English. **Prerequisite:** Junior or senior classification, or approval of instructor. **Cross Listing:** EURO 444/RUSS 444.

RUSS 446/EURO 446 Russian Artistic Culture I - Beginnings to 1900

Credits 3. 3 Lecture Hours. Masterpieces of Russian art, including architecture, dance, theater, music, and literature, from its beginnings until ca. 1900; taught in English. **Prerequisites:** Junior or senior classification, or approval of instructor. **Cross Listing:** EURO 446/RUSS 446.

RUSS 447/EURO 447 Russian Artistic Culture II - 1890 to Present

Credits 3. 3 Lecture Hours. Masterpieces of Russian art, including architecture, dance, theater, music, film, and literature, from ca. 1890 to the present; taught in English. **Prerequisites:** Junior or senior classification, or approval of instructor. **Cross Listing:** EURO 447/RUSS 447.

RUSS 485 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Individual supervision of readings or assigned projects, selected for each student individually; written and oral reports. **Prerequisite:** Approval of instructor and department head.

RUSS 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of Russian language, literature and civilization. **Prerequisite:** Approval of instructor.

RUSS 491 Research

Credits 1 to 3. 1 to 3 Other Hours. Research conducted under the direction of faculty member in Russian. May be taken three times for credit. **Prerequisites:** Junior or senior classification and approval of department head.

RWFM - Rang Wild & Fish Mgmt (RWFM)

RWFM 101 Exploring Rangeland, Wildlife and Fisheries Management

Credit 1. 1 Lecture Hour. Exploration of knowledge, skills and abilities required for varied careers within rangeland, wildlife and fisheries management; development of a professional portfolio and résumé; exploration of career options through team approach; conduct one service project.

RWFM 103 Introduction to Outdoor Enterprise Management

Credits 3. 3 Lecture Hours. Overview of the interface between consumptive and non-consumptive use of fish and wildlife resources and conservation; addresses the array of issues in conservation and consumptive/non-consumptive use of fish and wildlife resources.

RWFM 202 Concepts in Applied Plant Biology

Credits 3. 2 Lecture Hours. 2 Lab Hours. Overview of diversity in form and function present in the plant kingdom with linkage to the human condition; emphasis on the full spectrum of plant groups ranging from the lower plants to the highly advanced seed plants; selected families and genera considered in detail regarding important ecological and anthropogenic values; exploration of the structural, reproductive and ecological attributes from the cellular level to the whole organism; basic concepts of botanical classification and nomenclature.

RWFM 291 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of faculty member in wildlife and fisheries sciences. May be repeated 3 times for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

RWFM 301 Wildland Watershed Management

Credits 3. 2 Lecture Hours. 2 Lab Hours. Elements of watershed management including range, forest and other natural resources and principles and practices of wildland management for protection, maintenance and improvement of water resource values. **Prerequisite:** Junior or senior classification or approval of instructor.

RWFM 302 Wildland Plants of North America

Credits 3. 2 Lecture Hours. 2 Lab Hours. Familiarization with the distribution and economic value of important wildland plants including range, forest and other natural resources in Texas and North America and fundamentals of sight identification of these plants; plant collection required. **Prerequisite:** Junior or senior classification or approval of instructor.

RWFM 305 Principles and Practices of Wildlife and Fisheries Management

Credits 3. 3 Lecture Hours. A broad survey of the diverse fields of wildlife, fisheries, and aquaculture management; exploration of professions for students interested in pursuing related careers; overview of the history and philosophical underpinnings of modern wildlife and fisheries management; emphasis on key subfields of each field that are translatable into post-graduate careers.

RWFM 306 Wildlife and the Changing Environment

Credits 3. 3 Lecture Hours. Using an ecosystem approach, analyzes changes in the North American environment; effects of these changes on wildlife populations; and reviews areas of major, current concern. **Prerequisites:** Junior or senior classification; restricted to non-majors.

RWFM 308 Fish and Wildlife Laws and Administration

Credits 3. 3 Lecture Hours. Review and analysis of state and federal laws and international treaties and conventions affecting fish and wildlife; their application and administration; organizational structure of state, federal and international agencies; their objectives, policies and practices. **Prerequisites:** Grade of C or better in ECCB 205 or BIOL 357; junior classification or approval of instructor.

RWFM 309/VTBP 301 Wildlife Diseases

Credits 3. 3 Lecture Hours. Basic mechanisms of diseases as they occur in wildlife populations; interplay of habitat requirements, individual physiological requirements and disease producing mechanisms of varied wildlife species. **Prerequisite:** Junior classification or approval of department head. **Cross Listing:** VTPB 301/RWFM 309.

RWFM 313 Vegetation Sampling Methods and Designs in Ecosystems

Credits 3. 2 Lecture Hours. 2 Lab Hours. Basis for vegetation sampling in ecosystems including range, forest and other natural resources; methods for conducting sampling; selection of sampling unit appropriate for vegetation type; sampling statistics; mean comparisons; regression analysis; sampling design principles; development of sampling plan; presentation and interpretation of sampling data. **Prerequisites:** Any MATH course satisfying university core curriculum, junior or senior classification or approval of instructor.

RWFM 314 Principles of Rangeland Management Around the World

Credits 3. 3 Lecture Hours. Basic knowledge of world rangeland ecosystems, how these systems are managed in diverse cultural settings; principles of underlying ecological processes influenced by various land management practices; foster understanding of the values that people in different countries place on rangeland resources; use of these values to enhance geologically sustainable and socially acceptable rangeland management practices. **Prerequisite:** Junior or senior classification or approval of instructor.

RWFM 316 Range Ecology

Credits 3. 2 Lecture Hours. 2 Lab Hours. Organization and distribution of rangeland ecosystems of the world, with emphasis on North America; community dynamics and functions stressed including biotic history, succession, disturbance regimes, competitive interactions, herbivory, energy flow and nutrient cycling; conservation of rangeland resources. **Prerequisites:** ECCB 205, ECCB 215, RWFM 302, and RWFM 314, junior or senior classification or approval of instructor.

RWFM 317 Vegetation Management

Credits 3. 3 Lecture Hours. Familiarization with practices that cause changes in rangeland vegetation composition for multiple uses; understanding of criteria for range improvement practices; comparison of expected responses of livestock forage production, watershed parameters and wildlife to vegetation changes following range improvements; systems concept for planning, analysis and implementation of range improvement practices. **Prerequisites:** RWFM 314, junior or senior classification or approval of instructor.

RWFM 321 Communicating Natural Resources

Credits 3. 3 Lecture Hours. Principles of effectively communicating natural resource science to a diverse stakeholder group; development of critical skills for obtaining and retaining employment in the Rangeland, Wildlife, and Fisheries Management fields; experience in audience identification, mixed-media presentations and interpersonal communications skills unique to the culture of diverse natural resources stakeholders. **Prerequisite:** RWFM major.

RWFM 322 Community Development and Sustainability

Credits 3. 3 Lecture Hours. Analysis of the elements comprising a community, community assessment techniques and community development processes engaged by stakeholders and residents to improve living conditions; definitions and principles associated with community development. **Prerequisites:** Junior or senior classification, or approval of instructor.

RWFM 323 Parks and Protected Area Management

Credits 3. 3 Lecture Hours. Focus on key aspects of parks and protected area management; significance of parks and protected areas in society; visitor use; systems and techniques for management; agencies and organizations involved, and factors that influence parks and protected area management. **Prerequisites:** Junior or senior classification, or approval of instructor.

RWFM 325 Watershed Analysis and Planning

Credits 3. 3 Lecture Hours. Provide an integrated framework for watershed planning that addresses the related biophysical, social and economic issues; comprehensive in scope and approach giving students the tools and techniques for developing sound watershed management policy and practice; water issues, problems and regulations for Texas. **Prerequisites:** Junior or senior classification, or approval of instructor.

RWFM 330 Conservation Principles and the Role of Hunting

Credits 3. 2 Lecture Hours. 2 Lab Hours. Integration of past conservation actions and icons with modern day policies; exploration of conservation funding mechanisms; instruction in hands-on learning related to firearm safety, components; hunter education certification; field exercises on departmental facilities and field trip to state conservation agency. **Prerequisites:** Junior or senior classification, or approval of instructor.

RWFM 333 Rangeland, Wildlife & Fisheries Field Techniques

Credits 3. 3 Other Hours. Rangeland, Wildlife & Fisheries Field Techniques. Techniques of natural resource principles in rangeland, wildlife and fisheries management within a field practicum setting; analyze and assess management scenarios through critical thinking exercises, field measurements, conservation planning, and integration of social, legal and regulatory, and economic factors and constraints.

RWFM 336 Research Methods in the Human Dimensions of Natural Resources

Credits 3. 3 Lecture Hours. Fundamentals of conducting research in the human dimensions of natural resources (HDNR); explanation of the scientific method; emphasis on identifying problems, sampling, data collection, questionnaire design, data analysis and interpretation, ethics, reporting and applications. **Prerequisites:** Junior or senior classification; or approval of instructor.

RWFM 344 Principles of Nature-Based Enterprises

Credits 3. 3 Lecture Hours. 0 Lab Hours. 0 Other Hours. Study of market opportunities for nature-based enterprises; principles for developing nature-based enterprises; examination of diverse forms of nature-based enterprises. **Prerequisites:** Junior or senior classification or approval of instructor.

RWFM 345 Human Dimensions of Natural Resource Management and Policy

Credits 3. 3 Lecture Hours. Social science principles that can help identify and address problems in natural resource and environmental management with two goals; exploration of concepts that help explain why people affect the environment as they do; introduction to methods for influencing and understanding human behavior that can be used to promote community and environmental sustainability. **Prerequisite:** Junior or senior classification.

RWFM 346 Park Ecology and Management

Credits 3. 1 Lecture Hour. 4 Lab Hours. Classroom and hands-on exposure to outdoor recreation resources management in a major national park facing complex challenges; interactive problem-solving to understand natural resources, management strategies and issues related to a park's broader region; includes one intensive week in Smoky Mountains National Park. May be taken two times for credit. **Prerequisites:** Junior or senior classification; or approval of instructor.

RWFM 349 Rangeland and Wildlife Animal Nutrition

Credits 3. 3 Lecture Hours. Connection of the life history of wild and domestic animals with the quality of their habitat by examining the transfer of energy and nutrients from foods to body tissues and activities for survival, growth and reproduction; exploration of the use of nutrition for management and conservation of rangelands and wildlands. **Prerequisite:** BIOL 357, or ECCB 205 and BIOL 112, or ECCB 205 and ANSC 107; ANSC 108; junior or senior classification.

RWFM 350 Wildlife and Fisheries Population Dynamics

Credits 3. 2 Lecture Hours. 3 Lab Hours. Development of a background in population dynamics of wildlife and fisheries species, and basic estimation of those parameters; theoretical components, how populations are measured, underlying heuristic theories of population dynamics, and methods for assessing wildlife and fisheries population dynamics and estimating population sizes. **Prerequisites:** STAT 302 or MATH 140, or approval of instructor.

RWFM 351 Geographic Information Systems for Resource Management

Credits 3. 2 Lecture Hours. 2 Lab Hours. Geographic Information Systems (GIS) approach to solving spatial problems and managing natural resources, including the acquisition, management, manipulation, analysis, and mapping of spatial and non-spatial databases; identification of natural and relevant features from various data sources; integration of relevant technologies and data; extensive use of GIS software to solve real-world problems. Only one of the following will satisfy the requirements for a degree: AGSM 461, ECCB 351, ECCB 651, BAEN 651, or RENR 651. **Prerequisites:** Junior or senior classification or approval of instructor. **Cross Listing:** AGSM 461 and ECCB 351.

RWFM 354 Wildlife Anatomy and Physiology

Credits 3. 2 Lecture Hours. 3 Lab Hours. Fundamental knowledge of the anatomy and physiology of wild animals; comparative form and function of all major vertebrate systems; familiarity with anatomical or physiological characteristics of various groups limit or allow their exploitation of different habitat types; examination and recognition of interactions between animals and their environment. **Prerequisite:** RWFM majors; BIOL 111 and BIOL 112.

RWFM 370 Aquatic Vegetation Identification and Management

Credits 3. 3 Lecture Hours. Identification and management of common and problematic aquatic vegetation species; aquatic plant ecology and management of aquatic vegetation as aquatic animal habitat; management methods include physical, chemical and biological methods as well as propagation and introduction and restoration. **Prerequisites:** Junior or senior classification, or approval of instructor.

RWFM 371 Fisheries and Small Impoundment Management

Credits 3. 3 Lecture Hours. Practices and principles with a focus on the variations in regional management techniques in North America, from north to south; history of fisheries and pond management, the pond environment, stocking strategies for recreational small impoundments, fisheries management in small bodies of water, water quality management, problem troubleshooting in small impoundments and management opportunities. **Prerequisites:** Junior or senior classification, or approval of instructor.

RWFM 375 Conservation of Natural Resources

Credits 3. 3 Lecture Hours. Principles and philosophies associated with the development, management and use of natural resources; ecological and social implications inherent in management alternatives involving the natural environment and use of renewable natural resources.

RWFM 400/ECCB 452 Study Abroad in Natural Resources

Credits 2 to 12. 2 to 12 Lecture Hours. Focus on an individual student effort assessing the ecological and human dimensions of biodiversity conservation and nature tourism; exposure to the ecological aspects of managing natural resources, especially wildlife populations and their habitat, as well as the economic, social, and cultural factors affecting biodiversity conservation and nature tourism in a developing country. May be taken two times for credit. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** ECCB 452/ RWFM 400.

RWFM 401 Rangeland Plant and Herbivory Dynamics

Credits 3. 3 Lecture Hours. Evaluation of the effects of herbivory at the plant population and community levels; developmental plant morphology and plant resistance to grazing; foraging strategies of herbivores relating to landscape and plant attributes along with animal nutritional needs; manipulation of the grazing process to meet management objectives; focus on resilience, adaptive management and alternative goods and services along with grazing topics. **Prerequisite:** RWFM 314.

RWFM 402 Wildlife Tracks and Signs

Credits 3. 3 Lecture Hours. Designed for ecologists, naturalists, and other parties who wish to have a deeper understanding of the behavior of terrestrial animals in terms of the habitats they frequent, what and where they feed, den and bedding locations, and other activities; designed for wildlife professionals who work in the field conducting animal surveys, observations, and capturing/handling wildlife or who are otherwise involved in teaching field skills. **Prerequisites:** Junior or senior classification; or approval of instructor.

RWFM 404 Aquatic Ecosystems

Credits 3. 3 Lecture Hours. Inland and coastal zone aquatic ecosystems, lower foodweb structure, functioning and influence on living resources; lakes, rivers, estuaries, open bay systems, factors impacting ecosystem health and fisheries; harmful algal blooms, reduced water inflows, eutrophication and hypoxia formation as they affect foodwebs, recruitment of commercially and recreationally important fisheries. **Prerequisite:** Junior or senior classification or approval of instructor.

RWFM 405 Urban Wildlife and Fisheries

Credits 3. 3 Lecture Hours. Urban wildlife and fisheries trains students to establish and maintain diverse, self-sustaining urban wildlife and fish populations at levels in harmony with ecological, social, and economic values of the human community and to develop optimal levels of public appreciation and use of urban wildlife and fish resources and associated habitats. **Prerequisites:** ECCB 205; junior or senior classification.

RWFM 406 Wildlife Habitat Management

Credits 3. 3 Lecture Hours. Designed to acquaint the student with major land use practices on lands that produce wildlife, how these influence wildlife production and alterations or manipulations of habitat used to achieve specific wildlife management goals. **Prerequisites:** Junior or senior classification, or approval of instructor.

RWFM 408 Techniques of Wildlife Management

Credits 3. 2 Lecture Hours. 3 Lab Hours. Techniques available to directly and indirectly manipulate wild animal populations to achieve balance between socioeconomic and aesthetic values. **Prerequisites:** Senior classification or approval of instructor.

RWFM 409 NATURE in the Classroom

Credits 3. 3 Lecture Hours. Integration of natural resources through conservation ecology programs, utilization of research techniques adaptable for classroom use; field trips to community facilities, gaming strategies and computer simulations. **Prerequisites:** Junior or senior classification or approval of instructor.

RWFM 410 Principles of Fisheries Techniques and Management

Credits 4. 3 Lecture Hours. 3 Lab Hours. Basic knowledge from ichthyology, biology of fishes and limnology related to applied aspects of freshwater and marine fishery science; management techniques applicable to streams, ponds, reservoirs, estuaries and the oceans. **Prerequisites:** BIOL 357, or grade of C or better in ECCB 311, ECCB 403, or RWFM 404, or approval of instructor.

RWFM 411 Ecosystem Management

Credits 4. 3 Lecture Hours. 3 Lab Hours. Concepts and practices relevant to the development of landscape/regional level ecosystem management plans including range, forest and other natural resources; an ecosystem management plan will be developed utilizing a strategic management/ coordinated resources approach to establish resource goals, ecosystem resource analysis and impact evaluation and implementation compatible with societal and individual concerns. **Prerequisites:** ECCB 205, senior classification or approval of instructor.

RWFM 415 Range Analysis and Management Planning

Credits 4. 3 Lecture Hours. 2 Lab Hours. Basic concepts and theories of range management systems. Resource inventory, analysis and management planning. **Prerequisites:** AGECE 105 or ECON 202, RWFM 314, RWFM 317; junior or senior classification or approval of instructor.

RWFM 419 Wildlife Restoration

Credits 3. 2 Lecture Hours. 3 Lab Hours. Study of the fundamentals of the restoration of animal populations and the resources they require; factors that control the distribution and abundances of animals in relation to restoration; and how restoration plans for wildlife are developed. **Prerequisite:** ECCB 205 or equivalent; junior or senior classification or approval of instructor; RWFM 406 and RWFM 407 and ECCB 320 preferred.

RWFM 420 Ecology and Society

Credits 3. 3 Lecture Hours. Study and compare human and natural ecosystems using diversity, interrelations, cycles, and energy as the conceptual organization; central themes are sustainability, stewardship and science. **Prerequisite:** Junior or senior classification.

RWFM 421 Game Bird Management

Credits 3. 2 Lecture Hours. 3 Lab Hours. Basic morphological, physiological and nutritional characteristics important to upland bird management, both game and non-game; history of upland bird habitat and management in the U.S., as well as current status of various groups of species; emphasis on population and habitat management techniques relevant to specific species; application of management principles to current, real-world management problems. **Prerequisites:** RWFM majors; ECCB 402 and RWFM 350, or approval of instructor.

RWFM 422 Large Mammal Management

Credits 3. 2 Lecture Hours. 3 Lab Hours. Management of various herbivorous large mammals, both game and non-game; development of knowledge on how to implement habitat and population management techniques to achieve management goals; history of modern wildlife management as it relates to the restoration and harvest of various species as game that once were imperiled; utilization of natural history information in the selection of the most the beneficial management techniques, and a survey of the techniques currently used in large mammal population management. **Prerequisite:** RWFM majors; ECCB 401 and RWFM 350.

RWFM 424 Wildlife Damage Management

Credits 3. 2 Lecture Hours. 3 Lab Hours. Exploration of the principles, philosophy, techniques, and application of wildlife damage management to solve negativistic human-wildlife interactions; exposure to animal capture, handling and sampling as well as human dimensions of wildlife damage management; hands-on project throughout the semester in real-world wildlife damage management situations; focus on preparation to pursue employment as a wildlife damage manager with public or private employers. **Prerequisite:** RWFM majors; ECCB 401 and RWFM 350.

RWFM 425 Carnivore Management

Credits 3. 2 Lecture Hours. 3 Lab Hours. Principles and practices of carnivore management; biology, ecology and management of various carnivorous wildlife species; application of the principles of trophic levels, carrying capacity and wildlife restoration to inform management plans; emphasis on current carnivore management scenarios that encompass both the biology and human-dimensions of carnivores; real-life examples to contextualize course learning. **Prerequisite:** RWFM majors; ECCB 401 and RWFM 350.

RWFM 436 Natural Resources Policy

Credits 3. 3 Lecture Hours. Natural resources and forest policy development in the United States and review of current issues in forest and related natural resource policy. **Prerequisite:** Junior or senior classification or approval of instructor.

RWFM 440 Wetland Delineation

Credits 3. 2 Lecture Hours. 2 Lab Hours. Application of the 1987 Wetland Delineation Manual in use by the Army Corps of Engineers (CORPS); field indicators of hydrophytic vegetation; hydric soils, wetland hydrology, methods for making jurisdictional determinations in non-disturbed and disturbed areas, recognition of problem wetlands and technical guidelines for wetlands. **Prerequisite:** Junior or senior classification.

RWFM 443 Aquaculture Production and Hatchery Management

Credits 3. 2 Lecture Hours. 2 Lab Hours. Scientific perspectives concerning major principles associated with fish production under controlled conditions; production techniques associated with prominent species produced via aquaculture throughout the world with emphasis on those cultured in the United States. **Prerequisite:** Junior or senior classification.

RWFM 444 Aquaculture Hatchery Management

Credits 3. 3 Lecture Hours. Study of finfish and shellfish hatchery requirements and operations, broodstock management, reproduction and hatchery techniques and application of those techniques in the field; management of hatchery systems for the production of seed stock. **Prerequisite:** Junior or senior classification or approval of instructor.

RWFM 445 Fish Health and Diseases

Credits 3. 3 Lecture Hours. Health disorders and diseases of finfish and shellfish including water quality issues and management, environmental endocrine disruptors, biosecurity and practical techniques used to isolate, identify and manage or mitigate diseases. **Prerequisite:** Junior or senior classification.

RWFM 446 Fish Physiology

Credits 3. 3 Lecture Hours. Physiology of fish focusing on the diverse range of functional adaptations that fish use to cope with various environmental and physiological states; bioenergetics, respiration, cardiovascular system, blood chemistry and function, muscle function and locomotion, gas exchange, buoyancy regulation, nitrogen metabolism and excretion, thermoregulation, reproduction, growth, osmoregulation, and immunity. **Prerequisite:** Junior or senior classification; ECCB 311.

RWFM 447 Aquatic Animal Nutrition, Diet Formulation and Feeding

Credits 3. 2 Lecture Hours. 2 Lab Hours. Review of scientific perspectives on major aspects of nutrition, diet formulation and feeding of aquatic species in aquaculture; major disease-causing organisms encountered in aquaculture and means of disease prevention and control. **Prerequisite:** Junior or senior classification.

RWFM 461 Community-Based Conservation

Credits 3. 3 Lecture Hours. Study of community-based conservation (CBC); definition, description, and analysis of the history, principles, critical actors, benefits, factors leading to successful initiatives, challenges in implementation and different models of community-based conservation. **Prerequisite:** Junior or senior classification.

RWFM 465 Managing Outdoor Enterprises

Credits 3. 3 Lecture Hours. Integration and synthesis of the skills learned throughout the outdoor enterprise management curriculum as well as presentations from industry representatives and content experts; application of various material from previous courses to managing a diverse array of outdoor enterprises. **Prerequisites:** Grade of C or better in RWFM 103; and junior or senior classification.

RWFM 470 Environmental Impact Assessment

Credits 3. 3 Lecture Hours. Evolution of natural resources regulatory policies and how this influences current procedures for environmental/natural resources assessment and management; demonstration of the environmental impact assessment procedures and policy issues associated with environmental impacts. **Prerequisite:** Junior or senior classification, or approval of instructor.

RWFM 480 Plant Identification and Undergraduate Range Management Exam

Credits 0 to 3. 0 to 3 Other Hours. Knowledge of plants morphology, identification and distribution for the profession of range management; knowledge of range management across the world; weekly tests to train on plant and range management knowledge. May be repeated for credit. **Prerequisites:** Junior or senior classification or approval of instructor.

RWFM 481 Senior Seminar

Credit 1. 1 Lecture Hour. Completion of professional e-portfolio, résumé and job application; exploration of job search, application, and interview; discipline competency exams; program evaluation. **Prerequisites:** Senior classification in ESSM or RWFM degree programs.

RWFM 484 Internship

Credits 0 to 9. 0 to 9 Other Hours. Practical experience working in a professional wildlife or fisheries facility. **Prerequisite:** Approval of department head.

RWFM 485 Directed Studies

Credits 1 to 3. 1 to 3 Other Hours. Individual study and research on selected problem approved by instructor and academic advisor. **Prerequisites:** Junior or senior classification; approval of department head.

RWFM 489 Special Topics in...

Credits 1 to 4. 1 to 4 Other Hours. Selected topics in an identified area of wildlife and fisheries sciences. May be repeated for credit. **Prerequisite:** Approval of department head.

RWFM 491 Research

Credits 0 to 6. 0 to 6 Other Hours. Laboratory and/or field research supervised by a faculty member in wildlife and fisheries sciences. Registration in multiple sections of this course are possible within a given semester provided the per semester credit hour limit is not exceeded. **Prerequisites:** Junior or senior classification; approval of instructor.

SCMT - Supply Chain Mgmt (SCMT)

SCMT 281 Supply Chain Management Professional Development

Credit 1. 1 Other Hour. Exposure to professional issues, contemporary supply chain and operations topics, potential supply chain career options, and supply chain management employers. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** Admission to Mays Business School; intended SCMT major.

SCMT 300 Business Communications I

Credit 1. 1 Lecture Hour. Proper techniques for writing major-specific business communications; progress report, memorandum, letter, executive summary; verbal communications via phone call and person-to-person communications; critiques of personal and peer writing. **Prerequisite:** Grade of C or better in SCMT 364; concurrent enrollment in SCMT 361; junior or senior classification; SCMT majors.

SCMT 305 Forecasting and the Statistical Foundation of Business Analytics

Credits 3. 3 Lecture Hours. Selected topics in forecasting and the statistical foundation of business analytics; practical applications to supply chain management and other business functions. **Prerequisites:** BUSN 203 or STAT 211.

SCMT 309 Supply Chain Management Principles

Credits 3. 3 Lecture Hours. Integrated management of the make, buy and delivery processes in firms; emphasis on issues specific to the procurement, manufacturing, and logistics disciplines; requirements for operating in a global marketplace; includes cultural, functional and strategic aspects of global business. **Prerequisite:** ISTM 209; junior classification; University Studies Business Concentration students only.

SCMT 334 Purchasing Practices

Credits 3. 3 Lecture Hours. Operational practices to run a purchasing department; understanding the types of specifications; identifying and quantifying costs to make versus buy; identifying, soliciting, qualifying domestic and international suppliers; selecting suppliers; estimating the total cost of ownership; devising compensation agreements; understanding the legal framework; and assuring ethical practices. **Prerequisite:** SCMT 364 with a grade of C or better; admission to upper division in Mays Business School.

SCMT 335 Sourcing and Procurement

Credits 3. 3 Lecture Hours. Processes to identify and manage suppliers for goods and services to support operations; including sourcing, contracting, negotiations, buying procedures, cost and price analysis, vendor relations, auditing and inspection, supplier relations, and applications to information technology systems. **Prerequisite:** SCMT 364 with a grade of C or better; SCMT 340 and SCMT 361; or approval of instructor.

SCMT 336 Data Analytics with Optimization

Credits 3. 3 Lecture Hours. Application of quantitative decision-making techniques to management decision problems; focus on model development, solution and implementation of results; optimization. **Prerequisites:** SCMT 364; junior or senior classification; also taught at Galveston campus.

SCMT 340 Managing Logistics and Supply Chain Operations

Credits 3. 3 Lecture Hours. Integration of activities and processes needed to compete in a highly competitive global environment; application of methods and tools that generate competitive advantage, develop inventory models, conduct transportation analysis, evaluate strategic network configurations, and develop cohesive, competitive advantage generating strategies. **Prerequisite:** Grade of C or better in SCMT 364.

SCMT 345 Business Process Design

Credits 3. 3 Lecture Hours. Design, implementation and improvement of the processes by which a firm sources, makes, and delivers products and services to meet customer requirements; includes six-sigma, process flow charting, computer simulation, and other techniques to document, analyze, design and improve business processes. **Prerequisite:** SCMT 364 with a grade of C or better; SCMT 340 and SCMT 361; or approval of instructor.

SCMT 361 Operations Planning and Control

Credits 3. 3 Lecture Hours. Planning and controlling the conversion of materials, labor, capital, and information into goods and services for both manufacturing and service organizations; emphasis on managerial and technical aspects of planning and controlling operating systems. **Prerequisites:** Grade of C or better in SCMT 364 or INFO 364 or approval of instructor.

SCMT 364 Operations Management

Credits 3. 3 Lecture Hours. Concepts, issues and techniques used to plan, analyze, and control systems of production; operational problems in producing goods and services. **Prerequisite:** BUSN 203 or concurrent enrollment and admission to upper division in Mays Business School, Agribusiness, or Maritime Business Administration; also taught at Galveston campus.

SCMT 375 Supply Chain Security

Credits 3. 3 Lecture Hours. Security of global supply chains; selection of appropriate technologies utilized in securing global supply chains; planning responses to disaster events in relation to the delivery and receipt of goods and services; designing draft security policies for an organization's supply chain. **Prerequisite:** SCMT 364.

SCMT 380 Lean Business Systems

Credits 3. 3 Lecture Hours. Analysis of real world business challenges using an operational framework to identify and solve problems; provides a route map to sustain results; exploration of lean strategies such as root cause analysis, batch to pull processes, value stream mapping, level loading, line balancing. **Prerequisite:** Admission to upper division in Mays Business School.

SCMT 390 Blockchain and AI Business Transformation

Credits 3. 3 Lecture Hours. Transforming processes and business models through the application of advanced technologies; blockchain and Artificial Intelligence (AI); focus on underlying technologies, business process design, business case development and consulting; final project presentation of a new process or model and a supporting business case. **Prerequisite:** SCMT 364 or FINC 341; admission to upper-division in Mays Business School.

SCMT 455/ISTM 455 Cybersecurity Management

Credits 3. 3 Lecture Hours. Explores business, managerial and technological aspects of information and cybersecurity; analysis, design, implementation and management issues surrounding effective information security; includes risk management, business continuity planning, and security policy development. **Prerequisite:** ISTM 310 or SCMT 375. **Cross Listing:** ISTM 455/SCMT 455.

SCMT 465 Information Technology for Supply Chain Management

Credits 3. 3 Lecture Hours. Overview of information technology applications for planning and controlling the design, manufacture and distribution of goods and services; managerial and technical aspects of information technology for product design, shop floor, factory, enterprise and supply chain management. **Prerequisite:** SCMT 340 with a grade of C or better; SCMT 361; or approval of instructor.

SCMT 468 Enterprise Resource Planning

Credits 3. 3 Lecture Hours. Application of advanced information technology for integrating business functions through distributed databases; applications for planning, scheduling, purchasing and costing to multiple layers of the organization. **Prerequisite:** SCMT 364.

SCMT 469 Transportation Management Systems

Credits 3. 3 Lecture Hours. The discipline of transportation management; exploration of the transportation function as related to the different modes, role of government, carrier management, transportation economics and current trends in the field. **Prerequisite:** SCMT 364 and admission to upper division in Mays Business School.

SCMT 481 Seminar

Credit 1. 1 Other Hour. Exposure to professional issues, contemporary supply chain and operations topics, potential supply chain career options, and supply chain management employers. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** Admission to upper division in Mays Business School; or approval of instructor.

SCMT 484 Supply Chain Management Internship

Credits 1 to 4. 1 to 4 Other Hours. A directed internship in an organization to provide students with a learning experience supervised by professionals in organizational settings appropriate to the student's professional objectives. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisite:** SCMT major and approval of academic advisor and instructor.

SCMT 485 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Directed study of selected problems in an area of supply chain management not covered in other courses. **Prerequisites:** Admission to upper division in Mays Business School and approval of academic advisor and instructor.

SCMT 489 Special Topics In...

Credits 1 to 4. 1 to 4 Other Hours. Selected topic in an identified field of supply chain management two times for credit. **Prerequisites:** Admission to upper division in Mays Business School and approval of academic advisor and instructor.

SCSC - Soil and Crop Sciences (SCSC)

SCSC 105 World Food and Fiber Crops

Credits 3. 2 Lecture Hours. 2 Lab Hours. (AGRI 1307, AGRI 1407) World Food and Fiber Crops. Plant relationships, structure and development; environmental factors affecting plants; technological aspects of agricultural practices; food production for an increasing population.

SCSC 201 American Agriculture

Credits 3. 3 Lecture Hours. American Indian farming; land settlement and Homestead Act; crops, and livestock; effects of wars; land grant universities; United States Department of Agriculture (USDA); great depression; dust bowl; farm equipment; irrigation; fertilization; pest controls; biotech and genetically modified organisms (GMOs); plant breeding; organic; precision farming; drones; cultural and social aspects of agriculture.

SCSC 205 Problem Solving in Plant and Soil Systems

Credits 3. 2 Lecture Hours. 2 Lab Hours. Problems in management of soils, crops, and natural resources; problem solving skills including collecting, interpreting, using and communicating scientific and nonscientific data.

SCSC 289 Special Topics In...

Credits 0 to 4. 0 to 4 Other Hours. Selected topics in an identified area of soil and crop sciences. May be repeated for credit.

SCSC 291 Research

Credits 1 to 3. 1 to 3 Lecture Hours. Research conducted under the direction of faculty member in agronomy. May be repeated 2 times for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

SCSC 301 Soil Science

Credits 4. 3 Lecture Hours. 2 Lab Hours. Evaluation of the nature and properties of soils; explanation of the various soils, their components and roles in the environment using the scientific methods and technology. **Prerequisite:** Junior or senior classification, or approval of instructor.

SCSC 302 Recreational Turf

Credits 3. 3 Lecture Hours. Principles underlying construction and maintenance practices for turf facilities including athletic fields, golf courses, parks and home lawns; aesthetic, safety and economic aspects of turf varieties, soil conditions, plant protectants and maintenance equipment. **Prerequisite:** Biology or approval of instructor.

SCSC 304 Plant Breeding and Genetics

Credits 3. 3 Lecture Hours. 0 Lab Hours. Genetic improvement of crops by hybridization and selection; special breeding methods and techniques applicable to naturally self-pollinated, cross-pollinated and asexually reproduced plants. **Prerequisite:** SCSC 105, SCSC 205, or HORT 201, or approval of instructor.

SCSC 305 Professional Development in Agronomy

Credit 1. 2 Lab Hours. Development of soft skills required for a successful career in soil and crop sciences; includes a field trip to agricultural enterprises in Texas prior to the start of the summer session to interact with leadership from global agricultural companies and Texas A&M AgriLife researchers; enhancement of effective learning skills, job seeking and retention, and setting and achieving both near-term and long-term professional goals. **Prerequisites:** Junior or senior classification or approval of instructor.

SCSC 307 Crop Biology and Physiology

Credits 4. 3 Lecture Hours. 2 Lab Hours. Emphasis on seed biology, germination, development of cells and tissues, anatomy, and growth and development of crop plants; plant hormones and tropisms, membranes and membrane transport, water absorption and transport through plants, photosynthesis, respiration and carbohydrate metabolism, and flowering; environmental effects on crop adaptation, growth, development, and productivity. **Prerequisites:** SCSC 205, junior or senior classification, or approval of instructor.

SCSC 309 Water in Soils and Plants

Credits 3. 3 Lecture Hours. 0 Lab Hours. Fundamentals of plant water use, and water movement and storage in soils; evapotranspiration, plant water requirements and irrigation scheduling; issues impacting irrigation and water quality; techniques for measuring soil and plant water relations. **Prerequisites:** SCSC 301; junior or senior classification; knowledge of college-level algebra; or approval of instructor.

SCSC 310 Soil Morphology and Interpretations

Credits 3. 2 Lecture Hours. 3 Lab Hours. Field study of morphological features of soil profiles and the morphological characterization of soils concerning interpretation for soil use and management. **Prerequisites:** Junior or senior classification or approval of instructor.

SCSC 311 Principles of Crop Production

Credits 3. 3 Lecture Hours. Origin and development of major U.S. agronomic crops; crop and species adaptation; crop management factors such as cultivar selection, planting, pest control, plant nutrition, irrigation, harvesting; organic farming; conservation agriculture; bioenergy crops; influence of markets, government policies, and global economy on cropping strategies; provide an understanding of the major row and drill (agronomic) crops grown in the United States including barley, corn, cotton, grain sorghum, peanuts, rice, soybean and wheat. **Prerequisites:** SCSC 105 or SCSC 205, junior or senior classification, or approval of instructor.

SCSC 312 Professional Development in Turfgrass

Credit 1. 2 Lab Hours. Includes but not limited to fertilizer, pesticide, irrigation calculations; turfgrass, insect and weed identification and management, soils and rootzone construction; irrigation system operation and auditing; sprayer and spreader operation and calibration; builds upon and allows application of information obtained in SCSC 302; designed to better prepare those intending to compete in the GCSAA and STMA Collegiate Turf Bowl competitions. **Prerequisite:** SCSC 302 or registration therein.

SCSC 315 Hemp Production and Utilization

Credits 3. 3 Lecture Hours. Advanced topics in principles and practices of producing hemp and its utilization in industrial, nutritional and therapeutic activities. **Prerequisite:** Junior or senior classification.

SCSC 317 Environmental Field Soil Judging

Credits 2. 1 Lecture Hour. 3 Lab Hours. Evaluation, description and classification of soils in the field; assessment and interpretation of soil morphological, chemical and physical properties; compete in collegiate soil judging competitions. May be taken six times for credit. **Prerequisites:** Junior or senior classification or approval of instructor.

SCSC 330 Social and Ethical Aspects of International Cropping Systems

Credits 3. 3 Lecture Hours. 0 Lab Hours. Philosophical basis of ethical decisions; includes slavery, war, population growth, migration, farm workers, chemical inputs, genetically modified organisms, soil and water conservation and protection of wild species. **Prerequisite:** Junior or senior classification.

SCSC 401/FIVS 401 Forensic Soil Science

Credits 3. 2 Lecture Hours. 2 Lab Hours. Examination of soils biology, chemistry and physical attributes to solve crimes; soil and geologic characteristics associated with crime scene examination; physical, biological and chemical characteristics and use of trace evidence. **Prerequisite:** Grade of C or better in FIVS 282. **Cross Listing:** FIVS 401/SCSC 401.

SCSC 402 Crop Stress Management

Credits 4. 3 Lecture Hours. 2 Lab Hours. Identification, measurement, biology, physiology and management of crop stress; limitations of specific environments to crop productivity; morphological and physiological crop stress response mechanisms. **Prerequisites:** SCSC 307, junior or senior classification, or approval of instructor.

SCSC 405 Soil and Water Microbiology

Credits 3. 3 Lecture Hours. Roles of soil and water microorganisms in the sustainability and productivity of various ecosystems with specific emphasis on plant-microbial interactions, nutrient cycling, degradation of pesticides and other xenobiotics, generation of trace gases, and soil and water quality; hands-on laboratory experience with current techniques in soil and water microbiology. **Prerequisites:** Junior or senior classification, or approval of instructor.

SCSC 406 Soil and Water Microbiology Laboratory

Credit 1. 2 Lab Hours. Hands-on experience with current techniques for examining the types, numbers, activity and roles of soil and water microorganisms with specific application to the carbon, nitrogen and sulfur cycle; plant-microbial interactions; soil and water quality. **Prerequisites:** SCSC 405 or concurrent enrollment; junior or senior classification or approval of instructor.

SCSC 410 International Agricultural Systems

Credits 3. 3 Lecture Hours. Contrast modern agriculture systems with those in developing countries; emphasis on natural resources and technologies interacting with economic and social development on a global scale. **Prerequisite:** Junior or senior classification, or approval of instructor.

SCSC 411/GENE 411 Biotechnology for Crop Improvement

Credits 3. 3 Lecture Hours. Use of biotechnology to improve agricultural, horticultural and forest crops; techniques and methods used and case studies where biotechnology has been used to alter traits such as pathogen resistance, protein or oil consumption, ripening, fertility and wood properties. **Prerequisite:** BIOL 111 or equivalent, or approval of instructor. **Cross Listing:** GENE 411/SCSC 411.

SCSC 420 Brazilian Agriculture and Food Production Systems

Credits 3 to 6. 3 to 6 Lecture Hours. Comparison and study of Brazilian and U.S. agriculture and culture related to soil, water, and forest conservation and management in Brazil; tour and learn about Amazon River, rain forest, Brasilia, farm, ranch, and floral production systems, agricultural cooperatives and research, sugar and alcohol production, phosphate mining and production; visit points of interest. **Prerequisite:** Junior or senior classification or approval of instructor.

SCSC 421 International Agricultural Research Centers - Mexico

Credits 3. 3 Lecture Hours. International agricultural research; CIMMYT interaction; modern and underdeveloped tropical agricultural systems; introduction to Mexican culture; critical evaluation of complex and international agricultural issues and research programs. **Prerequisites:** Junior or senior classification and approval of instructor.

SCSC 422 Soil Fertility and Plant Nutrient Management

Credits 3. 3 Lecture Hours. Chemical and biological reactions in soils that influence nutrient availability to plants; environmental aspects associated with nutrient availability and fertilization, especially for nitrogen (N) and phosphorus (P). **Prerequisites:** SCSC 301, junior or senior classification, or approval of instructor.

SCSC 424 Soil Chemistry

Credits 3. 3 Lecture Hours. Chemistry of clay minerals, inorganic solid phases, and organic colloids in soil; mass transfer reactions in soils: absorption/desorption, precipitation/dissolution, gas/liquid phase exchange; principles of soil acidity and salinity; introduction to application of equilibrium concepts in soils. **Prerequisites:** SCSC 301 or approval of instructor; completion of introductory or fundamental chemistry is strongly encouraged.

SCSC 427 Sports Field Construction

Credits 4. 3 Lecture Hours. 3 Lab Hours. Development of knowledge, skills, and experiences for the design and construction of a turfgrass-based sports field; case studies and visits to model fields, guest lectures from sports field owners, designers, and construction company managers; hands-on construction of a small-scale sand-based sports field. **Prerequisites:** SCSC 309, junior or senior classification, or approval of instructor.

SCSC 428 Advanced Turf Ecology and Physiology

Credits 3. 3 Lecture Hours. Examination of how environmental stresses, genetics, and cultural management practices influence the growth, development, and physiology of turfgrasses; exploration of how turf communities function within urban landscapes; introduction to environmental, social, and political issues encountered when managing these areas.

SCSC 429 Turf Management Systems

Credits 4. 3 Lecture Hours. 2 Lab Hours. Development of turf management plans for large turfgrass sites including parks, golf courses and sports facilities; use of case studies to critically analyze turf management programs. **Prerequisite:** SCSC 428.

SCSC 430 Turfgrass Maintenance

Credits 3. 3 Lecture Hours. Effective leadership and management strategies, organizational structures, human resource management, employee training and motivational strategies, effective professional communication approaches with clientele, employees and within a leadership team within a turfgrass facility framework; emphases on ethics, professional development and life-long learning. **Prerequisite:** SCSC 429 or approval of instructor.

SCSC 432 Soil Fertility and Plant Nutrient Management Laboratory

Credit 1. 3 Lab Hours. Methods used in soil testing, fertilizer recommendations, chemical and physical properties of soils, and determination of specific characteristics of a collected and analyzed soil sample. **Prerequisites:** SCSC 301; SCSC 422 or registration therein, junior or senior classification, or approval of instructor.

SCSC 436 Industrial Hemp Bioproducts

Credits 3. 3 Lecture Hours. Examination of the relevance and scalability (DIY vs research vs commercial) of renewable, industrial hemp bioproducts within emerging bioeconomies, including biomass production and conversion platforms, potential biopolymer (biocomposite, phytochemical, platform molecule markets), environmental impacts and ecosystem services, and social, policy, and ethical considerations. **Prerequisites:** Junior or senior classification or approval of instructor.

SCSC 441 Advances in Agronomic Sciences

Credits 3. 3 Lecture Hours. Synthesis, integration and extension of agronomic and related concepts for understanding the functioning and management of agricultural cropping systems. **Prerequisite:** Senior classification or approval of instructor.

SCSC 444 Forage Ecology and Management

Credits 3. 3 Lecture Hours. Investigation of multidisciplinary approaches toward the development of integrated forage, livestock, and wildlife production systems that are economically feasible and environmentally sustainable. **Prerequisite:** Junior or senior classification or approval of instructor.

SCSC 446 Weed Management and Ecology

Credits 3. 2 Lecture Hours. 2 Lab Hours. Practical information related to weed management and ecology for various vegetative systems to include turf and agronomic crops; calibration of applicators, herbicide labels, mode of action of herbicides, herbicide-resistant weed management. **Prerequisites:** BIOL 111, BIOL 101 or BIOL 113, junior or senior classification.

SCSC 449 Weed Judging

Credit 1. 1 Lecture Hour. Comprehensive understanding of weed identification and management; practical, hands-on training; participation in the Southern Weed Science Society Weed Contest; expanding knowledge of forest, rangeland, agronomic, and turfgrass weeds. May be taken three times for credit. **Prerequisites:** SCSC 453; junior or senior classification or approval of instructor.

SCSC 453 Essentials for Weed Systematic Identification and Management in Agronomy

Credits 3. 3 Lecture Hours. Fundamental understanding and hands-on training on the basics of plant weed identification and management; relevant to agronomy, turf, horticulture and rangeland science and vegetation identification and management. **Prerequisite:** Junior or senior classification.

SCSC 455 Environmental Soil and Water Science

Credits 3. 3 Lecture Hours. Discussion of physical, chemical, and biological properties of soil and water and the impact on productivity and sustainability of various ecosystems; application of the knowledge of properties and soil processes to develop and evaluate strategies for protecting and/or improving soil and water quality. **Prerequisite:** SCSC 301 or approval of instructor.

SCSC 458 Watershed, Water and Soil Quality Management

Credits 3. 3 Lecture Hours. Land use impact on surface and ground water chemistry; legislation impacting water quality; surface and groundwater impairment and restoration. **Prerequisite:** CHEM 119 or equivalent or approval of instructor; junior or senior classification.

SCSC 481 Senior Seminar

Credits 2. 2 Lecture Hours. Capstone course bringing together student experiences, exams, and exercises necessary for completing and assessing curriculum program learning outcomes. **Prerequisite:** Senior classification.

SCSC 484 Internship

Credits 0 to 4. 0 to 4 Other Hours. Practical on-the-job experience in the student's area of specialization. **Prerequisites:** Junior or senior classification; approval of instructor; 2.0 or better GPR in major and overall.

SCSC 485 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. For advanced undergraduates to permit field or laboratory investigation or study of subject matter not included in established courses. **Prerequisite:** 10 hours of junior and senior agronomy or approval of instructor.

SCSC 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of agronomy. May be repeated for credit. **Prerequisite:** Approval of department head.

SCSC 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in agronomy. May be repeated 2 times for credit. Registration in multiple sections of this course are possible within a given semester provided that the per semester credit hour limit is not exceeded. **Prerequisites:** Junior or senior classification and approval of instructor.

SEFB - Special Ed Field Based (SEFB)

SEFB 315 Clinical Teaching I - Collaborative Practices in Education to Support Students with Disabilities

Credits 3. 2 Lecture Hours. 1 Other Hour. Field-based study of collaborative partnerships used in education to support students with disabilities; topics include best-practices in collaboration and effective co-teaching strategies; collaboration between professionals such as special educators, general educators, paraprofessionals, related service professionals, community agencies, and with families. **Prerequisites:** Grade of C or better in INST 210; admission to professional phase of program; or approval of instructor.

SEFB 325 Clinical Teaching II - Academic Data-Based Interventions

Credits 4. 3 Lecture Hours. 1 Other Hour. Field-based study of evidence-based academic interventions for students who are at-risk or who have disabilities; includes response to intervention (RTI)/multi-tier systems of supports (MTSS) strategies, data driven decision-making with assessments, data collection, selection of interventions, applying interventions, and progress monitoring used in school-based settings. **Prerequisites:** Grade of C or better in SEFB 315; SPED 325 or concurrent enrollment; admission to the professional phase of program.

SEFB 410 Clinical Teaching III - Specialized Instruction in High Support Needs

Credits 4. 3 Lecture Hours. 1 Other Hour. Overview of learning and behavioral characteristics of individuals with low-incidence disabilities such as intellectual disability, autism, physical disabilities, traumatic brain injury, sensory impairments, and multiple disabilities; research-based practices in assessment, instructional strategies, collaboration, and designing educational environments that facilitate active participation, self-advocacy, and independence. **Prerequisites:** Grade of C or better in SEFB 325 and SPED 325; SPED 410 or concurrent enrollment; admission to professional phase of program.

SEFB 420 Education and Employment Issues in Secondary Special Education

Credits 3. 2 Lecture Hours. 3 Other Hours. Field-based course involving psychological, social, physical and cognitive development of secondary-age students; career assessment; programmatic options within educational and employment settings; transition models from school to adult settings. **Prerequisites:** Admission to professional phase of program.

SEFB 425 Clinical Teaching IV

Credits 6. 24 Other Hours. Observation and participation in an accredited special education classroom; techniques of teaching special education and appropriate instructional strategies for students with exceptionalities. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** Grade of C or better in SEFB 410 and SPED 410; admission to professional phase of program.

SEFB 430 Practicum in Applied Behavior Analysis

Credits 3. 9 Other Hours. University-supervised experience related to specializations in special education and behavior analysis. May be taken 8 times for credit. **Prerequisites:** Junior or senior classification; approval of instructor; approval of department head.

SENG - Safety Engineering (SENG)

SENG 310 Fundamentals of Safety Engineering

Credits 3. 3 Lecture Hours. Application of scientific and engineering principles in the selection and design of control systems related to chemical, physical and ergonomic exposures in the process and manufacturing industries; relationships of criteria, analysis and specifications for the assessment and control of occupational related illnesses.

SENG 312 System Safety Engineering

Credits 3. 3 Lecture Hours. Application of system safety analytical techniques to the design process; emphasis on the management of a system safety or product safety program; relationship with other disciplines such as reliability, maintainability, human factors and product liability applications. **Prerequisite:** Junior classification.

SENG 321 Safety Management Systems

Credits 3. 3 Lecture Hours. Concepts of design, operation and maintenance of optimally safe systems, risk management, economic impact, legislation, performance measurement and accident investigation and analysis; principles and practices in industrial hygiene engineering, fire protection engineering and introduction to systems safety engineering. **Prerequisite:** Junior classification.

SENG 422 Fire Protection Engineering - Facilities Design

Credits 3. 3 Lecture Hours. Design of facilities from a fire protection engineering viewpoint including fire detection and fire control systems; materials, equipment, exposures, occupancies and processes; both public and industrial occupancies studied to determine fire protection design specifications. **Prerequisite:** Approval of instructor.

SENG 430/CHEN 430 Risk Engineering

Credits 3. 3 Lecture Hours. Concepts of risk and risk assessment, including use of all available information to provide a foundation for risk-informed and cost-effective engineering practices; examples and exercises from a variety of engineering areas. **Prerequisite:** Junior or senior classification. **Cross Listing:** CHEN 430/SENG 430.

SENG 440 Material Safety in Semiconductor Manufacturing

Credits 3. 3 Lecture Hours. In-depth understanding of hazardous materials commonly used in semiconductor manufacturing processes; focus on the significance of hazardous materials handling and the safe way to do it; safe handling practices, storage requirements, emergency response procedures, and regulatory compliance specific to hazardous materials in semiconductor facilities; modeling and management techniques for different consequences (e.g., toxicity, fire, and explosion). **Prerequisites:** Junior or senior classification.

SENG 441 Process Safety in Semiconductor Manufacturing

Credits 3. 3 Lecture Hours. Comprehensive understanding of chemical process safety principles and practices specifically tailored to the semiconductor manufacturing industry; overview of how to identify and mitigate hazards associated with chemical processes, develop emergency response plans, and gain insights into safety management systems within semiconductor facilities. **Prerequisites:** Junior or senior classification.

SENG 442 Vapor Phase Techniques for Semiconductor Manufacturing

Credits 3. 3 Lecture Hours. Comprehensive understanding of physical vapor deposition (PVD) and chemical vapor deposition (CVD) techniques and their crucial roles in semiconductor manufacturing; understanding of the principles, processes, and applications of PVD and CVD, with a specific focus on mass transport, heat transport, chemistry for CVD, epitaxy, vapor phase exchange, and CVD reactor design; topics include how to distinguish between PVD and CVD methods, effectively choose the most suitable CVD techniques for specific industrial applications, perform calculations related to mass transport, analyze heat transfer mechanisms, anticipate chemical reactions within deposition processes, apply epitaxial growth principles, optimize vapor phase exchange mechanisms, and engineer custom CVD reactor systems tailored to industry requirements; various aspects of semiconductor manufacturing, research, and development; exploration of the efficiency of film deposition processes, exert control over film characteristics, and actively contribute to the continuous advancement of semiconductor technology. **Prerequisites:** Junior or senior classification.

SENG 455/CHEN 455 Process Safety Engineering

Credits 3. 3 Lecture Hours. Applications of engineering principles to process safety and hazards analysis, mitigation, and prevention, with special emphasis on the chemical process industries; includes source modeling for leakage rates, dispersion, analysis, relief valve sizing, fire and explosion damage analysis, hazards identification, risk analysis, accident investigations. **Prerequisites:** Grade of C or better in CHEN 322; senior classification; engineering majors. **Cross Listing:** CHEN 455/SENG 455.

SENG 460/CHEN 460 Quantitative Risk Analysis in Safety Engineering

Credits 3. 3 Lecture Hours. Fundamental concepts, techniques, and applications of risk analysis and risk-informed decision making for engineering students; practical uses of probabilistic methods are demonstrated in exercises and case studies from diverse engineering areas. **Prerequisite:** Senior or graduate classification. **Cross Listing:** CHEN 460/SENG 460.

SENG 485 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Permits students to develop special projects in industrial hygiene engineering, safety engineering or fire protection engineering. Project must be approved by department head.

SENG 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in industrial hygiene engineering, safety engineering or fire protection engineering of specific student interest. May be repeated for credit. **Prerequisite:** Approval of instructor.

SOCI - Sociology (SOCI)

SOCI 203 U.S.-Mexico Border

Credits 3. 3 Lecture Hours. Understanding of the U.S.-Mexico border from different theoretical perspectives, including structural violence, identity, power and demography.

SOCI 205 Introduction to Sociology

Credits 3. 3 Lecture Hours. (SOC1 1301) Introduction to Sociology. Sociological perspectives including concepts and methods; social class and social status, the family, minorities, crime, religion, power, urbanization and population; also taught at Galveston campus.

SOCI 206 Global Social Trends

Credits 3. 3 Lecture Hours. Long-term trends in world societies from ancient times to the present and to the foreseeable future; emphasis on contemporary international issues and problems, techniques of analysis and future projections.

SOCI 207/WGST 207 Introduction to Gender and Society

Credits 3. 3 Lecture Hours. Similarities and differences between females and males in a number of cultures throughout the world; sociological analysis of gender in relation to social structure. **Cross Listing:** WGST 207/SOCI 207.

SOCI 210 Sociology of Technology and Science

Credits 3. 3 Lecture Hours. Examination of technology and science from a variety of theoretical perspectives; process by which engineered products are influenced by social factors as well as how they in turn, impact society; exploration and critique of classic and contemporary theories of technological development.

SOCI 211 Sociology of Deviance

Credits 3. 3 Lecture Hours. Perspectives on non-normative behavior; theories of deviance.

SOCI 212 Sociology of Popular Culture

Credits 3. 3 Lecture Hours. Examination of the classic and contemporary social scientific definitions and theories of culture, and popular versus "high" or elite culture(s), various forms and arenas of popular culture, such as television, film, and music, institutions and popular culture, identity (race, class, gender and sexuality) and popular culture.

SOCI 213/WGST 213 Gender and Health

Credits 3. 3 Lecture Hours. An examination of social and historical context of health in the U.S., including inequities in health by gender, race, class and gendered issues in health professions. **Cross Listing:** WGST 213/SOCI 213.

SOCI 214 Social Problems

Credits 3. 3 Lecture Hours. Survey and exploration of causes and consequences of major social problems in American society such as poverty, unemployment, energy, alcohol, other drugs and sexual abuse.

SOCI 215/WGST 205 Introduction to Lesbian, Gay, Bisexual, Transgender, and Queer Studies

Credits 3. 3 Lecture Hours. Interdisciplinary survey of the histories of and theories regarding Lesbian, Gay, Bisexual, Transgender, Queer (LGBTQ +) identities and communities; the social construction of sexuality and gender; institutional ways in which homophobia, biphobia, and transphobia are systematically deployed; advocacy by and on behalf of LGBTQ+ individuals; evolution of desire and subjectivity. **Cross Listing:** WGST 205/SOCI 215.

SOCI 217 Introduction to Race and Ethnicity

Credits 3. 3 Lecture Hours. Introduction to the sociological examination of race and ethnicity in U.S. society; overview of theories and methods in the study of race and ethnicity, an understanding of how they function as individual and group-level identities, and organizing principles in social institutions.

SOCI 220 Methods of Social Research

Credits 3. 2 Lecture Hours. 2 Lab Hours. Relationships between sociological theory, research, qualitative evaluation of data; construction and use of analytical procedures and research techniques, and participant observation.

SOCI 229 Qualitative Methods

Credits 3. 3 Lecture Hours. Methodologies in social research with emphasis on qualitative dimensions of inquiry; topics include in-depth interviewing, observation, unobtrusive measures, analysis of documents, fieldwork issues, ethics, note-taking, preliminary data analysis, and an overview of writing research reports based on qualitative research.

SOCI 230 Classical Sociological Theory

Credits 3. 3 Lecture Hours. Role of theory in sociological study; the development of classical theoretical perspectives providing the foundation for contemporary theory.

SOCI 240 Tourism, Culture and Place

Credits 3. 3 Lecture Hours. Analysis of tourist encounters; marketing and displaying culture to tourists; implications of tourism for urban economies and landscapes; interactions between tourists and locals; Galveston campus.

SOCI 285 Directed Studies

Credits 0 to 3. 0 to 3 Other Hours. Special problems not covered by other courses. Course depends upon needs and interest of the student and upon the number of credit hours. **Prerequisite:** Sophomore classification in sociology.

SOCI 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of sociology. May be repeated for credit. **Prerequisite:** Approval of instructor; also taught at Galveston campus.

SOCI 291 Research

Credits 0 to 3. 0 to 3 Other Hours. Research conducted under the direction of a chosen faculty member in sociology. May be taken for a maximum of three hours total credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

SOCI 304 Criminology

Credits 3. 3 Lecture Hours. Criminal law and crime rates; explanations of criminal behavior; criminal careers, police, adult courts and prisons. **Prerequisite:** Junior or senior classification.

SOCI 311 Social Change

Credits 3. 3 Lecture Hours. Survey of major changes in American and Western society, the forces underlying change and tensions caused by social change. **Prerequisite:** Junior or senior classification or approval of instructor.

SOCI 312 Population and Society

Credits 3. 3 Lecture Hours. The causes and implications of major population trends; also taught at Galveston campus.

SOCI 315/WGST 315 The Marriage Institution

Credits 3. 3 Lecture Hours. Courtship, engagement, marriage, family formation, personal adjustment, conflict, financing and child rearing.

Cross Listing: WGST 315/SOCI 315.

SOCI 316/WGST 316 Sociology of Gender

Credits 3. 3 Lecture Hours. Sociological explanations of status differences between men and women; cross-cultural comparisons; gender role socialization, cultural stereotypes, discrimination; gender roles and status in the family, economy, religion, science, other social institutions; deviance, victimization and gender; recent social changes.

Cross Listing: WGST 316/SOCI 316.

SOCI 317/AFST 317 Racial and Ethnic Relations

Credits 3. 3 Lecture Hours. Status of racial and ethnic groups such as Native Americans, African Americans, Latino Americans, Asian Americans, European Americans, and other groups in the political, economic, legal and social systems of the United States. **Cross Listing:** AFST 317/SOCI 317.

SOCI 319/SPMT 319 Sociology of Sport

Credits 3. 3 Lecture Hours. Social institution of sport and its consequences for American society; social organization from play to professional sport; violence, discrimination, women in sport; socialization implications from participation in sports. **Prerequisite:** Junior or senior classification. **Cross Listing:** SPMT 319/SOCI 319.

SOCI 320 Demographic Methods

Credits 3. 3 Lecture Hours. Procedures and techniques of demographic analysis; examination of demographic data; calculation of rates; construction of life tables; population estimates and projections.

Prerequisite: Junior or senior classification or approval of instructor; also taught at Galveston campus.

SOCI 323/AFST 323 Sociology of African Americans

Credits 3. 3 Lecture Hours. Major elements of the Afro-American subculture in relation to white American society and its major social institutions. **Prerequisite:** SOCI 205. **Cross Listing:** AFST 323/SOCI 323.

SOCI 326/RELS 326 Sociology of Religion

Credits 3. 3 Lecture Hours. Institution of religion and religious-related behavior; relationship between dynamic and structural religion and contemporary society. **Prerequisite:** SOCI 205. **Cross Listing:** RELS 326/SOCI 326.

SOCI 328 Environmental Sociology

Credits 3. 3 Lecture Hours. A comprehensive overview of environmental sociology, including major sociological theories, concepts and policy issues affecting our understanding of environmental changes; emphasizes social factors that impact environmental quality.

Prerequisite: SOCI 205 or approval of instructor; also taught at Galveston campus.

SOCI 330 Sociology of Nutrition

Credits 3. 3 Lecture Hours. Social factors affecting the kind and amount of food consumed around the world; social consequences of nutritional status for family functioning and for international development.

SOCI 335 Sociology of Organizations

Credits 3. 3 Lecture Hours. How people act in organizations; structures in organizations; the relationship between organizations and their environments.

SOCI 337 International Migration

Credits 3. 3 Lecture Hours. Survey of theories and trends in international migration. **Prerequisite:** Junior or senior classification, or approval of instructor.

SOCI 338 Latino Immigration

Credits 3. 3 Lecture Hours. Theoretical and empirical examinations of the causes, processes, and impacts of Latin American immigration to the U.S.; Latino/a immigrant experience in the U.S.; effects of immigration on sending and receiving communities. **Prerequisite:** Junior or senior classification or approval of the instructor.

SOCI 376/MGMT 376 Entrepreneurial Perspectives

Credits 3. 3 Lecture Hours. Entrepreneurship as a career choice and its impact on society and economy; definitions of entrepreneurship; discovery of entrepreneurial opportunities and start-up funding; innovation and entrepreneurship theories for analyzing and predicting success of start-up and established entrepreneurial organizations.

Prerequisite: Admission to upper division in Mays Business School. **Cross Listing:** MGMT 376/SOCI 376.

SOCI 377 Entrepreneurial Thought Leaders Seminar

Credits 3. 3 Lecture Hours. Origins of entrepreneurial cognition and motivation; entrepreneurial thought leaders share lessons from real world experiences in non-profit, profit-making enterprise, government, public policy, and social mission domains; reflection on thought leaders experience in innovation and entrepreneurship; build exposure to entrepreneurial thinking, role modeling, mentoring, social capital.

SOCI 403 Sociology of Latinos

Credits 3. 3 Lecture Hours. Exploration of social characteristics and acculturation problems of Mexican Americans in the United States; styles of life and cultural variability, social mobility, the struggle for advancement and identity through social movements.

SOCI 404/RPTS 404 Sociology of the Community

Credits 3. 3 Lecture Hours. Organization of American communities examining the bases of community, types of communities and the changes faced by communities. **Prerequisite:** SOCI 205; SOCI-404 also taught at Galveston campus. **Cross Listing:** RPTS 404/SOCI 404.

SOCI 408 Death and Dying

Credits 3. 3 Lecture Hours. Exploration of interdisciplinary social issues surrounding death and dying: the interactions among professionals, families, and dying individuals; the development and functioning of death norms and institutions (e.g., hospitals, funeral homes, hospice, capital punishment); the critical analysis of social/cultural inequalities affecting when and how we die. **Prerequisite:** Junior or senior classification or approval of instructor.

SOCI 410/WGST 410 Reproduction, Birth and Power

Credits 3. 3 Lecture Hours. Examination of topics related to reproductive practices, experiences and ideologies and of the constructed and contested meanings surrounding womanhood, motherhood, sexuality, reproductive freedom and eugenics. **Prerequisites:** SOCI 205; junior or senior classification. **Cross Listing:** WGST 410/SOCI 410.

SOCI 411 Social Psychology

Credits 3. 3 Lecture Hours. Effects of social experience and groups on the development of personality, attitudes, values and behavior. **Prerequisite:** 3 hours of sociology or psychology.

SOCI 412 Political Sociology

Credits 3. 3 Lecture Hours. Survey of social bases of power; state formation in advanced industrial societies; origins of welfare state; interrelation of nationalism; culture and class formation. **Prerequisite:** Junior or senior classification or approval of instructor.

SOCI 413 Social Movements

Credits 3. 3 Lecture Hours. Survey of social movements; emphasis on social movement participation, emergence and outcomes; analysis of revolutions and movements in the developing world; theory and methods of social movement research. **Prerequisite:** Junior or senior classification or approval of instructor.

SOCI 415 Sociology of Education

Credits 3. 3 Lecture Hours. Relationship of social structure and change to education; social background and student performance; teachers and their careers; bureaucracy and change in education. **Prerequisite:** SOCI 205.

SOCI 419 Social Class in Contemporary Society

Credits 3. 3 Lecture Hours. Composition and consequences of social class structure; social class explanations for lifestyle patterns, educational and occupational achievements. **Prerequisite:** SOCI 205.

SOCI 420 Advanced Methods of Social Research

Credits 3. 2 Lecture Hours. 2 Lab Hours. Philosophy and methods of social research, including research design; methods of observation; questionnaires, interviews and other sources of social data; qualitative and quantitative techniques of inference, analysis and research report writing. **Prerequisite:** SOCI 220.

SOCI 421/WGST 421 Gender & Crime

Credits 3. 3 Lecture Hours. Gender & Crime. Gender disparities in contemporary patterns of crime, victimization and incarceration; key concepts, major theories and empirical research studies around gender and crime. **Prerequisite:** Grade of C or better in SOCI 207/WGST 207, SOCI 211, SOCI 304, SOCI 316/WGST 316, WGST 200, WGST 207/SOCI 207, or WGST 316/SOCI 316. **Cross Listing:** WGST 421/SOCI 421.

SOCI 422 Race, Ethnicity, Crime and Justice

Credits 3. 3 Lecture Hours. Racial/ethnic disparities in criminal offending and victimization, as well as different experiences with law enforcement, judicial, and correctional agencies. **Prerequisites:** SOCI 220 or equivalent. **Cross Listing:** AFST 422 and LMAS 422.

SOCI 425 Medical Sociology

Credits 3. 3 Lecture Hours. Organization, value systems and practice of medicine and the provision of health care in the U.S.; role of physicians, health occupations and patients; marginal and folk medicine. **Prerequisite:** SOCI 205.

SOCI 430 Contemporary Sociological Theory

Credits 3. 3 Lecture Hours. Basic ideas of contemporary sociological theory: structuralism, functionalism, conflict, symbolic interaction, exchange and their application to current research. **Prerequisite:** SOCI 230.

SOCI 432/MGMT 479 Technology Commercialization

Credits 3. 3 Lecture Hours. Examination of the process of introducing to the marketplace new products or services based upon scientific and technological innovations; practical skills for assessing the technology, identifying potential products and services, and quantifying market demand; focuses on value creation, financing, intellectual property law, regulatory, and socio-economic drivers. **Prerequisite:** Junior or senior classification or admission to upper division in Mays Business School; SOCI 376/MGMT 376 or MGMT 376/SOCI 376 and SOCI 476/MGMT 476 or MGMT 476/SOCI 476 recommended. **Cross Listing:** MGMT 479/SOCI 432.

SOCI 445 Sociology of Law

Credits 3. 3 Lecture Hours. Introduction to the sociology of law; the relation of law to general social control and to organizational dynamics.

SOCI 446 Sociology of War Crimes

Credits 3. 3 Lecture Hours. Sociological and cultural perspectives on war crimes; topics of responsibility, command responsibility, court-martial, and interrogation techniques; theories and concepts from forensic sociology applied to case studies. **Prerequisites:** Junior or senior classification.

SOCI 450 Social Entrepreneurship

Credits 3. 3 Lecture Hours. Applying business principles and practices to solve social, economic and environmental problems; social entrepreneurship concepts and issues in scaling social enterprise ventures including management tools, organization structures, funding sources, impact measurement; experience in opportunity recognition, designing, planning, pitching social mission ventures; build social capital with social enterprise founders. **Prerequisites:** Junior or senior classification. **Cross Listing:** MGMT 478 and PSAA 465.

SOCI 455/WGST 445 Queer Theory

Credits 3. 3 Lecture Hours. Examines origins of theories of gender and sexual diversity and their intersections with feminist theories; considers foundational and contemporary texts that address queer theory. **Prerequisites:** 6 hours in Women's and Gender Studies; senior classification or approval of instructor. **Cross Listing:** WGST 445/ SOCI 455.

SOCI 463 Gender in Asia

Credits 3. 3 Lecture Hours. Gender dynamics in Asia; changes in gender roles; women's movements; women and the economy; women and politics; men's and women's private lives. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** ASIA 463 and WGST 463.

SOCI 476/MGMT 476 Entrepreneurship Practice

Credits 3. 3 Lecture Hours. Practical skills for creating new businesses; evaluating, planning and operational strategy, including assessing the technology; product and service markets, value creation model; financing strategies; legal, regulatory, socio-economic drivers, risks; leadership to develop management team, advisory board; go-to-market strategy; develop own entrepreneurial opportunities or those of faculty and entrepreneurs. **Cross Listing:** MGMT 476/SOCI 476.

SOCI 478 Professional Development in Sociology I

Credit 1. 1 Lecture Hour. Career fields available to sociology majors, including the nature of the work, professional expectations, and the credentials for entry in the fields. **Prerequisite:** Sociology major; junior or senior classification.

SOCI 479 Professional Development in Sociology II

Credits 2. 2 Lecture Hours. Preparation for careers in sociology-related professionals by in-depth research of prospective career fields, development of oral, written, and media skills, formation of professional networks, and training in professional ethics, cultural diversity, and leadership. **Prerequisite:** Sociology major; junior or senior classification.

SOCI 484 Field Practicum

Credits 0 to 4. 0 to 4 Other Hours. Field Experiences. Participation in an approved agency. Field experience will be supervised by selected agency personnel and appropriate faculty. Experiences and requirements will vary slightly according to placement and student interests. **Prerequisites:** Major in sociology; 12 hours of sociology; approval of undergraduate advisor; also taught at Galveston campus.

SOCI 485 Directed Studies

Credits 0 to 3. 0 to 3 Other Hours. Special problems not covered by other courses. Course depends upon needs and interest of the student and upon the number of credit hours. **Prerequisite:** Senior classification in sociology.

SOCI 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of sociology. May be repeated for credit. **Prerequisite:** Approval of instructor.

SOCI 491 Research

Credits 0 to 3. 0 to 3 Other Hours. Research conducted under the direction of a chosen faculty member in sociology. May be taken four times for credit. **Prerequisites:** Junior or senior classification and approval of instructor.

SOMS - Schl of Military Sciences (SOMS)

SOMS 111 Principles of Academic and Personal Development

Credits 0-1. 0-1 Lecture Hours. Identification of personal goals and learning skills promoting academic and career success; development of personal leadership strengths, styles, motivation and values; personal development planning for self-improvement. **Prerequisite:** Freshman classification or approval of instructor.

SOMS 180 Survey of Performance Based Training Methods

Credits 0-1. 0-1 Lecture Hours. Introduction to performance oriented training methods and techniques; key concepts and generalizations of training and identification of training needs; study of representative theories of workplace training, performance evaluation, and experiential training techniques. **Prerequisite:** Freshman classification or approval of instructor.

SOMS 181 Developing and Instructing Others

Credits 0-1. 0-1 Lecture Hours. Introduction to leadership, mentoring and instructing others in the specific context of military-style training; survey of basic military performance counseling skills; introduction to subordinate instruction and evaluation techniques. **Prerequisite:** Freshman classification or approval of instructor.

SOMS 280 Fundamentals of Peer Leadership

Credits 0-1. 0-1 Lecture Hours. Introduction to theories of peer leadership when applied to a specific context; fundamentals and techniques of small group communication; performance evaluation; survey of basic supervisory skills. **Prerequisite:** Sophomore classification or approval of instructor.

SOMS 281 Fundamentals of Intentional Leadership

Credits 0-1. 0-1 Lecture Hours. Exposure to the fundamentals of intentional leadership, deliberate practice, planning and leadership assessment; development of initial personal leadership development plans; alignment of personal and organizational values, vision, mission, purpose and goals toward desired outcomes. **Prerequisites:** Grade of C or better in SOMS 280 or approval of department head or director.

SOMS 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of leadership theory and practice. May be repeated for credit. **Prerequisites:** Freshman or sophomore classification; approval of instructor.

SOMS 380 Workshop in Leadership Education

Credits 0-1. 0-1 Lecture Hours. The study of leadership theory, intra group relationships, assessment tools for skills development, and techniques for achieving group goals. **Prerequisite:** Junior classification or approval of instructor.

SOMS 381 Workshop in Leadership Education II

Credits 0-1. 0-1 Lecture Hours. Continuation of SOMS 380. Fundamentals of small group dynamics; interpersonal communication; application of selected leadership theories; interpretation of individual assessments to include personality traits, values, and signature strengths. **Prerequisites:** SOMS 380; junior or senior classification.

SOMS 481 Seminar in Executive Leadership

Credits 0-1. 0-1 Other Hours. The study of contemporary leadership issues, organizational effectiveness, problem solving, and decision making. **Prerequisite:** Senior classification or approval of instructor.

SOMS 482 Seminar in Executive Leadership II

Credits 0-1. 0-1 Other Hours. Continuation of SOMS 481. Discussion of ethical dilemmas in leadership roles; ethical decision-making; personal accountability in organizational settings. **Prerequisite:** SOMS 481 or approval of instructor.

SOMS 485 Directed Studies

Credits 0 to 4. 0 to 4 Lecture Hours. Individual supervision of special readings or assigned projects to promote independent study; program enrichment for capable students; written and oral reports required. **Prerequisite:** Approval of instructor.

SOMS 486 Seminar in Executive Organizational Leadership

Credits 3. 3 Other Hours. Examination of the leadership demands of executive leaders in organizations; includes roles and responsibilities in executive leadership, creating organizational culture and influencing organizational norms, defining desirable outcomes and results and developing others in a leadership team; the practice of communicating vision and purpose and intentionality toward continuous development as a leader. **Prerequisite:** Senior classification or approval of instructor.

SOMS 487 Seminar in Ethical Organizational Leadership

Credits 3. 3 Other Hours. Examination of the ethical demands of executive leaders in organizations; includes ethical decision-making in complex situations, ethical philosophies, trust and developing ethical competencies in others; practice making ethical decisions in complex situations and conclude with a culminating exercise for designing, developing and enforcing organizational ethical norms. **Prerequisite:** Senior classification or approval of instructor.

SOMS 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of leadership theory and practice. May be repeated for credit. **Prerequisites:** Junior or senior classification; approval of instructor.

SPAN - Spanish (SPAN)

SPAN 101 Beginning Spanish I

Credits 4. 4 Lecture Hours. (SPAN 1411) Beginning Spanish I. Elementary language study with oral, written and reading practice; active use of the language in conversation and culture-based projects at the novice high level as defined by American Council on the Teaching of Foreign Languages; intended for those with no prior knowledge of Spanish. **Prerequisite:** Prior knowledge of Spanish requires the Spanish Placement Test before enrolling for the first time in a college Spanish course; also taught at Galveston campus.

SPAN 102 Beginning Spanish II

Credits 4. 4 Lecture Hours. (SPAN 1412) Beginning Spanish II. Continuation of SPAN 101. Active use of the language in conversation, writing, reading, and culture-based projects at the intermediate low level as defined by the American Council on the Teaching of Foreign Languages. **Prerequisite:** SPAN 101 with a grade of C or better or placement by exam; students with prior knowledge of Spanish are required to take the Spanish Placement Test before enrolling for the first time in a college Spanish course; also taught at Galveston campus.

SPAN 112 Intensive Beginning Spanish

Credits 8. 8 Lecture Hours. Accelerated study of Spanish with oral, written and reading practice; active use of the language in conversation and culture-based projects at the novice high level as defined by American Council on the Teaching of Foreign Languages; intended for those with no prior knowledge of Spanish; equivalent to SPAN 101 and SPAN 102. **Prerequisite:** Prior knowledge of Spanish requires the Spanish Placement Test before enrolling for the first time in a college Spanish course.

SPAN 201 Intermediate Spanish I

Credits 3. 3 Lecture Hours. (SPAN 2311) Intermediate Spanish I. Active use of the language in conversation, writing, reading and projects at the mid intermediate level as defined by the American Council on the Teaching of Foreign Languages. Only one of the following will satisfy the requirements for a degree: SPAN 201, SPAN 208, or SPAN 221. **Prerequisite:** SPAN 102 with a grade of C or better or placement by exam; students with prior knowledge of Spanish are required to take the Spanish Placement Test before enrolling for the first time in a college Spanish course.

SPAN 202 Intermediate Spanish II

Credits 3. 3 Lecture Hours. (SPAN 2312) Intermediate Spanish II. Continuation of SPAN 201. Active use of the language in conversation, writing, reading and projects at the high intermediate level as defined by the American Council on the Teaching of Foreign Languages. Only one of the following will satisfy the requirements for a degree: SPAN 202, SPAN 218, or SPAN 222. **Prerequisite:** SPAN 201 with a grade of C or better or placement by exam; students with prior knowledge of Spanish are required to take the Spanish Placement Test before enrolling for the first time in a college Spanish course.

SPAN 203 Intermediate Spanish for Heritage Speakers

Credits 3. 3 Lecture Hours. (SPAN 2313) Intermediate Spanish for Heritage Speakers. Focus on developing speaking, reading and writing abilities in a cultural context centered on Spanish-speaking communities in the U.S.; intended for those who understand casual spoken Spanish and have some functional communication abilities in the language because of family background or sociocultural experience. **Prerequisites:** SPAN 201 with a grade of C or better or placement by exam; students with prior knowledge of Spanish are required to take the Spanish Placement Test before enrolling for the first time in a college Spanish course.

SPAN 208 Spanish for Health Professionals I

Credits 3. 3 Lecture Hours. First half of a two-semester sequence in Spanish, at the mid intermediate level as defined by the American Council on the Teaching of Foreign Language; for those interested in careers in the health professions; presentation and practice of the most important basic communication functions in patient-provider interaction. Only one of the following will satisfy the requirements for a degree: SPAN 201, SPAN 208, or SPAN 221. **Prerequisites:** SPAN 102 with a grade of C or better or placement by exam; students with prior knowledge of Spanish are required to take the Spanish Placement Test before enrolling for the first time in a college Spanish course.

SPAN 218 Spanish for Health Professionals II

Credits 3. 3 Lecture Hours. Second half of a two-semester course sequence in Spanish at the high intermediate as defined by the American Council on the Teaching of Foreign Languages; for those interested in careers in the health professions; presentation and practice of the most important basic communication functions in patient-provider interaction. Only one of the following will satisfy the requirements for a degree: SPAN 202, SPAN 218, or SPAN 222. **Prerequisite:** SPAN 201, SPAN 208, placement by exam, or approval of instructor; students with prior knowledge of Spanish are required to take the Spanish Placement Test before enrolling for the first time in a college Spanish course.

SPAN 221 Field Studies Abroad I

Credits 1 to 6. 1 to 6 Lecture Hours. Active use of the language in conversation, writing, reading and projects at the mid intermediate level, as defined by American Council on the Teaching of Foreign Languages, in a Spanish-speaking country; participation in academic and cultural activities of a host university or study abroad institute/center. Only one of the following will satisfy the requirements for a degree: SPAN 201, SPAN 208, or SPAN 221. **Prerequisite:** SPAN 102 with a grade of B or better, placement by exam, or approval of instructor; students with prior knowledge of Spanish are required to take the Spanish Placement Test before enrolling for the first time in a college Spanish course.

SPAN 222 Field Studies Abroad II

Credits 1 to 6. 1 to 6 Lecture Hours. Active use of the language in conversation, writing, reading and projects at the high intermediate level, as defined by American Council on the Teaching of Foreign Languages, in a Spanish-speaking country; participation in academic and cultural activities of a host university or study abroad institute/center. Only one of the following will satisfy the requirements for a degree: SPAN 202, SPAN 218, or SPAN 222. **Prerequisite:** SPAN 102 with a grade of B or better, placement by exam, or approval of instructor; students with prior knowledge of Spanish are required to take the Spanish Placement Test before enrolling for the first time in a college Spanish course.

SPAN 285 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Individual supervision of readings or assigned projects in Spanish, selected for each student individually. **Prerequisite:** Approval of instructor and department head.

SPAN 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of Spanish. May be repeated for credit. **Prerequisite:** Approval of instructor.

SPAN 301 Oral Expression

Credits 3. 3 Lecture Hours. Development of oral skills in Spanish through pronunciation practice, discussion of current events, skits, interviews, conversations, role play, impromptu debates, rhetoric, public speaking and formal presentations. **Prerequisites:** SPAN 202, SPAN 203, SPAN 218, SPAN 222, placement by exam, or approval of instructor; junior or senior classification or approval of instructor.

SPAN 302 Advanced Grammar

Credits 3. 3 Lecture Hours. Study and practice of Spanish language structures; development of metalinguistic awareness and appropriate usage in socio-pragmatic context. Only one of the following will satisfy the requirements for a degree: SPAN 302 or SPAN 304. **Prerequisites:** SPAN 202, SPAN 203, SPAN 218, or SPAN 222; or placement by exam; junior or senior classification or approval of instructor.

SPAN 303 Spanish Composition

Credits 3. 3 Lecture Hours. Development of writing skills in Spanish; structural analysis of representative texts; drafting, revision and rewriting of short compositions and term papers. **Prerequisites:** SPAN 202, SPAN 203, SPAN 218, or SPAN 222; or placement by exam; junior or senior classification or approval of instructor.

SPAN 304 Advanced Grammar for Heritage Speakers

Credits 3. 3 Lecture Hours. Continuation of SPAN 203; study and practice of Spanish centered on grammatical features of particular concern to heritage speakers in a cultural context focused on Hispanics in the U.S. Only one of the following will satisfy the requirements for a degree: SPAN 302 or SPAN 304. **Prerequisites:** SPAN 202, SPAN 203, SPAN 218 or SPAN 222; or placement by exam or approval of instructor; junior or senior classification or approval of instructor.

SPAN 305 Spanish for Legal Professions

Credits 3. 3 Lecture Hours. Study of legal concepts, legal terminology, grammar and expressions; focus on oral and written communication skills and exposure to cross-cultural approaches to interactions with persons of Hispanic origin in legal professional settings. **Prerequisites:** Grade of C or better in three credits of 300 or 400-level Spanish courses or approval of instructor.

SPAN 306 Business Spanish

Credits 3. 3 Lecture Hours. Presentation and practice of commercial language, vocabulary, customs and cultural environment of the Spanish-speaking business world and related fields; development of cultural awareness for conducting business with Spanish-speaking countries and U.S. Hispanic communities. **Prerequisite:** 3 credits of 300-level Spanish courses or approval of instructor.

SPAN 307 Spanish for the Sciences

Credits 3. 3 Lecture Hours. Development of written and oral scientific communication in Spanish, including listening, speaking, reading and writing, with a focus on general and specialized scientific discourse; field-specific vocabulary and review of structures necessary for academic registers. **Prerequisites:** 3 credits of 300-level Spanish courses or approval of instructor.

SPAN 311 Hispanic Culture and Civilization to the 18th Century

Credits 3. 3 Lecture Hours. Survey of the Hispanic world with emphasis on its history and cultural patterns from pre-Roman times to the 18th century; description and analysis of artistic, historical, literary, political topics. Taught in Spanish. **Prerequisite:** SPAN 202, 203, 222 or approval of instructor.

SPAN 312 Hispanic Culture and Civilization: 18th Century to Present

Credits 3. 3 Lecture Hours. Overview of the Hispanic world, including the United States, from independence in the Americas to present; description and analysis of artistic, historical, literary, political, sociolinguistic topics. Taught in Spanish. **Prerequisite:** SPAN 202, SPAN 203, SPAN 222 or approval of instructor.

SPAN 318 Oral Communication for Health Professionals

Credits 3. 3 Lecture Hours. Development of advanced fluency in oral communication skills in Spanish within the context of the medical professions through discussion of health issues pertaining to the Latino/Hispanic community; field trips, service learning, volunteering, interviews, impromptu speaking and formal presentations. **Prerequisite:** SPAN 218, 3 credits of 300-level Spanish, or approval of instructor.

SPAN 319/JOUR 319 Bilingual Reporting

Credits 3. 3 Lecture Hours. Journalistic techniques and skills used to report in Spanish and/or for Spanish-language media; examination of the unique set of challenges facing LatinX communities in the United States, Latin American, and Hispanic countries abroad; integration of newsgathering, writing, editing, research skills, multimedia podcasting. **Prerequisites:** Junior or senior classification; SPAN 302 or approval of instructor. **Cross Listing:** JOUR 319/SPAN 319.

SPAN 320 Introduction to Hispanic Literature

Credits 3. 3 Lecture Hours. Survey of literature from the Spanish-speaking world; emphasis on the language and techniques of literary analysis as applied to examples of poetry, narrative fiction, theater and essay. **Prerequisite:** 3 credits of 300-level Spanish courses or approval of instructor.

SPAN 331 Spanish Literature to 1700

Credits 3. 3 Lecture Hours. Origins and evolution of Spanish literature from the Medieval to the Golden Age traditions; epic, drama, novel, picaresque and satire as reflected in works by Berceo, Cervantes, Garcilaso de la Vega, Lope de Vega, Calderón de la Barca and others; conducted in Spanish. **Prerequisites:** SPAN 202, SPAN 203, SPAN 222 or approval of instructor.

SPAN 332 Spanish Literature from 1700 to 1936

Credits 3. 3 Lecture Hours. Representative works of Spanish Neoclassicism, Romanticism, realism, naturalism, modernism, and Avant-Garde movements; overview of historical background, cultural and philosophical tendencies; socio-political movements in modern Spain until the Civil War; conducted in Spanish. **Prerequisites:** SPAN 202, SPAN 203, SPAN 222 or approval of instructor.

SPAN 341 Spanish-American Literature from 1492 to 1821

Credits 3. 3 Lecture Hours. Themes, styles and authors from the meeting of Old and New Worlds through the final days of the Colony; overview of cultural and historical background; conducted in Spanish. **Prerequisites:** SPAN 202, SPAN 203, SPAN 222 or approval of instructor.

SPAN 342 Spanish-American Literature from 1821 to 1935

Credits 3. 3 Lecture Hours. Themes, styles and authors from Independence to Modernity; overview of cultural and historical background; conducted in Spanish. **Prerequisites:** SPAN 202, SPAN 203, SPAN 222 or approval of instructor.

SPAN 350 Spanish Phonetics and Phonology

Credits 3. 3 Lecture Hours. Sound system of Spanish with special reference to pronunciation and contrast with sounds of American English; phonological inventory and phonetic variation in Latin American and Peninsular varieties. **Prerequisite:** 3 credits of 300-level Spanish courses or approval of instructor.

SPAN 352 Hispanic Linguistics

Credits 3. 3 Lecture Hours. Study of Hispanic linguistics, including phonetics and phonology, morphology, syntax, change and variation.

Prerequisite: 3 credits of 300-level Spanish courses or approval of instructor.

SPAN 403 Advanced Writing in Spanish

Credits 3. 3 Lecture Hours. Building on established skills, practice in and reflection on writing in professional, public, academic, and literary genres; evaluation of a variety of models and development of abilities in audience analysis, critical research, review and revision. **Prerequisites:** SPAN 303 and 3 additional SPAN credits at the 400-level, or approval of instructor.

SPAN 407 Spanish-English Translation

Credits 3. 3 Lecture Hours. Foundations of translation methodology, strategies and practice; rendering of literary and non-literary texts; ethics of translation; emphasis on translation into the first language.

Prerequisite: 6 credits of upper division SPAN with a grade of B or better or approval of instructor.

SPAN 410 Hispanic Film

Credits 3. 3 Lecture Hours. Examination of major works and directors of contemporary Hispanic film; interpretation of culture through film; relationship of literature and film; introduction to vocabulary of film criticism in Spanish. **Prerequisites:** 6 credits of 300-level Spanish courses; junior or senior classification or approval of instructor.

SPAN 411 Contemporary Hispanic Society and Culture

Credits 3. 3 Lecture Hours. Examination of cultural, economic, and political aspects central to 20th and 21st century Hispanic societies.

Prerequisites: At least 6 credits of 300-level Spanish courses; junior or senior classification or approval of instructor.

SPAN 412 U.S. Hispanic Writers

Credits 3. 3 Lecture Hours. Analysis of contemporary literature by U.S. Latino/a authors; discussion of prevalent themes including immigration, language, race, gender, identity. **Prerequisites:** At least 6 credits of 300-level Spanish courses; junior or senior classification or approval of instructor.

SPAN 413 Hispanic Culture through Art

Credits 3. 3 Lecture Hours. Examination of the works of a major artist and/or artistic movement as a vehicle for intensive analysis of elements of Hispanic culture. **Prerequisites:** At least 6 credits of 300-level Spanish courses; junior or senior classification or approval of instructor.

SPAN 414 Mexican Cinema and Culture

Credits 3. 3 Lecture Hours. Analysis of Mexican films from acclaimed actors, directors and time periods in order to understand the historical, social and political conditions; aesthetic, social, cultural and political analysis surrounding the production of representative films; taught in Spanish. **Prerequisites:** 6 credits of 300-level Spanish courses; junior or senior classification, or approval of instructor.

SPAN 417 Advanced Spanish-English Translation

Credits 3. 3 Lecture Hours. Expansion of translation practice and development of lexical and stylistic competence in specialized fields, including commercial, legal, medical, technical and scientific; mandatory service learning component included. **Prerequisite:** SPAN 407 with a grade of B or better or approval of instructor.

SPAN 421 Latin American Poetry and Music

Credits 3. 3 Lecture Hours. Study of contemporary Latin American poetry and music; analysis of language, rhythms and styles from 1900 to the present. **Prerequisites:** 6 credits of 300-level Spanish courses; junior or senior classification or approval of instructor.

SPAN 423 Soccer in the Hispanic World

Credits 3. 3 Lecture Hours. Overall perspective on the sport; analysis of the interaction of soccer, arts and society; comprehensive sociological and aesthetic view of the game in the Spanish-speaking world; soccer as a metaphor for contemporary world; taught in Spanish. **Prerequisites:** 6 credits of 300-level Spanish courses; junior or senior classification, or approval of instructor.

SPAN 445 Cervantes

Credits 3. 3 Lecture Hours. Analysis of Cervantes' life, cultural milieu and works; emphasis on Don Quixote, its significance in Spanish literature and in the development of the modern novel; conducted in Spanish.

Prerequisites: At least 6 credits of 300-level Spanish courses; junior or senior classification or approval of instructor.

SPAN 450 Contemporary Spanish and Spanish-American Literature

Credits 3. 3 Lecture Hours. Representative works of authors from both sides of the Atlantic; study of similarities and differences in themes, movements, social and aesthetic concerns among Spanish and Spanish American writers. **Prerequisites:** 6 credits of 300-level Spanish courses; junior or senior classification or approval of instructor.

SPAN 452 Hispanic Sociolinguistics

Credits 3. 3 Lecture Hours. Regional and social varieties of Spanish; variation in situational contexts (register, style, and modality); theoretical foundations of sociolinguistic variation. **Prerequisites:** 6 credits of 300-level Spanish courses; junior or senior classification or approval of instructor.

SPAN 460 Topics in Hispanic Literature

Credits 3. 3 Lecture Hours. Exploration of a significant topic, author, movement, genre or period in Hispanic literature. May be taken three times for credit when topics vary. **Prerequisite:** 6 credits of 300-level Spanish courses; junior or senior classification or approval of instructor.

SPAN 461 Topics in Hispanic Culture

Credits 3. 3 Lecture Hours. Exploration of significant socio-cultural issues in Hispanic society and their influence on cultural and artistic production. May be taken three times for credit when topics vary. **Prerequisites:** 6 credits of 300-level Spanish courses; junior or senior classification or approval of instructor.

SPAN 462 Topics in Hispanic Linguistics

Credits 3. 3 Lecture Hours. Exploration of significant topics in Hispanic linguistics from different theoretical and applied perspectives. May be taken three times when topics vary. **Prerequisites:** 6 credits of 300-level Spanish courses; junior or senior classification or approval of instructor.

SPAN 483 Community Impact through Service Learning in Spanish

Credits 0 to 4. 0 to 4 Other Hours. Directed service-learning experience in a context where Spanish is necessary to deliver services to underserved populations in the U.S. or abroad. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** Majors and Hispanic Studies for Community Engagement minors only; approval of undergraduate studies director; junior or senior classification.

SPAN 484 Internship

Credits 0 to 3. 0 to 3 Other Hours. Directed internship in a Spanish-speaking professional environment to provide students with training or applied research experience appropriate to career objectives. Must be taken on a satisfactory/unsatisfactory basis. May be taken three times for credit. **Prerequisites:** SPAN majors; junior or senior classification and approval of instructor.

SPAN 485 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Individual supervision of readings or assigned projects selected for each student individually; written and oral reports. **Prerequisite:** Approval of instructor and department head.

SPAN 489 Special Topics in...

Credits 3. 3 Lecture Hours. Selected topics in an identified area of Spanish. May be repeated for credit. **Prerequisite:** 6 credits of 300-level Spanish; junior or senior classification.

SPAN 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in Hispanic Studies. May be repeated three times for credit. **Prerequisites:** SPAN majors; junior or senior classification and approval of instructor.

SPED - Special Education (SPED)

SPED 291 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in special education. May be repeated 2 times for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

SPED 302 Planning and Teaching with Explicit Instruction

Credits 3. 3 Lecture Hours. Familiarizes pre-service teachers with research associated with effective teaching; designing and implementing of instruction for students including those with mild to moderate disabilities; designing and managing environments and materials. **Prerequisites:** Grade of C or better in INST 210; or approval of instructor.

SPED 303 Characteristics and Educational Considerations of Disabilities

Credits 3. 3 Lecture Hours. Advanced instruction in the history, concepts, perspectives, and characteristics of individuals with exceptionalities; examines the history of discrimination against people with disabilities; exploration of each of the eligibility categories under the Individuals with Disabilities Education Act (IDEA) and corresponding characteristics; emphasis on culturally responsive communication and support.

Prerequisites: Grade of C or better in INST 210 or approval of instructor.

SPED 310 Instructional Strategies for Students with Disabilities

Credits 3. 3 Lecture Hours. Research-based strategies and techniques in teaching students who are at-risk academically or students with disabilities in a variety of general and special education settings; addresses teaching of academics, teacher strategies for engagement and incorporating the use of technology. **Prerequisite:** Admission to professional phase of program.

SPED 312 Effective Reading Instruction for Students with Diverse Abilities

Credits 3. 3 Lecture Hours. Information and competencies in research-based reading instruction for students who have disabilities, are struggling readers, and are bilingual/multilingual; includes reading assessment, dyslexia and effective instruction in phonemic awareness, phonics, reading fluency, vocabulary and comprehension, Response to Intervention (RTI) strategies, and data driven decision-making. **Prerequisite:** Admission to professional phase of program.

SPED 314 Effective Mathematics Strategies for Students with Disabilities

Credits 3. 3 Lecture Hours. Information and competencies through instruction in effective mathematics instruction for students P-12 with academic learning problems and/or disabilities; effective instruction design and teaching techniques, implementation of research-based methods relevant for active authentic learning; considers state and national standards related to teaching and learning mathematics. **Prerequisites:** Admission to the professional phase of the special education program; junior or senior classification.

SPED 316 Classroom Management and Behavioral Interventions - Tier 1 and 2 Supports

Credits 3. 3 Lecture Hours. Application of effective classroom management strategies, including evidence-based models of classroom discipline, proactive strategies to prevent misbehavior, effective responses to problem behaviors, and ethically appropriate discipline procedures for students with disabilities. **Prerequisites:** Grade of C or better in INST 210 or approval of instructor; admission to professional phase of program.

SPED 321 Assessment of Students with Disabilities

Credits 3. 3 Lecture Hours. Instruction in formal and informal assessment techniques used with students with disabilities, including interpreting and communicating scores; topics include the response to intervention (RTI) process; selecting assessments; describing assessments; using assessments to inform the development of Individualized Educational Programs (IEPs); and designing assessment for progress monitoring; development of knowledge and skills to be able to individually assess students with disabilities, and to understand and make data-based decisions using other measures as applicable. **Prerequisites:** Grade of C or better in INST 210; or approval of instructor; admission to professional phase of program.

SPED 325 Professional Skills and Dispositions I

Credit 1. 1 Lecture Hour. Study and development of skills focusing on collaboration, instruction, classroom management and professionalism in P-12 schools; Texas Education Agency (TEA) requirements and certification process monitored. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** Grade of C or better in SEFB 315; SEFB 325 or concurrent enrollment; admission to the professional phase of program.

SPED 326 Classroom Management and Behavior Interventions: Tier 3 Supporting and Managing Intensive Behavior

Credits 3. 3 Lecture Hours. Exploration and application of strategies to support students who engage in behaviors requiring intensive, individualized supports; communication of policies related to behavior management and supporting students with exceptionalities; conducting and analyzing data from a functional behavioral assessment (FBA); writing and implementing a behavior intervention plan (BIP) based on synthesized data; topics include legal and ethical guidelines, components of FBAs and BIPs, data collection, teaching replacement behaviors, and collaboration with other professionals. **Prerequisites:** Grade of C or better in SPED 316 or approval of instructor; admission to professional phase of program.

SPED 410 Professional Skills and Dispositions II

Credit 1. 1 Lecture Hour. Study and development of skills focusing on collaboration, instruction, classroom management and professionalism in P-12 schools; Texas Education Agency (TEA) requirements and certification process monitored. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** Grade of C or better in SEFB 320 and SPED 320; SEFB 410 or concurrent enrollment; admission to professional phase of program.

SPED 411 Assessment in Action: Writing and Implementing Individualized Education Programs

Credits 3. 3 Lecture Hours. Application of assessment scores and stakeholder input to create individualized education programs (IEPs); exploration of the evaluation process and the development of individualized family service plans (IFSPs) and transition plans; development of an IEP based on a real case or case study; topics include translating assessment data, writing present levels and goals, selecting appropriate services, accommodations, and modifications, and participating in an Admission, Review, and Dismissal (ARD) meetings. **Prerequisites:** Grade of C or better in SPED 321; or approval of instructor; admission to professional phase of program.

SPED 412 Adapting the General Curriculum

Credits 3. 3 Lecture Hours. Methods of academic instruction in core content areas for learners with extensive support needs, emphasis on evidence-based practices, linking instruction to state-standards, age appropriate instruction, application of systematic instruction and response prompting, data-based decision making, building learners communicative competence, and generalization of skills. **Prerequisites:** Grade of C or better in INST 210 or approval of instructor; admission to professional phase of program.

SPED 414 Methods and Issues in Low-Incidence Disabilities

Credits 3. 3 Lecture Hours. Overview of learning and behavioral characteristics of individuals with low-incidence disabilities such as intellectual disability, autism, physical disabilities, traumatic brain injury, sensory impairments, and multiple disabilities; research-based practices in assessment and education and designing educational environments that facilitate active participation, self-advocacy and independence. **Prerequisites:** Admission to professional phase of program.

SPED 418 Transition Planning and Preparation for Students with Disabilities

Credits 3. 3 Lecture Hours. Overview of the psychological, social, physical and cognitive development of students with disabilities; career assessment; programmatic options within educational and employment settings; transition models from school to adult settings. **Prerequisites:** Grade of C or better in INST 210 or approval of instructor; admission to professional phase of program.

SPED 442 Teaching Students with Emotional Disturbances and Behavior Disorders

Credits 3. 3 Lecture Hours. Research-based techniques and materials used in the instruction of students who have emotional and behavioral disorders across a variety of classroom and other educational environments; includes identification and assessment issues, placements, family involvement, and historical and legal issues. **Prerequisites:** Admission to professional phase of program.

SPED 491 Research

Credits 0 to 4. 0 to 4 Lecture Hours. Research conducted under the direction of faculty member in special education. May be repeated 2 times for credit. **Prerequisites:** Junior or senior classification and approval of instructor.

SPEN - Space Engineering (SPEN)

SPEN 201 Introduction to Space Engineering

Credits 3. 3 Lecture Hours. Broad overview and foundational knowledge of the key topics in Space Engineering; historical perspective on space exploration and the engineering advancements that have enabled deep space and planetary science missions, as well as human spaceflight and the commercial satellite industry; focuses on the unique characteristics of the space environment, which presents numerous challenges that drive the design of spacecraft systems; exploration of evolution of spacecraft system technology including power, communications, thermal control, life support, navigation, guidance, control and propulsion systems; emphasis on orbital mechanics, robotics, space architecture, and bioastronautics; topics include remote sensing, deep space propulsion, planetary defense, satellites, and end-to-end mission operations. **Prerequisites:** Grade of C or better in ENGR 102 and PHYS 206; grade of C or better in ENGR 216/PHYS 216 or PHYS 216/ENGR 216; grade of C or better in MATH 251 or MATH 253, or concurrent enrollment; Space Engineering majors.

SPEN 223 Fundamentals of Thermodynamics, Heat Transfer, and Fluid Mechanics for Space Engineering I

Credits 3. 3 Lecture Hours. Fundamentals of thermodynamics, heat transfer and fluid mechanics applied to space systems; concepts of energy, entropy, properties of liquids, vapors and mixtures; heat capacity of solids, liquids, vapors; heat conduction and radiation; fluid flows of relevance to habitats, biosystems, propulsion systems and atmospheres. **Prerequisites:** Grade of C or better in ENGR 102, PHYS 206, and SPEN 201; grade of C or better in ENGR 216/PHYS 216 or PHYS 216/ENGR 216; grade of C or better in MATH 251 or MATH 253, or concurrent enrollment; Space Engineering majors.

SPEN 324 Fundamentals of Thermodynamics, Heat Transfer, and Fluid Mechanics for Space Engineering II

Credits 3. 3 Lecture Hours. Continuation of SPEN 223; fundamentals of thermodynamics, heat transfer and fluid mechanics applied to space systems; concepts of energy, entropy, properties of liquids, vapors and mixtures; heat capacity of solids, liquids, vapors; heat conduction and radiation; fluid flows of relevance to habitats, biosystems, propulsion systems and atmospheres. **Prerequisites:** Grade of C or better in ENGR 102, PHYS 206, SPEN 201, and SPEN 223; grade of C or better in ENGR 216/PHYS 216 or PHYS 216/ENGR 216; grade of C or better in MATH 251 or MATH 253, or concurrent enrollment; Space Engineering majors.

SPEN 354 Materials Science for Space Engineering

Credits 3. 3 Lecture Hours. Study of the relationship between aerospace engineering material properties and microstructure; mechanical and thermal properties; environmental degradation; mechanical failure. **Prerequisites:** Grade of C or better in AERO 304.

SPEN 401 Space Design Principles

Credits 3. 3 Lecture Hours. Study of systems engineering; project lifecycle; stakeholder, concept of operations (CONOPS) and requirements definition; cost assessment; risk management; trade studies; decomposition and design of a space system; engineering ethics; technical communication. **Prerequisites:** Grade of C or better in AERO 307, SPEN 324, SPEN 354, and AERO 423.

SPEN 402 Space System Design

Credits 2. 2 Lecture Hours. Focuses on the design and analysis of a constellation of imaging satellites to develop 3D models of ground targets; emphasis on refinement of last semester's design and verification via the detailed simulation and optimization of the system's operations; project presented at the Engineering Project Showcase competition and the final capstone design review presentation. **Prerequisites:** Grade of C or better in AERO 307, SPEN 324, SPEN 354, AERO 423, and SPEN 401.

SPEN 437 Space Communications

Credits 3. 3 Lecture Hours. Basics of space communications systems; focuses on radio frequency communications systems and optical communications systems; topics include signals, modulations, source and channel coding, link performance, antennas and antenna arrays, transceivers, multiple access, communication networks, and advanced communications systems. **Prerequisites:** Grade of C or better in SPEN 201 and ECEN 314.

SPEN 439 Principles of Positioning, Navigation, and Timing

Credits 3. 3 Lecture Hours. Reference frames and transformations; Inertial Navigation Systems (INS) Global Navigation Satellite Systems (GNSS); timing sources and errors; applied Kalman filtering tools for GNSS/INS integration; image based navigation; spacecraft attitude sensors and algorithms; statistical signal processing methods for vehicle positioning system. **Prerequisites:** Grade of C or better in AERO 221, AERO 310, and AERO 423.

SPEN 441 Foundations of Space Autonomy

Credits 3. 3 Lecture Hours. Mathematical and computational foundations of aerospace systems autonomy; basic concepts to undertake the study of aerospace autonomous and intelligent systems (data structures, algorithms, probability theory, and optimization); classical artificial intelligence topics include search, constraint satisfaction, and logical and probabilistic reasoning; applications include planetary rovers and satellite swarms. **Prerequisites:** Grade of C or better in SPEN 401 or AERO 401, or concurrent enrollment.

SPEN 489 Special Topics in...

Credits 1 to 4. 1 to 4 Other Hours. Selected topics in an identified field of space engineering. May be repeated for credit. **Prerequisites:** Junior or senior classification, or approval of instructor.

SPMT - Sport Management (SPMT)

SPMT 217 Foundations of Sport Management

Credits 3. 3 Lecture Hours. History, principles, and objectives of the sport management profession; an overview of the structure of the sport industry; introduction to the scope and variety of career opportunities in sport.

SPMT 220 Olympic Studies

Credits 3. 3 Lecture Hours. History of the Olympic Games and their development over time; analyze, compare and contrast the relationship between the Olympics, cultures and societies; examination of central problems, accomplishments and collaborations revolving around the Olympics from a variety of viewpoints.

SPMT 225 Practical Skills for Sport Professionals

Credits 3. 3 Lecture Hours. Introduction to the writing, communication and technical skills required to succeed in the sport industry; segmented into units based on different professions within the sport industry such as journalism, marketing, technology, public relations, organizational communication and law.

SPMT 230 Introduction to Leadership in Sport Organizations

Credits 3. 3 Lecture Hours. Attainment and application of leaderships skills in the sports setting; analysis of sports leaders and their styles; ethics in sport leaders; preparation to work in youth sports institutions; youth community agencies and sport related non-profit agencies.

SPMT 260 Overview of Practices in Sport

Credits 2. 2 Lecture Hours. History, principles, and objectives of the sport management profession; an overview of the structure of the sport industry; introduction to sport management practices and career opportunities in sport. **Prerequisite:** Concurrent enrollment in SPMT 270.

SPMT 262 Human Capital Management in Sport

Credits 3. 3 Lecture Hours. Dynamic issues of individual and organizational change; overview of human resources, relational and conflict management, and leadership principles. **Prerequisite:** Grade of C or better in SPMT 260; concurrent enrollment in SPMT 272.

SPMT 265 Professional Communication for the Sport Industry

Credits 4. 4 Lecture Hours. Application of the writing, communication and technical skills required to succeed in the sport industry; utilizing various communication types including oral, written, digital and listening from a global perspective. **Prerequisites:** Grade of C or better in ENGL 103 or ENGL 104; grade of C or better in COMM 203, SPMT 260, SPMT 262, SPMT 270, and SPMT 272, or concurrent enrollment.

SPMT 270 Sport Marketing

Credits 2. 2 Lecture Hours. Broad and contemporary overview of the sport marketing field; differentiating the field of sport and entertainment marketing with the practices and applications of mainstream marketing. **Prerequisite:** Concurrent enrollment in SPMT 260.

SPMT 272 Sport Marketing Issues

Credits 2. 2 Lecture Hours. Recognition of current issues within the sport marketing field while gaining transferable skills necessary for the sport industry. **Prerequisite:** Grade of C or better in SPMT 270; concurrent enrollment in SPMT 262.

SPMT 285 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Work on a specified topic with the intent of promoting independent reading, research and study; supplement existing course offerings or subjects not presently covered. May be repeated for credit. **Prerequisites:** Freshman or sophomore classification; approval of instructor.

SPMT 289 Special Topics in...

Credits 0 to 4. 0 to 4 Lecture Hours. Selected topics in an identified area of sport management. May be repeated for credit.

SPMT 291 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of a faculty member in sport management. May be repeated 4 times for credit. **Prerequisites:** Freshman or sophomore classification; approval of instructor.

SPMT 295 Introduction to the Culminating Experience

Credit 1. 1 Lecture Hour. Orientation, observations and experiences in preparation for the Culminating Experience. **Prerequisite:** Grade of C or better in SPMT 260 and SPMT 270; grade of C or better in SPMT 265 or concurrent enrollment.

SPMT 304 Sport Psychology Management and Practice

Credits 3. 3 Lecture Hours. The relationship of psychology to sport and exercise; topics include history, application of learning principles, social psychology, personality variables, psychological assessment, youth sport, and diversity issues in sport and exercise. **Prerequisite:** Junior classification.

SPMT 316 Sales Strategies in Sport Organizations

Credits 3. 3 Lecture Hours. Preparation for the sport business workforce via the sales outlet; emphasis on developing skills for success in sport sales. **Prerequisites:** Grade of C or better in SPMT 217; junior or senior classification.

SPMT 319/SOCI 319 Sociology of Sport

Credits 3. 3 Lecture Hours. Social institution of sport and its consequences for American society; social organization from play to professional sport; violence, discrimination, women in sport; socialization implications from participation in sports. **Prerequisite:** Junior or senior classification. **Cross Listing:** SOCI 319/SPMT 319.

SPMT 321 Risk Management in Sport Organizations

Credits 3. 3 Lecture Hours. Legal principles and rules of law affecting the administration and operation of health, human performance, recreation and sports programs, resources, areas and facilities; risk management and legal concepts applied to contracts, human rights, constitutional issues, supervision of recreation activities and torts. **Prerequisites:** Junior or senior classification; or approval of instructor.

SPMT 330 Application of Leadership Skills in Sport Organizations

Credits 3. 3 Lecture Hours. Development and application of leadership vision to sport organizations; development of leadership skills that create collaborative and management of groups in sports organizations.

SPMT 333 Sport Management

Credits 3. 3 Lecture Hours. Introduction to techniques for proper management of programs in physical activities and athletics including the basic physical education instructional program, intercollegiate and interscholastic athletics, intramural and club programs, and alternative athletic programs such as health clubs, corporate fitness centers and YMCA/YWCAs. **Prerequisites:** Junior or senior classification; admission to professional phase of program.

SPMT 336 Diversity in Sport Organizations

Credits 3. 3 Lecture Hours. Examine an encompassing perspective of diversity within North American and international sport organizations. **Prerequisite:** Junior or senior classification; also taught at Galveston campus.

SPMT 337 International Sport Business

Credits 3. 3 Lecture Hours. The magnitude of global expansion and development of sport familiarity with major firms and organizations on the global scene, major issues in global sports; emphasis on business opportunities available internationally; underlying thesis focuses on the contrasts from the U.S. sport industry to foreign markets. **Prerequisite:** Junior or senior classification; also taught at Galveston campus.

SPMT 340 Sport Governance

Credits 3. 3 Lecture Hours. Governance and policy development in sport management; managerial activities related to governance, strategic management, ethics in sport, governance and policy development in specific sport contexts. **Prerequisite:** Junior or senior classification.

SPMT 360 Organizational Issues in Sport

Credits 3. 3 Lecture Hours. Gain knowledge and experience in organizational structure, organizational behavior, global issues, human resources, strategic and operational planning, data information systems, evaluation and assessment. **Prerequisite:** Grade of C or better in SPMT 260, SPMT 262, SPMT 265, SPMT 270, SPMT 272, and SPMT 295.

SPMT 362 Sport Leadership

Credits 3. 3 Lecture Hours. Attainment and application of leadership skills in the sport setting; concepts related to negotiations and change management; ethics and legal issues in sport. **Prerequisite:** Grade of C or better in SPMT 260, SPMT 262, SPMT 265, SPMT 270, SPMT 272, and SPMT 295.

SPMT 364 Financial Management in Sport

Credits 3. 3 Lecture Hours. Financial theories and practical application as they impact sport revenues and expenditures; familiarization with current issues and trends in financing sport organizations. **Prerequisite:** Grade of C or better in SPMT 260, SPMT 262, SPMT 265, SPMT 270, SPMT 272, and SPMT 295.

SPMT 366 Sport Facility and Event Management

Credits 3. 3 Lecture Hours. Orientation into the design, operations and functions related to cost-effectively managing recreational facilities and events; address key elements of program management, conflict management, group dynamics and customer service. **Prerequisite:** Grade of C or better in SPMT 260, SPMT 262, SPMT 265, SPMT 270, SPMT 272, and SPMT 295.

SPMT 370 Fan Behavior in Sport

Credits 3. 3 Lecture Hours. Communication with current and potential consumers; importance of identifying and understanding consumers when planning, creating, and performing marketing activities. **Prerequisites:** Grade of C or better in SPMT 260, SPMT 262, SPMT 265, SPMT 270, SPMT 272, and SPMT 295; junior or senior classification.

SPMT 372 Sales Strategies in Sport Organizations

Credits 3. 3 Lecture Hours. Preparation for the sport business workforce via the sales outlet with emphasis placed on students developing skills necessary for success in sport sales. **Prerequisite:** Grade of C or better in SPMT 260, SPMT 262, SPMT 265, SPMT 270, SPMT 272, and SPMT 295.

SPMT 374 Strategic Sport Marketing

Credits 3. 3 Lecture Hours. Managing customers to maximize long-term company profits focused on managing at the strategic level by targeting, acquiring, retaining and growing customers. **Prerequisite:** Grade of C or better in SPMT 260, SPMT 262, SPMT 265, SPMT 270, SPMT 272, and SPMT 295.

SPMT 401 Undergraduate Research Methods for Sport Organizations

Credits 3. 3 Lecture Hours. Methodology and application of social science research in sport organizations for undergraduates, including the research process, research designs, sampling procedures, measurement, survey research, hypothesis testing, descriptive analyses and the research presentation. **Prerequisites:** Grade of C or better in SPMT 295 and SPMT 481 (Seminar for Undergraduate Research).

SPMT 402 Pre-Internship Field Experiences

Credit 1. 2 Lab Hours. Orientation, observations and experiences in preparation for professional internships. **Prerequisites:** Senior classification; approved acceptance to field experience.

SPMT 412 Managing Sport Events

Credits 3. 3 Lecture Hours. Examination of principles involved in planning and managing sport events. **Prerequisites:** Junior or senior classification or approval of instructor.

SPMT 420 Sports Facility Planning

Credits 3. 3 Lecture Hours. Examination of the principles involved in planning and managing sports and recreational facilities. **Prerequisites:** Junior or senior classification; admission to professional phase of program or approval of instructor for non-sport management majors.

SPMT 421 Legal Aspects of Sport

Credits 3. 3 Lecture Hours. Explores the relationship between sport and law, and the fundamentals of law used by sport managers, including contract law, tort law, Constitutional issues, employment and discrimination law, the effect of state and federal statutes on recreational activities and sport, and current legal issues in sports. **Prerequisites:** Junior or senior classification; admission to professional phase of program or approval of instructor for non-sport management majors.

SPMT 422 Financing Sport Operations

Credits 3. 3 Lecture Hours. Study of financial theories and practical application as they impact sport revenues and expenditures; familiarization with current issues and trends in financing sport organizations. **Prerequisites:** Junior or senior classification; admission to professional phase of program.

SPMT 423 Marketing Aspects of Sport

Credits 3. 3 Lecture Hours. Investigation of the rapidly developing sports industry from a marketing perspective; familiarization of marketing terms and tools needed in the sports industry; introduction to the various aspects of marketing that make up the marketing plan. **Prerequisites:** Junior or senior classification; admission to professional phase of program.

SPMT 450 Professional Practice in Sport Management

Credits 1 to 7. 1 to 7 Other Hours. Information, perspectives and skills to promote the management of sports in the community, school, workplace and sport business settings; boundary-crossing partnerships across sport disciplines; the role of collaborative efforts to improve the needs of the sport community. May be taken four times for credit. **Prerequisite:** Admission to professional phase of program; senior classification.

SPMT 455 Research and Writing Culminating Experience

Credits 0 to 6. 0 to 6 Other Hours. Facilitation of culminating experience research project implementation, which includes conducting research and disseminating results in the form of a research paper and presentation. **Prerequisites:** Grade of C or better in SPMT 481 (Seminar for Undergraduate Research).

SPMT 460 Sport Business Planning

Credits 3. 3 Lecture Hours. Development of a sport business plan; planning, assessing and delivery of all components of a business plan for a sport organization. **Prerequisites:** Grade of C or better in SPMT 360, SPMT 362, SPMT 364, SPMT 366, SPMT 370, SPMT 372, and SPMT 374.

SPMT 462 Leadership Application in Sport

Credits 3. 3 Lecture Hours. Development and application of leadership vision to sport organizations; development of leadership skills that create collaborative management of groups in sports organizations. **Prerequisites:** Grade of C or better in SPMT 360, SPMT 362, SPMT 364, SPMT 366, SPMT 370, SPMT 372, and SPMT 374.

SPMT 470 Application of Marketing Strategies in Sport

Credits 3. 3 Lecture Hours. Examination of the application of marketing principles to the general sport enterprise; creation of sport marketing plans, evaluation of effective methods and practices relevant to sport marketing. **Prerequisites:** Grade of C or better in SPMT 360, SPMT 362, SPMT 364, SPMT 366, SPMT 370, SPMT 372, and SPMT 374.

SPMT 472 Data Analysis and Problem Solving in Sport

Credits 3. 3 Lecture Hours. Acquire market analysis and problem solving skills; understanding of rigorous marketing research methods; learn techniques to create marketing campaigns. **Prerequisites:** Grade of C or better in SPMT 360, SPMT 362, SPMT 364, SPMT 366, SPMT 370, SPMT 372, and SPMT 374.

SPMT 481 Seminar

Credit 1. 1 Lecture Hour. A variety of topical seminars in communicating contemporary and historical sport management subjects designed to complement the curriculum in sport management. May be taken three times for credit. **Prerequisite:** Admission to the professional phase of the sport management program; junior or senior classification; or approval of instructor.

SPMT 482 Professional Writing Seminar

Credit 1. 1 Lecture Hour. Acquaint students with a primary means of communicating contemporary research in sport management; extensive readings, intensive writings and an oral presentation designed to complement the curriculum in sport management by introducing the application of sport management research to organizational decision making. May be taken two times for credit. **Prerequisites:** Admission to professional phase of program or approval of instructor; junior or senior classification.

SPMT 483 Practicum in Sport Management

Credits 0 to 3. 0 to 3 Other Hours. Participation and study in sport management and administration; acquisition and practice of professional and/or clinical skills in sport management. May be taken up to 12 hours for credit. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** Admission to professional phase of program; approval of instructor; junior or senior classification.

SPMT 484 Internship in Sport Management

Credits 0 to 12. 0 to 12 Other Hours. Supervised internship with sport management organizations; acquisition and practice of professional and/or clinical skills in sport management. **Prerequisites:** SPMT 402; completion of all coursework.

SPMT 485 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Special problems in sport management assigned to individual students or to groups. May be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** Junior or senior classification; approval of instructor.

SPMT 489 Special Topics in...

Credits 0 to 4. 0 to 4 Lecture Hours. Selected topics in an identified area of sport management. May be repeated for credit.

SPMT 491 Research

Credits 0 to 6. 0 to 6 Other Hours. Research conducted under the direction of a faculty member in sport management. May be repeated 4 times for credit. **Prerequisites:** SPMT 481; junior or senior classification; approval of instructor.

STAT - Statistics (STAT)

STAT 182 Foundations of Statistics

Credit 1. 1 Lecture Hour. Elementary topics in statistics; data collection; design of experiments; confidence intervals, hypothesis testing; ethics in statistics; the role of statistics in industry, the health profession and the sciences. **Prerequisite:** Statistics majors only.

STAT 201 Elementary Statistical Inference

Credits 3. 3 Lecture Hours. (MATH 1342, 1442) Elementary Statistical Inference. Data collection, tabulation and presentation; elementary description of the tools of statistical inference; probability, sampling and hypothesis testing; applications of statistical techniques to practical problems. Only one of the following will satisfy the requirements for a degree: STAT 201 or BUSN 203; STAT 301, STAT 302, STAT 303.

STAT 205 Bioinformatics Cornerstone

Credit 1. 1 Lecture Hour. Exploration of reading, writing, and analyzing various biological, genetic, and medical topics, with a focus on learning how to think and write like a bioinformatician; strengthening critical reading comprehension and technical writing skills; writing synopses of research findings to lay audiences. **Prerequisites:** BIOL 112 and STAT 211; CSCE 110 or CSCE 111.

STAT 211 Principles of Statistics I

Credits 3. 3 Lecture Hours. Introduction to probability and probability distributions; sampling and descriptive measures; inference and hypothesis testing; linear regression, analysis of variance. **Prerequisite:** MATH 148, MATH 152, or MATH 172; also taught at Galveston and Qatar campuses.

STAT 212 Principles of Statistics II

Credits 3. 3 Lecture Hours. Design of experiments, model building, multiple regression, nonparametric techniques and contingency tables. **Prerequisite:** STAT 211.

STAT 301 Introduction to Biometry

Credits 3. 3 Lecture Hours. Intended for students in animal sciences. Introduces fundamental concepts of biometry including measures of location and variation, probability, tests of significance, regression, correlation and analysis of variance which are used in advanced courses and are being widely applied to animal-oriented industry. Only one of the following will satisfy the requirements for a degree: STAT 201 or BUSN 203; STAT 301, STAT 302, STAT 303. **Prerequisite:** MATH 168 or equivalent; junior or senior classification.

STAT 302 Statistical Methods

Credits 3. 3 Lecture Hours. Intended for undergraduates in the biological sciences. Introduction to concepts of random sampling and statistical inference; estimation and testing hypotheses of means and variances; analysis of variance; regression analysis; chi-square tests. Only one of the following will satisfy the requirements for a degree: STAT 201 or BUSN 203; STAT 301, STAT 302, STAT 303. **Prerequisite:** MATH 168 or equivalent; junior or senior classification.

STAT 303 Statistical Methods

Credits 3. 3 Lecture Hours. Intended for undergraduates in the social sciences. Introduction to concepts of random sampling and statistical inference, estimation and testing hypotheses of means and variances, analysis of variance, regression analysis, chi-square tests. Only one of the following will satisfy the requirements for a degree: STAT 201 or BUSN 203; STAT 301, STAT 302, STAT 303. **Prerequisite:** MATH 168 or equivalent; junior or senior classification; also taught at Galveston campus.

STAT 307 Sample Survey Techniques

Credits 3. 3 Lecture Hours. Concepts of population and sample; the organization of a sample survey; questionnaire design. Basic survey designs and computation of estimates and variances. **Prerequisite:** STAT 301 or STAT 302 or STAT 303 or BUSN 203.

STAT 312 Statistics for Biology

Credits 3. 3 Lecture Hours. Statistical learning methods for biological applications including the topics on generative models for count data, clustering, dimension reduction, hypothesis testing, classification and regression, experimental design and software tools in R to visualize and analyze biological data. **Prerequisite:** MATH 147 or MATH 142, or equivalent; STAT 201 or MATH 148, or equivalents.

STAT 315 Computational Data Science

Credits 3. 3 Lecture Hours. Computational practice of data science through a sequence of interactive modules that provides an integrated hands-on approach to its methods, tools, applications and supporting technologies including high performance and cloud computing platforms. **Prerequisites:** Grade of C or better in ENGR 102, CSCE 110, CSCE 111, or CSCE 206; grade of C or better in MATH 251, MATH 253, or STAT 211; junior or senior classification. **Cross Listing:** CSCE 305 and ECEN 360.

STAT 335/CSCE 320 Principles of Data Science

Credits 3. 3 Lecture Hours. Theoretical foundations, algorithms and methods of deriving valuable insights from data; includes foundations in managing and analyzing data at scale, e.g. big data; data mining techniques and algorithms; exploratory data analysis; statistical methods and models; data visualization. **Prerequisites:** STAT 211 or ECEN 303; STAT 212 or CSCE 222/ECEN 222; MATH 304. **Cross Listing:** CSCE 320/STAT 335.

STAT 404 Statistical Computing

Credits 3. 3 Lecture Hours. Statistical programming in R; random number generation; design of simulation studies; interactive and dynamic statistical graphics; parallel computing in statistics; statistical and machine learning algorithms. **Prerequisites:** STAT 212; junior or senior classification.

STAT 406 Design and Analysis of Experiments

Credits 3. 3 Lecture Hours. Design fundamentals; completely randomized designs; blocking; factorial, nested, nested-factorial designs; incomplete designs; fractional factorial designs; confounding; general mixed factorials; split plot; analysis of covariance; crossover designs; power analysis, sample size determination. **Prerequisite:** STAT 212; STAT 408.

STAT 407 Principles of Sample Surveys

Credits 3. 3 Lecture Hours. Principles of sample surveys and survey design; techniques for variance reduction; simple, stratified and multi-stage sampling; ratio and regression estimates; post-stratification; equal and unequal probability sampling. **Prerequisite:** STAT 212.

STAT 408 Introduction to Linear Models

Credits 3. 3 Lecture Hours. Introduction to the formulation of linear models and the estimation of the parameters of such models, with primary emphasis on least squares. Application to multiple regression and curve fitting. **Prerequisites:** STAT 212; MATH 304 or MATH 323.

STAT 414 Mathematical Statistics I

Credits 3. 3 Lecture Hours. Mathematical theory of statistics; probability, random variables and their distributions, transformations of random variables, expectations and variance, generating functions, sampling distributions and basic limit theorems. **Prerequisite:** MATH 221, MATH 251 or MATH 253.

STAT 415 Mathematical Statistics II

Credits 3. 3 Lecture Hours. Continuation of the mathematical theory of statistics, including principles for statistical inference, formulation of statistical models, reduction of data, point estimation, confidence intervals, hypothesis testing and Bayesian inference. **Prerequisite:** STAT 414 or MATH 411.

STAT 421 Machine Learning

Credits 3. 3 Lecture Hours. Theoretical foundations of machine learning, pattern recognition and generating predictive models and classifiers from data; includes methods for supervised and unsupervised learning (decision trees, linear discriminants, neural networks, Gaussian models, non-parametric models, clustering, dimensionality reduction, deep learning), optimization procedures and statistical inference. **Prerequisite:** Grade of C or better in MATH 304, MATH 311, or MATH 323; Grade of C or better in STAT 211, and STAT 404 or CSCE 221, or ECEN 303, and CSCE 121 or CSCE 120. **Cross Listing:** CSCE 421 and ECEN 427.

STAT 424/MATH 424 Probability and Computing

Credits 3. 3 Lecture Hours. Applications of modern probability in data science, with an emphasis on randomization and the role of probabilistic techniques in computing; discrete random variables and expectation; deviation inequalities and applications to randomized algorithms; probabilistic methods and satisfiability; Monte Carlo method; sample complexity; combinatorial dimension. **Prerequisites:** MATH 304, MATH 309, MATH 311, or MATH 323; MATH 411 or STAT 414. **Cross Listing:** MATH 424/STAT 424.

STAT 426 Methods in Time Series Analysis

Credits 3. 3 Lecture Hours. Autocorrelation and spectral characteristics of univariate, autoregressive and moving average models; identification, estimation and forecasting. **Prerequisites:** STAT 408; STAT 414.

STAT 436 Multivariate Analysis and Statistical Learning

Credits 3. 3 Lecture Hours. Matrix algebra; random vectors; multivariate distributions; copulas; multivariate generalizations of classical testing; principle component analysis; discriminant analysis; clustering; multidimensional scaling; factor analysis; canonical analysis.

Prerequisites: MATH 304 or MATH 323; STAT 212; STAT 415 or equivalent.

STAT 438 Bayesian Statistics

Credits 3. 3 Lecture Hours. Analysis of scalar and vector-valued parameters; Bayesian linear models; Monte Carlo computational methods; prior elicitation; hypothesis testing and model selection; hierarchical models; selected advanced models; use of statistical packages such as WinBUGS, R or MATLAB. **Prerequisites:** MATH 221; STAT 408 or equivalent.

STAT 445 Applied Biostatistics and Data Analysis

Credits 3. 3 Lecture Hours. Applications of regression methods in biostatistics; correlated data analysis; survival analysis; missing data techniques; use of the R programming language. **Prerequisites:** STAT 212; STAT 408.

STAT 446 Statistical Bioinformatics

Credits 3. 3 Lecture Hours. Analysis of high-dimensional genomic and proteomic data using R; sequence analysis; genome-wide association studies; proteomics; array-based technologies; classification techniques. **Prerequisites:** STAT 212.

STAT 447 Machine Learning for Computational Biology

Credits 3. 3 Lecture Hours. Machine learning and statistical learning for bioinformatics techniques and tools, with application to biological, genetic/genomic, and medical case studies. **Prerequisites:** STAT 315; GENE 301 or GENE 302; senior classification.

STAT 459 Categorical Data Analysis

Credits 3. 3 Lecture Hours. Techniques for the analysis of categorical data; contingency table analysis; logistic regression; Poisson regression; loglinear models; analysis of ordinal data; use of computer software such as SAS or R. **Prerequisite:** STAT 212; STAT 408 or equivalent.

STAT 482 Statistics Capstone

Credits 3. 3 Lecture Hours. Integration of statistical models, design, sampling, graphics and computing for the analysis of real problems; planning, drafting, revising and editing reports; ethics; principles of collaboration and communication. **Prerequisites:** STAT 404; STAT 408 and senior classification.

STAT 483 Interdisciplinary Data Analytics Practicum

Credits 3. 3 Lecture Hours. . Application of data analytic methods and technologies in domain-based problems with real-world data; use of relevant machine learning platforms and open source tools; organization of project activities to meet goals; written and oral communication skills and methods for effective collaboration in teams with members drawn from varied technical disciplines. **Prerequisite:** STAT 404, ISTM 313, ISTM 315, PETE 404, GEOP 361, CSCE 310, or CSCE 314; STAT 408, SCMT 305, ECEN 360, STAT 315, CSCE 305, GEOL 360, CSCE 305, CSCE 320/STAT 335, or STAT335; STAT 436, STAT 421, CSCE 421, ISTM 360, or PETE 419.

STAT 484 Internship

Credits 0 to 3. 0 to 3 Other Hours. Directed internship in an organization to provide on-the-job training and applied research experience with professionals in settings appropriate to statistics and student professional interest. **Prerequisites:** Major in statistics; 12 completed hours of statistics; 2.5 cumulative GPA; 2.5 GPA in statistics courses; approval of statistics undergraduate advisor.

STAT 485 Directed Studies

Credits 1 to 6. 1 to 6 Other Hours. Special problems in statistics not covered by another course in the curriculum. Work may be in either theory or methodology. **Prerequisite:** Approval of instructor.

STAT 486 Bioinformatics Capstone

Credits 3. 3 Lecture Hours. Integration of experimental design, computational algorithm, statistical methods for the analysis of high-throughput genomic data; planning, drafting, revising, and editing reports; principles of collaboration and communication. **Prerequisites:** STAT 408 or STAT 446; senior classification.

STAT 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of statistics. May be repeated for credit. **Prerequisite:** Junior or senior classification or approval of department head.

STAT 491 Research

Credits 0 to 4. 0 to 4 Lecture Hours. 0 to 4 Lab Hours. Research conducted under the direction of faculty members in statistics. May be taken four times for credit. Registration in multiple sections of this course is possible within a given semester provided that the per semester credit hour limit is not exceeded. **Prerequisite:** Junior or senior classification or approval of instructor.

TCMG - Technology Management (TCMG)

TCMG 476 Technical Network Capstone

Credits 4. 3 Lecture Hours. 3 Lab Hours. Development of knowledge and skills towards the application of technical network management in public education and corporate training settings; focus on practices, techniques and tools for managers of technical networks. **Prerequisites:** TCMG 303 or TCMG 304 with a grade of C or better; junior or senior classification.

TCMG 484 Professional Internship

Credits 6. 6 Other Hours. Directed internship in an organization to provide students with a learning experience supervised by professionals in organizational settings appropriate to the student's professional objectives; must be in good standing with the University. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** EHRD 481 and EHRD 490 with a grade of C or better; approval of instructor.

TCMG 485 Directed Studies

Credits 0 to 12. 0 to 12 Other Hours. Directed readings or research problems in industrial technology. **Prerequisites:** Junior or senior classification; approval of directed studies application.

TCMG 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of industrial technology. May be repeated for credit. **Prerequisite:** Approval of instructor.

TCMG 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in technology management. **Prerequisites:** Junior or senior classification; approval of instructor.

TEED - Teacher Education (TEED)

TEED 425 Supervised Clinical Teaching

Credits 12. 36 Other Hours. Culmination of teacher education program; integration and application of knowledge and skills learned from program of study while clinical teaching in accredited schools with university supervision. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** Admission and retention in teacher education program; successful completion of all coursework; senior classification.

TEFB - Teacher Ed Field Based (TEFB)

TEFB 273 Introduction to Culture, Community, Society and Schools

Credits 3. 2 Lecture Hours. 3 Other Hours. (EDUC 1301) Introduction to Culture, Community, Society and Schools. Field-based course that introduces the culture of schooling and classrooms for analysis within the lens of language, gender, racial, socio-economic, ethnic and academic diversity; the family as a partner in education and educational equality discussed.

TEFB 322 Teaching and Schooling in Modern Society

Credits 3. 2 Lecture Hours. 3 Lab Hours. Development, structure, management and finance of secondary schools; historical, philosophical, ethical and moral dimensions of teaching; role of school in a democratic society; teaching as a profession. **Prerequisites:** Junior or senior classification; admission to educator preparation program.

TEFB 324 Teaching Skills II

Credits 3. 2 Lecture Hours. 2 Lab Hours. Study and development of teaching skills necessary for applying instructional strategies; teaching general strategies, assessing student learning, and analyzing and synthesizing multiple source data; emphasis given to adolescent development and cultures and to teacher and child cultures. **Prerequisites:** Grade of C or better in TEFB 322; junior or senior classification.

TEFB 371 Dynamics and Management in Multicultural/Inclusionary Learning Environments

Credits 3. 2 Lecture Hours. 4 Lab Hours. Field-based course focusing on communication, methodology and management perspectives that lead to democratic classrooms; organizational structures that focus on transformative, inclusionary learning; interventions for students with disabilities; analysis of systemic conditions placing children from diverse backgrounds and representing diverse abilities in positions of "risk" for incomplete success in school. **Prerequisite:** Admission to teacher education; junior or senior classification; concurrent enrollment in EDCI 354.

TEFB 401 Language Arts in the Middle and Senior School

Credits 3. 2 Lecture Hours. 6 Lab Hours. Methodology of teaching language arts-related content with specific reference to language, literature, journalism, drama and speech interactions among these areas; development of oral competence; coordination with other subjects. Phase IV, Practicum I. **Prerequisites:** Completion of Phases I, II and III of the secondary program; admission to teacher education; enrollment in language arts-related teaching field.

TEFB 404 Social Studies in the Middle and Senior High School

Credits 3. 2 Lecture Hours. 6 Lab Hours. Features of social studies instruction in grades 6-12; approaches, methods and instructional materials. Phase IV, Practicum I. **Prerequisites:** Completion of Phases I, II and III of the secondary program; admission to teacher education; enrollment in history and/or social science teaching field.

TEFB 406 Science in the Middle and Secondary School

Credits 3. 2 Lecture Hours. 6 Lab Hours. Methods course for the prospective secondary teacher in the physical and biological sciences; implementation of contemporary curricula. Phase IV, Practicum I. **Prerequisites:** SEED minor; admission to educator preparation program; grade of C or better in TEFB 324.

TEFB 407 Mathematics in the Middle and Senior School

Credits 3. 2 Lecture Hours. 6 Lab Hours. Design and teach selected topics from middle and secondary school mathematics. Content, materials and methodology. **Prerequisites:** SEED minor; admission to educator preparation program; grade of C or better in TEFB 324.

TEFB 410 Social Studies and the Humanities in the Elementary School

Credits 3. 2 Lecture Hours. 6 Lab Hours. Recent trends, issues and procedures related to curriculum development and instruction in the social studies and humanities; integration of content, planning, design of appropriate teaching/learning experiences and evaluation; preparation of prototype materials. **Prerequisite:** Admission to teacher education; junior or senior classification; concurrent enrollment in RDNG 467, TEFB 412, and TEFB 413.

TEFB 412 Mathematics in the Elementary School

Credits 3. 2 Lecture Hours. 6 Lab Hours. Introduction to understanding of modern mathematics; integration of content, history and application of discovering techniques using problem solving approach; developing an understanding of four fundamental procedures—structure, measurement, sets, fractions—and communication of important mathematical concepts to elementary children. **Prerequisites:** Admission to educator preparation program; concurrent enrollment in RDNG 467, TEFB 410 and TEFB 413.

TEFB 413 Science in the Elementary School

Credits 3. 2 Lecture Hours. 6 Lab Hours. Designed to help elementary teachers understand basic concepts of science and scientific methods; content relates to natural phenomena involving physical, chemical and biological processes; elementary students appreciation and interest in science. **Prerequisites:** Admission to educator preparation program; concurrent enrollment required in RDNG 467, TEFB 410 and TEFB 412.

TEFB 426 Supervised Clinical Teaching

Credits 6. 24 Other Hours. Culmination of teacher education program; integration and application of knowledge and skills learned from program of study while clinical teaching in accredited schools with university supervision. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisite:** Admission and retention in teacher education program; successful completion of all coursework; senior classification.

TEFB 429 Supervised Clinical Teaching

Credits 9. 36 Other Hours. Culmination of teacher education program; integration and application of knowledge and skills learned from program of study while clinical teaching in accredited schools with university supervision. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** Admission and retention in teacher education program; successful completion of all coursework; senior classification.

THEA - Theatre (THEA)

THEA 103 Introduction to Devised Theatre

Credits 3. 3 Lecture Hours. Overview of approaches to devising performance and collective creation in the US and around the world; fundamentals of theatrical production.

THEA 110 Acting I: Fundamentals

Credits 3. 2 Lecture Hours. 4 Lab Hours. (DRAM 1351) Acting I: Fundamentals. A Stanislavsky-based approach to the fundamentals of acting, which may include sensory exercises, relaxation, concentration, imagination, improvisation, character analysis and scene work.

THEA 112 Introduction to Stagecraft

Credits 3. 2 Lecture Hours. 2 Lab Hours. Foundations of theatrical production and collaboration; introduction to theatre technology including scenic construction, drafting, carpentry, lighting, and rigging; scene shop and stage safety, use of equipment including hand tools and power tools.

THEA 200 Introduction to World Theatre

Credits 3. 3 Lecture Hours. (THEA 200) Introduction to World Theatre. Non-Western theatre, its origins and continuing influence on society and Western theater; emphasis on the theaters of India, China, Japan, Africa, the Caribbean and Latin America; also taught at Galveston campus.

THEA 210 Physical Acting

Credits 3. 2 Lecture Hours. 4 Lab Hours. Principles of physical acting and physical training of the actor; exploration of the materiality of the body onstage; topics include introductions to biomechanics, Viewpoints, Suzuki, Jacques Lecoq, Jerzy Grotowski, and others.

THEA 220 Decentering the Text

Credits 3. 3 Lecture Hours. Modes of authorship in theatre; introduction to script analysis techniques; approaches to collective creation, verbatim theatre, and postdramatic theatre-making.

THEA 245 Introduction to Theatrical Design

Credits 3. 3 Lecture Hours. Elements and principles of design for the theatre; role of the designer within the production team, theoretical and practical applications in the visual interpretation of plays.

THEA 250 Stage Makeup

Credits 3. 2 Lecture Hours. 4 Lab Hours. Design of makeup for the stage; practical makeup application techniques and media; hygiene and safety considerations; characterization through makeup.

THEA 255 Costume Technology

Credits 3. 2 Lecture Hours. 4 Lab Hours. Survey of the costume process from concept to realization; hand and machine sewing techniques; basic patterning and fitting methods; and craft techniques; participation in PVFA productions required.

THEA 281 History of the Theatre II

Credits 3. 3 Lecture Hours. (DRAM 2362) History of the Theatre II. Survey of the history of western theatre from the closing of the theaters in England in 1642 to the present; consideration of cross-cultural exchange and the influence of global performance practices on theatre in Europe and the United States; also taught at Galveston campus.

THEA 289 Special Topics in...

Credits 3. 3 Other Hours. Selected topics in theatre. May be repeated for credit. **Prerequisite:** Approval of instructor.

THEA 300 Dramaturgy

Credits 3. 3 Lecture Hours. Exploration of literary, production and theoretical dramaturgy in a classroom setting; script analysis, theatre criticism, theories of theatre, research techniques and dramaturgy in the production process, advancing thought about the art form in all its complexity; research methods for theatre. **Prerequisites:** Junior or senior classification.

THEA 304 Devised Theatre Studio

Credits 3. 1 Lecture Hour. 5 Lab Hours. Advanced theory and practice of conceiving, developing, rehearsing, and staging live and mediated devised theatrical performance; investigation of structures for collaborative creation; advanced techniques and skills for devising theatre; discussion and critical analysis of devised theatre. May be repeated two times for credit. **Prerequisites:** Grade of C or better in PERF 303.

THEA 307 Stage Management

Credits 3. 3 Lecture Hours. Role of the stage manager in a collaborative theatre-making process; communication, leadership, and organization skills; stage safety; practical application throughout preproduction, rehearsal, and performance phases; creation and use of promptbooks. **Prerequisites:** Grade of C or better in PVFA 111.

THEA 310 Strategies for Equitable Acting

Credits 3. 2 Lecture Hours. 4 Lab Hours. Advanced approaches to acting; care and respect in acting; strategies for sensitive representation of characters from varied backgrounds, cultures, and experiences; strategies for fostering inclusive and equitable rehearsal spaces. **Prerequisites:** Grade of C or better in PVFA 111.

THEA 320 Directing Live Performance

Credits 3. 2 Lecture Hours. 4 Lab Hours. Composition for the stage; theatre forms and styles; director's function and responsibility in producing plays and as a collaborator; script analysis; directing laboratory scenes. **Prerequisites:** Grade of C or better in PVFA 111 and THEA 220.

THEA 342 Applied Theatre

Credits 3. 3 Lecture Hours. Use of theatrical approaches to address issues facing diverse communities; topics may include theatre as therapy, theatre for development, creative drama, and other forms of theatrical community engagement. **Prerequisites:** Grade of C or better in PVFA 111.

THEA 345 Environmental Scenography

Credits 3. 2 Lecture Hours. 4 Lab Hours. Principles and applications of scenic design in diverse performance genres; conception, design and construction of physical environments; exploration of site-specific design, and scenic design beyond the stage. **Prerequisites:** Grade of C or better in THEA 245.

THEA 355 Creative Costuming

Credits 3. 2 Lecture Hours. 4 Lab Hours. Overview of the art of dress for performance; aesthetic, cultural, and historical considerations of the body and dress; characterization through costume; methods of design and rendering costumes. **Prerequisites:** Grade of C or better in THEA 245.

THEA 360 Art of Light

Credits 3. 2 Lecture Hours. 4 Lab Hours. The theatrical use of light on stage and beyond; color theory and color media; stage lighting theory and technique; operation and maintenance of lighting equipment; sculpting and storytelling with light; principles of projection design. **Prerequisites:** Grade of C or better in THEA 245.

THEA 370 Producing Theatre

Credits 3. 3 Lecture Hours. Overview of the business of theatre; principles of operating a theatrical venue and managing a theatre company; principles of budgeting, marketing, and personnel management; principles of presenting and season design; grants and fundraising; government and community relations.

THEA 379 Voice for the Stage

Credits 3. 3 Lecture Hours. Use of the voice as a creative instrument in performance; principles of breathing, musicality, vocal placement, and resonance; relationship between voice and body; sensitive approaches to vocal characterization. **Prerequisites:** Grade of C or better in PVFA 111.

THEA 386/MUSC 386 Evolution of the American Musical

Credits 3. 3 Lecture Hours. Examination of the American musical from its heterogeneous origins to a thriving and diverse expression of the human condition; analysis and critical discourse on the development of the American musical through text, audio and visual recordings.

Prerequisites: Junior or senior classification or approval of instructor.

Cross Listing: MUSC 386/THEA 386.

THEA 390 Theatre Practicum - Performance

Credits 0 to 4. 0 to 4 Other Hours. Participation as a performer in a departmental theatre production under the supervision of theatre arts faculty; audition or application may be required. May be taken 7 times for credit. **Prerequisites:** Junior or senior classification, or approval of instructor.

THEA 392 Theatre Practicum - Design

Credits 0 to 4. 0 to 4 Other Hours. Participation in the design team for a departmental theatre production under the supervision of theatre arts faculty; audition or application may be required. **Prerequisites:** Junior or senior classification, or approval of instructor.

THEA 401 Theatre Pedagogy

Credits 3. 3 Lecture Hours. Theory and practice of theatre pedagogy; foundational skills for teaching acting, theatrical production, and design to varied populations; introduction to equitable and inclusive teaching methods, lesson planning, instructional communication, and learning styles in theatre education. **Prerequisites:** Grade of C or better in PVFA 111.

THEA 410 Advanced Problems in Acting

Credits 3. 2 Lecture Hours. 4 Lab Hours. Investigation of advanced dramatic problems using acting, voice, movement, and style techniques; writing, development and performance of an autobiographical monologue; includes audition preparation and rehearsal techniques.

Prerequisites: Grade of C or better in THEA 210 or THEA 310 and approval of instructor.

THEA 435 Technology for Designers

Credits 3. 3 Lecture Hours. Fundamentals of design software including sound editing, video editing, and rendering for theatre; multi-media installation. **Prerequisites:** Grade of C or better in THEA 245; junior or senior classification, or approval of instructor.

THEA 441 Capstone Seminar in Theatre

Credits 3. 1 Lecture Hour. 5 Lab Hours. Capstone senior project on an individually-chosen research topic, presentation of a performance or interdisciplinary project; major writing and oral communication components. **Prerequisites:** Theatre major; completion of all Theatre coursework or taken concurrently with this course; approval of instructor, advisor and program director.

THEA 482 Topics in American Theatre and Performance

Credits 3. 3 Lecture Hours. Exploration of significant issues in American theatre and performance; emphasis on the aesthetic, social, and cultural issues affecting theatre and performance. May be taken two times for credit. **Prerequisites:** Junior or senior classification.

THEA 489 Special Topics in...

Credits 1 to 4. 1 to 4 Other Hours. Selected topics in theatre. May be repeated for credit. **Prerequisite:** Approval of instructor.

UGST - Undergraduate Studies (UGST)

UGST 001

Credits 0.

UGST 181 First Year Seminar

Credits 0 to 3. 0 to 3 Lecture Hours. Seminar on various contemporary topics; introduction to high quality college instruction and research; focus on writing, speaking, discussion and research; open to all majors; restricted to first-time-in-college students and limited in size to provide small class experience; also taught at Qatar campus. May be taken two times for credit.

UGST 182 Topics in Undergraduate Studies

Credits 0 to 3. 0 to 3 Lecture Hours. Selected interdisciplinary topics related to specific programs as identified by the office of undergraduate studies; for students in approved first year programs. May be taken two times for credit. **Prerequisite:** Freshman classification or approval of instructor; also taught at Qatar campus.

UGST 285 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Directed individual study on selected topics in undergraduate studies. May be taken six times for credit.

UGST 311 UScholar Exploration Series

Credits 0-1. 0-1 Lecture Hours. Selection from a variety of discussion topics designed to foster student-faculty interaction, intellectual and cultural enrichment, inter-and cross-disciplinary connections, and the development of interest and knowledge of issues outside of a student's degree area. May be taken six times for credit. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** Junior or senior classification or approval of instructor; admitted to University Scholar program.

UGST 405 Thesis Writing

Credits 0-1. 0-1 Lecture Hours. Accessing information, searching scholarly literature, and oral or poster presentation of scholarly work and formal research thesis. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** Junior or senior classification; admission to the Undergraduate Research Scholars thesis program.

UGST 484 Internship

Credits 0 to 3. 0 to 3 Other Hours. Directed internship in a community, public or private organization to provide students with on-the-job training and/or applied research experience appropriate to career objectives. May be taken three times for credit. **Prerequisites:** Junior or senior classification and approval of instructor.

UGST 485 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Directed individual study on selected topics in undergraduate studies. May be taken six times for credit.

UGST 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of a faculty member in undergraduate studies. May be taken three times for credit. **Prerequisites:** Junior or senior classification and approval of instructor.

UGST 492 Cooperative Education in Public Policy

Credits 0 to 6. 0 to 6 Other Hours. Educational work assignment in public policy setting related to student's career interest and course of study; supervision of the student will be by the cooperating employer and the instructor; reports, approved by course instructor, will be required. May be taken two times for credit. **Prerequisites:** Junior or senior classification; approval of Policy Internship Programs Staff.

UGST 497 Capstone

Credits 0 to 6. 0 to 6 Other Hours. Demonstrating mastery of discipline as applied to an original problem through an independent, mentored project; public presentation of work. May be taken two times for credit. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** Junior or senior classification; admitted to Undergraduate Service Scholars program.

URPN - Urban & Reg Planning (URPN)

URPN 201 The Evolving City

Credits 3. 3 Lecture Hours. Introduction to the history of contemporary urban and regional planning and how the evolving forms of cities and regions pose opportunities and/or challenges for planners; understanding key social, economic, political and technological forces that shape city form and function and its ramification for urban and regional planning.

URPN 202 Building Better Cities

Credits 3. 3 Lecture Hours. Determinants of land use patterns; classification of uses; idealized conceptual alternatives; location and size criteria; mapping; comprehensive planning process, relationship to circulation planning.

URPN 203 Smart Cities - Bit, Bots and Beyond

Credits 3. 3 Lecture Hours. Historic perspectives of technological innovation and urbanization; smart-city solutions to tackle the world's challenges in transportation, climate change, aging population, governance, economic growth, and social inclusion; challenges and promises of disruptive technologies; future proof policies and strategies.

URPN 204 Introduction to U.S. Health System

Credits 3. 3 Lecture Hours. Examination of historical evolution, current state and potential future of U.S. health system; health costs, quality, access; delivery settings, health care workforce, role of government, system performance.

URPN 210 Urban Analytical Methods I

Credits 3. 3 Lecture Hours. Study of various analytical techniques used in urban and regional decision making; quantitative approaches to analyze and manipulate data; utilization of statistical packages for data, analysis and communication to enhance urban planning modeling. **Prerequisite:** URPN majors only or approval of instructor.

URPN 220 Digital Communication I

Credits 3. 3 Lecture Hours. Applications of computer graphics, rendering, and visualization software in urban design, landscape architecture, and environmental analysis; introduction to basic concepts and principles of graphic composition; rendering, visualization, and linkages to landscape-referenced data. **Prerequisite:** Landscape Architecture and Urban Planning majors only or approval of instructor.

URPN 240 More Than Monuments: Preservation as Social Justice

Credits 3. 3 Lecture Hours. Exploration of the ways designers', planners', and preservationists' expertise, combined with historical inquiry and citizen engagement, have fostered social and restorative justice.

URPN 291 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of faculty member in landscape architecture and urban planning. May be taken 2 times for credit. **Prerequisites:** Freshman or sophomore classification.

URPN 302 Planning Law

Credits 3. 3 Lecture Hours. Familiarization with the fundamental principles of planning law and legislation; legal foundation for the urban planning process; alternative methods of plan implementation; emphasis on legal issues as they impact land use planning and development at the municipal level of government; participation in mock advocacy trials and public hearings. **Prerequisites:** URPN 301; URPN majors only.

URPN 310 Urban Analytical Methods II

Credits 3. 3 Lecture Hours. Focuses on research conducted by planners, sociologists, anthropologists, political scientists and a variety of applied social scientists; examines variety of procedures employed when conducting research in urban areas; furthers understanding and knowledge of statistical methods employed in social research and elements of geographical analysis. **Prerequisite:** Upper division College of Architecture; URPN 210 or approval of instructor, URPN majors only.

URPN 320 Digital Communication II

Credits 3. 3 Lecture Hours. Advanced applications of computer graphics, rendering, and visualization software in urban design, landscape architecture, and environmental analysis; introduction to basic concepts and principles of graphic composition, rendering, visualization, and linkages to landscape-referenced data. **Prerequisites:** URPN 220; department majors only.

URPN 325 Introduction to GIS in Urban and Regional Planning

Credits 3. 2 Lecture Hours. 3 Lab Hours. Provides an understanding of GIS fundamentals; basic concepts, principles and functions; essential skills for applying GIS in various fields such as urban planning, landscape architecture, land development, environmental studies, transportation and hazard management; based on learning through class projects.

Prerequisite: Upper division College of Architecture; department majors only or approval of instructor.

URPN 326 Advanced GIS in Urban and Regional Planning

Credits 3. 3 Lecture Hours. Advanced instruction in applications of spatial tools for urban planning, landscape architecture, land development, hazard management, and related problems; GIS applications through review of literature and practice; data quality, uncertainty, the integration of GPS, remote sensing and information technology within the context of urban and regional planning.

Prerequisite: URPN 325 or approval of instructor; department majors only.

URPN 330 Land Development I

Credits 3. 3 Lecture Hours. Interface between the physical and financial dimensions in design and development to achieve building and project economies; creating a physical product and a financial venture that are responsive to social and environmental concerns and to market economy and finance. **Prerequisite:** Department majors only or approval of instructor.

URPN 331 Public and Private Infrastructure Funding

Credits 3. 3 Lecture Hours. An introduction to issues of financing public and public-private development project; exploring the difference between raising revenue, including the trade offs associated with establishing a sustainable tax base, and raising capital through capital markets; illustration of the range of decisions with financing public and public-private partnerships. **Prerequisite:** Upper division College of Architecture; URPN majors only.

URPN 340 Housing and Community

Credits 3. 3 Lecture Hours. Housing, its development, planning, marketing, designing, financing and production; social and design history and contemporary issues of American housing development, urban renewal, neighborhood structure and community facilities. **Prerequisite:** Department majors and minors only or approval of instructor.

URPN 360 Issues in Environmental Quality

Credits 3. 3 Lecture Hours. Issues in environmental quality; focus on stormwater and ecosystem qualities influenced by land development; design and planning principles and techniques (e.g. low impact development) for sustainable stormwater management in urban and suburban watersheds. **Prerequisite:** Junior or senior classification or approval of instructor.

URPN 361 Urban Issues

Credits 3. 3 Lecture Hours. Issues pertaining to the evolution and development of cities and urban regions; examines the socio-economic, cultural and physical development of urban areas; addresses contemporary problems such as racial tension, unemployment and poverty, housing, pollution and environmental sustainability, traffic and congestion, land use, crime, public health, and other quality of life issues.

Prerequisite: Junior or senior classification or approval of instructor.

URPN 369 Transportation and Urban Form

Credits 3. 3 Lecture Hours. Examination of the interrelated nature of transportation, land use and urban design; familiarization with the role of transportation in contemporary society; understanding the interrelationships between transportation and urban form at both the regional and community levels. **Prerequisite:** Junior or senior classification or approval of instructor.

URPN 370 Health Systems Planning

Credits 3. 3 Lecture Hours. Introduction to planning in the health care system at both institutional and community levels. **Prerequisite:** Junior or senior classification or approval of instructor.

URPN 371 Environmental Health Planning and Policy

Credits 3. 3 Lecture Hours. Philosophical and historical relationships of human-environment-disease; environmental health domains and associated planning and policy organizations and initiative for monitoring, intervention, and prevention; interdisciplinary approaches for risk analysis of environmental health. **Prerequisite:** Junior or senior classification or approval of instructor.

URPN 372 Environmental Health Planning and Policy II

Credits 3. 3 Lecture Hours. Exploration of interdisciplinary perspectives to understand the relationship between urban planning and public health, with a focus on health planning and policy issues in the United States. **Prerequisites:** Junior or senior classification or approval of instructor.

URPN 401 Policy Implementation

Credits 3. 3 Lecture Hours. Techniques of implementing major urban development programs and plans; capital improvements programming and budgeting; overview of regulatory measures including zoning and subdivision regulations; public involvement process; and fiscal planning. **Prerequisite:** URPN majors only.

URPN 409 Urban Design Studio

Credits 5. 2 Lecture Hours. 9 Lab Hours. Design studio focused on urban design as a human-centered participatory practice; consideration of a project derived through community engagement; interdisciplinary service learning combining methodologies of architecture, landscape architecture and urban design. **Prerequisites:** Junior or senior classification; admission to upper level in BED or URPN-BS; URPN 220, URPN 320, URPN 325, URPN 483, concurrent enrollment in URPN 419.

URPN 420 Principles of Urban Design

Credits 3. 3 Lecture Hours. Theories and fundamental components of urban design including historical trends, case studies, land use arrangement, transportation options, open space networks, urban form, aesthetics and planning policies; application of the history and theory behind differing urban designs to practical projects. **Prerequisites:** LAND 101, URPN 201, URPN 202, and URPN 210.

URPN 440 Urban and Regional Economic Development

Credits 3. 3 Lecture Hours. Examines economic development processes in urban and regional planning; issues explored include theoretical, the economic development planning process, ethics, location factors, intergovernmental relations, budgeting, and private sector revenue generation. **Prerequisite:** URPN majors only or approval of instructor.

URPN 450 Emergency Management Principles and Practices

Credits 3. 3 Lecture Hours. Introduction to the fundamental principles of emergency management. **Prerequisite:** Upper division College of Architecture or approval of instructor.

URPN 451 Hazard and Vulnerability Analysis for Planners

Credits 3. 3 Lecture Hours. Tools and techniques used by city planners and emergency managers to determine their jurisdictions' hazard risk and social vulnerability to disaster impacts. **Prerequisite:** Junior or senior classification, URPN 450 or approval of instructor.

URPN 460 Sustainable Communities

Credits 3. 3 Lecture Hours. Focuses on sustainable community with applications in public policy/design including societal organization, disciplinary bound design and policy, and empowered approaches to design, social ecology and public policy; reading and review of relevant literature on sustainability, complemented with exercises to illustrate underlying principles. **Prerequisite:** Department majors and minors only or approval of instructor.

URPN 467 Land and Property Aspects of Sustainable Development

Credits 3. 3 Lecture Hours. Sustainability perspectives about values, rights, property and what constitutes an optimum human environment; sustainability principles and case studies emphasizing on-the ground, incentive-based land development that balances economic growth with environmental quality. **Prerequisites:** Upper division College of Architecture.

URPN 469 Urban Infrastructure

Credits 3. 3 Lecture Hours. Foundation of planning and managing infrastructure and public services; utilization of life-cycle method of infrastructure planning and delivery, research theory and tools to perform basic infrastructure planning. **Prerequisite:** URPN majors only or approval of instructor.

URPN 470 Health Systems Planning and Policy

Credits 3. 3 Lecture Hours. Analyzes health needs at community, regional and national levels; organization and supply of health services at community, regional and national levels; medical technology and its impact on health needs and system organization; medical care financing and its effects on health need and system organization; health planning for natural and human-made disasters; and service-learning for applying planning theories and methods. **Prerequisite:** Junior or senior classification or approval of instructor.

URPN 471 Planning Healthier Communities

Credits 3. 3 Lecture Hours. Planning for the creation of healthier cities/communities; emphasis on the impact of global paradigmatic shifts regarding community health, stakeholder participation, coalition building, leadership, visioning the planning process, and the need for more systemic and process orientation in community building. **Prerequisite:** Junior or senior classification or approval of instructor.

URPN 481 Seminar

Credits 3. 3 Lecture Hours. Seminar discussion of current topics in urban planning. **Prerequisite:** Senior classification.

URPN 483 Studio in Urban and Regional Science

Credits 1 to 6. 1 to 6 Lecture Hours. Studio introduces the confluence of ecological, environmental, economic, social, cultural, and political forces impacting the planning, design, and development of complex urban environments; site planning, design process, sustainability. **Prerequisite:** URPN majors only or approval of instructor.

URPN 484 Internship

Credits 3. 3 Other Hours. Practical experience in an office of design allied professionals; 12 week internship with a minimum of 480 hours; continuous employment; departmental pre-approval through the department internship coordinator required. May not be repeated for credit. **Prerequisites:** URPN majors only or approval of internship coordinator.

URPN 485 Directed Studies

Credits 1 to 5. 1 to 5 Other Hours. Individual instruction in selected aspects of urban planning not adequately covered in other courses. May be taken 3 times for credit. **Prerequisite:** Upper level classification.

URPN 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified field of urban studies. May be repeated for credit.

URPN 491 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of faculty member in landscape architecture and urban planning. May be taken 2 times for credit. **Prerequisites:** Junior or senior classification.

URPN 493 Urban and Regional Studies Capstone Course

Credits 5. 5 Lecture Hours. Syntheses and application of skills and knowledge gained through coursework applied to the development of creative solutions to real-world projects. **Prerequisites:** URPN 310, URPN 331, URPN 410, URPN 469; LAND 494; senior classification; URPN majors only.

URPN 494 Internship

Credits 6. 6 Other Hours. Practical experience in public, private, non-profit and for profit organizations of design allied professionals; 18 week internship with a minimum of 720 hours; continuous employment; departmental pre-approval through the department internship coordinator required. May not be repeated for credit. **Prerequisites:** Upper level classification and approval of internship coordinator.

VIBS - Vet Integrative Biosci (VIBS)

VIBS 102 Scientific Notations on Neuroscience Overview

Credit 1. 1 Lecture Hour. Survey of neuroscience on the basic neuroscience core ideas and neurological disorders; includes in-class scientific writing practice. **Prerequisite:** NRSC-TPC majors only; concurrent enrollment in VIBS 101 or NRSC 101.

VIBS 111 Biodefense, Biosecurity and Bioterrorism

Credit 1. 1 Lecture Hour. Concepts presented in all aspects of bioterrorism, local state and federal agencies, definition of all levels of bioagents, detection methods, bioagent dissemination, genetic modification of bioagents, vaccination strategies, health system preparedness. **Prerequisites:** Freshman or sophomore classification; or approval of instructor.

VIBS 201/NRSC 201 History of Neuroscience

Credit 1. 1 Lecture Hour. Wide spectrum of neuroscience discovery beginning at the turn of the 20th Century; emphasis on key discoveries and their rationale, experimental design, experimental methods, major findings and interpretation of results. **Prerequisites:** Sophomore classification. **Cross Listing:** NRSC 201/VIBS 201.

VIBS 204 Fundamentals of Food Toxicology and Safety

Credits 3. 3 Lecture Hours. Toxicity and safety of various foods and food additives, ingredients and contaminants; occurrence, control and prevention of food transmitted diseases. **Prerequisite:** Sophomore classification and CHEM 101.

VIBS 210 Twenty-first Century Global One Health

Credit 1. 1 Lecture Hour. In depth presentation of concepts of surveillance, epidemiology and resistance, tropical medicine and One Health, climate change and One Health, conservation medicine and One Health and protection science policy and One Health. **Prerequisites:** BIMS 110, VIBS 111, or equivalent; freshman or sophomore classification.

VIBS 211 Twenty-first Century Biological Threats

Credit 1. 1 Lecture Hour. In depth presentation of different forms of bioterrorism, agroterrorism, sociological perspectives, surveillance, dual use research, advanced vaccine development, global health security and career opportunities. **Prerequisites:** BIMS 101; BIMS 110, VIBS 111, or equivalent; freshman or sophomore classification.

VIBS 222 Great Poisonings of the World

Credits 3. 3 Lecture Hours. Exploration of the effect of intentional and accidental man-made and natural poisonings on humans and the environment and their impact on public policy. **Prerequisite:** Freshman or sophomore classification.

VIBS 243 Introductory Mammalian Histology

Credits 2. 1 Lecture Hour. 2 Lab Hours. Biological aspects of the human body by integrating histology and anatomy and physiology; emphasis on the transition of cell and tissue organization to organ systems that comprise mammalian organisms; builds upon concepts introduced in lower-level biology and builds a foundation to succeed in upper-level histology, anatomy and physiology.

VIBS 277 Essential Neuroscience - From Molecules to Nervous Systems

Credits 3. 3 Lecture Hours. Neuroscience from the molecular to system levels; fundamental principles and knowledge of neuroscience; current research information on neuroscience. **Prerequisites:** Sophomore classification and approval of instructor.

VIBS 285 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Directed studies in specific problem areas of veterinary anatomy and public health. **Prerequisites:** Freshman or sophomore classification and approval of department head.

VIBS 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of veterinary anatomy or topics not covered in other courses. May be repeated for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

VIBS 305 Biomedical Anatomy

Credits 4. 2 Lecture Hours. 4 Lab Hours. Comprehensive mammalian gross anatomy, using the dog and goat as model species; and introducing horse, cat, and ox structures where appropriate; includes laboratory dissection, prepared specimen examination, anatomical nomenclature, and the application of anatomy to clinical situations; general basic physiology will be presented to relate structure to function. **Prerequisites:** Grade of C or better in BIOL 112 and CHEM 228; junior or senior classification or approval of instructor.

VIBS 310 Biomedical Writing

Credit 1. 1 Lecture Hour. Mechanisms by which knowledge is shared among researchers, clinicians and other science professionals, then disseminated to the general public; an assortment of written assignments to develop writing skills specific for communicating scientific concepts to a variety of audiences. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisite:** Grade of C or better in BIOL 112, CHEM 228, PHYS 202 and MATH 142 or 151; junior or senior classification.

VIBS 311 Biomedical Explorations through Narrative

Credit 1. 1 Lecture Hour. Familiarization with the writing style required for biomedical and health science; instruction in writing styles and appropriate techniques to increase and strengthen writing abilities. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisite:** Grade of C or better in BIOL 112, CHEM 228, PHYS 202 and MATH 142 or 151; junior or senior classification.

VIBS 343 Histology

Credits 4. 3 Lecture Hours. 3 Lab Hours. Normal tissues of vertebrates including histogenesis of some; histogenesis and organography of mammalian tissues. **Prerequisites:** BIOL 112; CHEM 228; junior or senior classification; BIMS major with a minimum overall 2.5 Texas A&M GPA.

VIBS 401/NRSC 401 Developmental Neurotoxicology

Credits 3. 3 Lecture Hours. Effects of exposure to toxic substances on the developing nervous system; content to include mechanisms of toxicity of substances potentially devastating to the developing nervous system including lead, mercury and other heavy metals, alcohol, nicotine (smoking), pesticides, flame retardants, and others. **Prerequisites:** Grade of C or better in CHEM 258 or CHEM 228; junior or senior classification; VIBS 277 or NRSC 277 recommended. **Cross Listing:** NRSC 401/VIBS 401.

VIBS 402/BIMS 402 Anatomy

Credits 4. 2 Lecture Hours. 6 Lab Hours. Clinical and functional anatomy focused on pre-professional training; includes anatomy of all major body systems. **Prerequisites:** Grade of C or better in BIOL 112 and CHEM 258; junior or senior classification; minimum GPA 2.75; or approval on instructor. **Cross Listing:** BIMS 402/VIBS 402.

VIBS 407/NRSC 407 Core Ideas in Neuroscience

Credits 2. 2 Lecture Hours. General overview of selected core ideas across the full spectrum of neuroscience. **Prerequisite:** Junior or senior classification; background in science courses recommended. **Cross Listing:** NRSC 407/VIBS 407.

VIBS 408 Neuroscience and Religion

Credits 3. 3 Lecture Hours. Emphasis on the biology of the human mind in the context of religious implications. **Prerequisites:** Junior or senior classification; concurrent enrollment in NRSC 407/VIBS 407 or VIBS 407/NRSC 407.

VIBS 411 Tumor Cell Biology and Carcinogenesis

Credits 3. 3 Lecture Hours. Principles of tumor biology; role of gene-environment interactions; molecular mechanisms regulating cancer initiation and progression; therapeutic treatment of cancer. **Prerequisites:** BIMS 320/GENE 320 or equivalent; junior or senior classification.

VIBS 413 Introduction to Epidemiology

Credits 3. 3 Lecture Hours. Study and measurement of disease and health in populations; examples from literature and current events; emphasizes concepts and appreciation for epidemiologic approaches and applications in life. **Prerequisite:** Junior or senior classification.

VIBS 420 Computer Applications in Public Health Research

Credits 3. 2 Lecture Hours. 3 Lab Hours. Introduction to the use of computers for public health research applications, including word processing, spreadsheets, data base management and telecommunications. **Prerequisites:** Senior classification or approval of instructor; BIMS major with a minimum overall 2.5 Texas A&M GPA.

VIBS 422 Endocrine Toxicology

Credits 4. 4 Lecture Hours. Impacts of endocrine toxicology on endocrine system; prevalence, environmental and occupational use and disposal of environmental endocrine disrupting chemicals (EDCs); structure, toxicokinetics and mechanism of action of EDCs; effects of EDCs on the development and function, disorders and diseases of the endocrine and reproductive organs. **Prerequisites:** Senior classification; approval of instructor.

VIBS 424/VTPP 424 Biomedical Neuroendocrinology and Endocrine Disorders

Credits 3. 3 Lecture Hours. Neuroendocrine (hypothalamus-pituitary) control of puberty, menstruation, ovulation, pregnancy, labor, lactation, female reproductive cycles, male reproductive functions, thyroid and parathyroid, adrenal and kidney, diabetes, obesity, sleep, memory, learning and aging and their endocrine disorders; overview on biosynthesis, transport and signaling of peptide and neuropeptide hormones, steroids and prostaglandins. **Prerequisites:** Honors, junior or senior classification, or approval of instructor. **Cross Listing:** VTPP 424/VIBS 424.

VIBS 426/ENTO 426 Methods in Vector-Borne Disease Ecology

Credits 3. 1 Lecture Hour. 5 Lab Hours. Methodological understanding of how vector-borne diseases are studied in the field and laboratory; hands-on exploration of the ecology disease systems in a one health framework; concepts of design, execution and presentation of research projects; outdoor field work and bio-safety level 2 laboratory. **Prerequisites:** Junior or senior classification and approval of instructor. **Cross Listing:** ENTO 426/VIBS 426.

VIBS 443 Biology of Mammalian Cells and Tissues

Credits 4. 3 Lecture Hours. 3 Lab Hours. Molecular phenomena placed in context with tissues, organs and organ systems; cell and tissue structures visualized by light microscopy and electron micrographs for functional relationships; clinical correlations reveal relevance of histology in specific disease states; conceptual thinking exercises facilitate problem solving skills. **Prerequisites:** Junior or senior classification in life sciences and interest in health related careers.

VIBS 445 Learning and Applying Peer Teaching Principles in Biomedical Anatomy

Credits 3. 2 Lecture Hours. 4 Lab Hours. Application of peer teaching techniques in an undergraduate lab course; discussion of current pedagogical theories and practices; focus on using effective communication in the classroom; development of personal teaching philosophy, assessments and learner-centered engagement strategies. **Prerequisite:** Grade of B or better in VIBS 305 and approval of instructor.

VIBS 446 Functional Anatomy of Domestic Animals

Credits 4. 3 Lecture Hours. 4 Lab Hours. Comprehensive mammalian gross anatomy, includes dog, cat, ruminant, and equine species. **Prerequisites:** Grade of C or better in BIOL 112 and CHEM 228; junior or senior classification; minimum GPA 2.75 or higher; or approval of instructor.

VIBS 447 Neurophysiology of Music

Credits 2. 2 Lecture Hours. Exploration of the heritability and genetics of musical talent, the physiology and physics of hearing, and the neurophysiology of processing sound using primarily German and Austrian compositions. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisite:** Junior or senior classification.

VIBS 450 Mammalian Functional Neuroanatomy

Credits 4. 3 Lecture Hours. 2 Lab Hours. Functional morphology of the domestic animal and human brain using gross specimens, microscopic sections, interactive computer-, DVD- and video-assisted instructional programs supplemented with clinical case studies. **Prerequisites:** Junior or senior classification; BIMS, biology, biochemistry, or psychology majors, or neuroscience minors with overall 3.5 Texas A&M GPA; or approval of instructor.

VIBS 456 Science in Cinema and Society

Credits 3. 3 Lecture Hours. Examination of the role science depicted in popular culture plays in shaping basic science literacy. **Prerequisites:** VIBS 310; majors only; junior or senior classification; approval of instructor.

VIBS 485 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Directed individual study of a selected problem in veterinary anatomy (with emphasis on neuroscience, cell biology, reproduction, developmental biology, marine mammal anatomy) approved by instructor or selected problems in veterinary public health (with emphasis on food safety, toxicology, epidemiology, informatics, zoonoses). **Prerequisites:** Junior or senior classification and approval of instructor.

VIBS 489 Special Topics in...

Credits 1 to 4. 0 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of veterinary anatomy (with emphasis on neuroscience, cell biology, genetics, reproduction, developmental biology, marine mammal anatomy) or selected topics in veterinary public health, epidemiology, zoonoses, food hygiene, food toxicology and mycotoxicology. May be repeated for credit. **Prerequisites:** Junior or senior classification and approval of instructor; BIMS major with a minimum overall 2.5 Texas A&M GPA.

VIBS 491 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of faculty member in veterinary integrative biosciences. May be taken four times for credit. **Prerequisites:** Junior or senior classification in Biomedical Sciences or approval of instructor; grade of C or better in VIBS 310 or VIBS 311.

VIST - Visual Studies (VIST)

VIST 101/FILM 101 Introduction to Visual Studies

Credits 3. 3 Lecture Hours. Survey of topics in the interdisciplinary field of visual studies, including forms of art, media, and architecture, and visual culture in global and intercultural contexts; application of visual studies methods and techniques to art, media, and architecture; analysis of the visual in contemporary culture; in-class visual studies exercises and discussions. **Cross Listing:** FILM 101/VIST 101.

VIST 105 Principles of Design I

Credits 3. 1 Lecture Hour. 7 Lab Hours. Principles and theory of design and visual communication; elements and organizational structure of the visual language; sign, symbol and meaning; visual perception; problem solving and the creative process; introduction to color theory; emphasis on two-dimensional design. **Prerequisite:** Lower division in Visualization.

VIST 106 Principles of Design II

Credits 3. 1 Lecture Hour. 7 Lab Hours. Fundamentals of spatial design; theory of form; transformations, additive/subtractive techniques as process; 3D composition; traditional modeling and construction techniques; formal visual analysis and critique. **Prerequisite:** Grade of C or better in VIST 105.

VIST 110 Design Innovation

Credits 3. 2 Lecture Hours. 2 Lab Hours. Introduction to fundamental design issues, processes, and theories relevant to design resolution and the creation of new ideas for innovative design products and services by keeping users' needs at the center of the development process; overview of design research, prototyping, evaluation, and communication techniques to generate valuable insights for design innovation.

VIST 131 First Year Seminar

Credit 1. 1 Other Hour. Seminar on contemporary topics related to Visualization; introduction to college instruction and experiences; focus on writing, exploration, discussion and research. **Prerequisite:** Lower division in Visualization.

VIST 170 Introduction to Visualization Computing Environments

Credit 1. 2 Lab Hours. Procedures, practices and environments useful for visual problem solving using programmatic languages; setup and use of the computing environment; useful system tools and commands; basic programming concepts and constructs. **Prerequisite:** Lower division in Visualization.

VIST 172 Foundations of Visual Computing

Credits 3. 2 Lecture Hours. 2 Lab Hours. Introduction to computer programming and mathematical concepts needed for developing solutions to visual computing problems; includes a graduated series of hands-on programming assignments; introduction to scripting in a professional animation package and emphasis on problem solving and debugging. **Prerequisite:** Lower division in Visualization.

VIST 173 Foundations of Visual Computing II

Credits 3. 2 Lecture Hours. 2 Lab Hours. Continuation of the introduction to programming and mathematical concepts underlying visual computing, with emphases on object-oriented programming and interaction; includes a graduated series of hands-on programming assignments; introduction to scripting in a 3D animation and visual effects package. **Prerequisites:** Grade of C or better in VIST 172.

VIST 201 Writing for Design

Credit 1. 2 Lab Hours. Writing as a discipline for the development, conceptualization, critique and presentation of visual works; emphasis on portfolio and narrative development. **Prerequisite:** Major in visualization.

VIST 205 Principles of Design III

Credits 3. 1 Lecture Hour. 7 Lab Hours. Introduction to the creative processes, workflows and methodologies used in the field of visualization including interactive design, game design and development and animation. **Prerequisite:** ARTS 115; VIST 106; VIST 283.

VIST 206 Visual Studies Studio I

Credits 3. 1 Lecture Hour. 5 Lab Hours. Theory and practice of visual communication methodologies and processes used in interactive media, game design and development, or animation; visual storytelling. **Prerequisite:** Grade of C or better in VIST 275.

VIST 210 Time and Interaction

Credits 3. 2 Lecture Hours. 2 Lab Hours. Introduction to the history and practice of designing narrative media exploring principles and aesthetics of linear and non-linear interactive media.

VIST 215 Look Development I

Credits 3. 2 Lecture Hours. 4 Lab Hours. Introduction to look development for 3D environments; principles of light transport and material properties; physically-based shading; digital image foundations; texture and shader authoring; adding visual detail through texture data; proceduralism and image-based capture; accurate digital recreation of an asset based on real source material; industry and platform requirements. **Prerequisites:** Grade C or better in VIST 206.

VIST 216/DCED 216 Performance Documentation and Editing

Credits 3. 3 Lecture Hours. Exploration of the technical and artistic skills required for filming and documenting performance; fundamental techniques of camera movement and frame composition; hands-on experience learning and operating various cameras, movement apparatuses and camera rigs, lighting equipment, and professional editing programs to produce archival and promotional documentation of live performances. **Cross Listing:** DCED 216/VIST 216.

VIST 225 Virtual Production Techniques

Credits 3. 2 Lecture Hours. 2 Lab Hours. Introduction to the virtual production techniques utilized in various fields of visualization; topics include live action cinematography, real time engine, direct modeling, and animation digital content creation; procedural digital content creation; animation sequencing and virtual camera control in a real-time engine. **Prerequisites:** Lower division in Visualization, or approval of instructor.

VIST 235 Theory and Practice in Visualization

Credits 2. 1 Lecture Hour. 2 Lab Hours. Professional material development, media theory and trends, copyright law and common business practices; professional practice in pursuit of career paths for creative fields in Visualization. **Prerequisite:** Grade of C or better in VIST 275.

VIST 270 Computing for Visualization I

Credits 4. 3 Lecture Hours. 2 Lab Hours. Theory and practice of visual computer based problem solving; system tools; scripting; software design principles and practice; basics of interactive programming and interface design; development concepts and principles useful in digital art and visualization production. **Prerequisite:** MATH 151 and upper division in Visualization.

VIST 272 Visual Computing

Credits 3. 2 Lecture Hours. 2 Lab Hours. Emphasis on the procedural and mathematical principles underlying computer programming for visual display and interaction; basics of digital image processing, parametric and implicit shape description, and applied linear algebra; includes an introduction to scripting in a 3D gaming package. **Prerequisite:** Grade of C or better in VIST 173.

VIST 275 Production Techniques

Credits 3. 2 Lecture Hours. 4 Lab Hours. Introduction to the asset-creation techniques utilized in various fields of visualization; topics include game development, visual effects, interactive media, animation, and fabrication; interdisciplinary principles shared by diverse production pipelines, with a focus on 3D visualization. **Prerequisite:** Grade of C or better in VIST 106.

VIST 282 2D Visualization Techniques

Credit 1. 2 Lab Hours. Introduction to software used in the visual arts including 2D raster and vector images for motion graphics, animation, illustration and design. Specific course content will vary based upon curriculum requirements. May be taken for credit up to two hours. **Prerequisite:** Major in visualization or minor in art.

VIST 283 3D Visualization Techniques

Credit 1. 2 Lab Hours. Introduction to software used in the visual arts including 3D modeling, gaming and animation; applicable to 3D printing and rendering. Specific course content will vary based upon curriculum requirements. May be taken for credit up to two hours. **Prerequisite:** Major in visualization.

VIST 284 Visualization Techniques

Credit 1. 2 Lab Hours. Introduction to software used in the visual arts for technical manipulation of content, including film editing, gaming, Augment Reality (AR)/Virtual Reality (VR), or Audio. Specific course content will vary based upon curriculum requirements. May be repeated two times for credit. **Prerequisite:** Major in visualization, minor in art, or minor in game design and development.

VIST 289 Special Topics in...

Credits 1 to 4. 1 to 4 Other Hours. Selected topics in an identified area of visualization. May be repeated for credit. **Prerequisite:** Approval of instructor.

VIST 301 Field Studies in Design Innovation

Credits 1 to 6. 0 Lecture Hours. 1 to 6 Other Hours. Design innovation in international and domestic environments away from the Texas A&M University campus; emphasis on the cultural, social, economic, geographical, climatic and technological factors influencing design solutions for human needs. May be taken two times for credit.

Prerequisite: Junior or senior classification; approval of assistant dean for international programs and initiatives.

VIST 305 Visual Studies Studio II

Credits 3. 1 Lecture Hour. 5 Lab Hours. Theory and practice of visual communication employing digital and conventional media; development of artistic concepts, proposal development and related implementation techniques; introduction to digital painting, 3D modeling, animatics and post production. **Prerequisites:** Grade of C or better in VIST 206.

VIST 310 Photography for Visualization

Credits 3. 2 Lecture Hours. 3 Lab Hours. Advanced aesthetic and thematic control of the digital image; exposure refinement; advanced lighting techniques and digital compositing; digital work-flow; image conversion and control; color management; digital forensics; printing technology, processes and presentation. **Prerequisites:** Upper division in Visualization.

VIST 311 Field Studies in Design Communication

Credits 3. 2 Lecture Hours. 4 Lab Hours. Art and design communication in international and domestic environments away from the Texas A&M University campus; emphasis on the tools, methods, and techniques for design communication. May be taken two times for credit. **Prerequisites:** Junior or senior classification; approval of Associate Dean for Academic Affairs.

VIST 325 Pre-Visualization and Storyboarding for Virtual Production

Credits 3. 2 Lecture Hours. 2 Lab Hours. Advanced three-dimensional computer animation; merging storytelling and visual communication; story development; expressive character design; acting; speech animation; choreography; stage lighting; storyboards; soundtracks; story reels; production efficiency, and quick iterative refinement. **Prerequisites:** Grade C or better in VIST 305 or VIST 372, or approval of instructor.

VIST 327 Virtual Cinematography and Lighting

Credits 3. 2 Lecture Hours. 2 Lab Hours. Principles and practical application of lighting and cinematography in the virtual production environment; building on the principles of visual communication; exploration of lighting, composition, and camera movement utilized for the achievement of desired presentation goals. **Prerequisites:** Grade of C or better in VIST 225; junior or senior classification.

VIST 331 Field Studies in Design Philosophy

Credits 3. 2 Lecture Hours. 4 Lab Hours. Art and performance experience in international and domestic environments away from the Texas A&M University campus; emphasis on the historical, philosophical, scientific, cultural, social, technical, and economic factors that influence art and performance. May be taken two times for credit. **Prerequisite:** Junior and senior classification; approval of associate dean of academic affairs.

VIST 333/FILM 333 Story for the Screen

Credits 3. 3 Lecture Hours. Exploration of the internal structure of stories; exploration of stories through emotion and action beats; narrative scripts in the visually kinetic language through which live-action and animated films and narratively-driven video games perform stories. **Prerequisites:** Junior or senior classification. **Cross Listing:** FILM 333/VIST 333.

VIST 339 Research Techniques in Visualization

Credits 3. 3 Lecture Hours. Research techniques used in visualization and creative fields; qualitative and quantitative methods, formulating research questions; determining appropriate methods, research planning and designing, data collection, testing and assessment; data analysis and interpretation. **Prerequisites:** Grade of C or better in VIST 206.

VIST 354 Principles of Multimedia Design

Credits 3. 2 Lecture Hours. 3 Lab Hours. Application and design of web and mobile platforms to create interactive products; planning, design, and development of intuitive user interfaces; focus on user-centered design, interaction principles, and standards-based technologies. **Prerequisite:** Grade of C or better in VIST 272 or ARTS 303.

VIST 357 Interaction Design

Credits 3. 2 Lecture Hours. 2 Lab Hours. Concepts, theories and methods in interaction design and interaction; dimensions of interaction design; data gathering methods and evaluation; task analysis; aesthetics and the sensory experience; prototyping, and workflow. **Prerequisite:** Upper division in Visualization.

VIST 370 Interactive Virtual Environments

Credits 3. 2 Lecture Hours. 2 Lab Hours. Languages and techniques useful for the creation of real time virtual environments; definition of formal scene description structures; modeling and transformation techniques; simulation techniques; behaviors and message passing; user interaction and animation; multiuser environments; creating virtual interfaces; scripting techniques. **Prerequisite:** Grade of C or better in VIST 272 or approval of instructor.

VIST 371 Artificial Intelligence in Interaction Design

Credits 3. 2 Lecture Hours. 2 Lab Hours. Addresses challenges and methodologies of designing interactions for artificial intelligence (AI) systems including user-centered design approaches; exploration of how AI transforms the way people interact with technology; work through the design of responsive, intuitive, and ethical AI interfaces; includes a combination of theory, practical design exercises, and project-based learning. **Prerequisites:** PVFA 201; PVFA 301 or concurrent enrollment; junior or senior classification or approval of instructor.

VIST 372 Creating Digital Environments

Credits 3. 2 Lecture Hours. 2 Lab Hours. Terminology, principles and practices in the creation of 3D models; mathematical principles of geometrical modeling theory and application of modeling techniques; boolean operations; parametric modeling; modeling; particle systems; L-Systems; nurbs and/or grammar based techniques; lighting setup and control. **Prerequisite:** Grade of C or better in VIST 271.

VIST 374 Multimedia Design and Development

Credits 3. 2 Lecture Hours. 4 Lab Hours. Concepts and techniques for integrating multimedia with user control and interactivity; production of computer presentations and interactive mobile devices; computer animation, graphics, production and use of digital images; scripting techniques; projects for stand-alone computers and mobile devices. **Prerequisite:** Junior or senior classification or approval of instructor and undergraduate program coordinator.

VIST 375 Foundations of Visualization

Credits 3. 3 Lecture Hours. Visualization concepts, techniques and applications; major topic areas include cultural context, application areas, visual perception, the digital image, visual language, coordinate systems, geometric representation, modeling animation, image synthesis, image composing, ethics and the future of visualization. **Prerequisites:** Grade of C or better in VIST 271.

VIST 386 Game Design I

Credits 3. 2 Lecture Hours. 2 Lab Hours. Game design, emphasis on mechanics, game play and interface design; history of game design, review of selected games; analysis of rules of play and iterative development of table-top games. **Prerequisites:** Junior or senior classification; or minor in Game Design and Development.

VIST 401 World-Building in Games

Credits 3. 2 Lecture Hours. 2 Lab Hours. Emphasis on creating and articulating a compelling setting for a table-top or computer game, and using world-building as a fundamental tool for creating games, structural analysis of ludic narratives and settings, understanding concepts like the chronotope and psychogeography and applying them to game design, and on making equitable and inclusive representations of other cultures. **Prerequisites:** Grade of C or better in VIST 386.

VIST 405 Visual Studies Studio III

Credits 3. 1 Lecture Hour. 5 Lab Hours. Theory and practice in the art and science of the visual image; scientific and mathematical principles as process; information theory and sensorial design; interactivity and user integration; integration of real and virtual environments including lighting design and material definition. **Prerequisites:** Grade of C or better in VIST 305, and VIST 301 or VIST 494.

VIST 406 Visual Studies Studio IV

Credits 3. 1 Lecture Hour. 5 Lab Hours. Theory and practice in the development of the digital image; non-traditional modeling methods; camera control and animation techniques; special effects; creative lighting methods; non-photorealistic rendering; integration of traditional and digital media in the creation of visual works. **Prerequisites:** Grade of C or better in VIST 305, and CARC 301 or VIST 494.

VIST 408/GLST 408 Techne, Technology, and the Visual Arts

Credits 3. 3 Lecture Hours. Examination of the tension between techne, art, and technology through an exploration of influential theoretical texts; analysis of major challenging works of visual art, ancient and contemporary, analog and digital, human and non-human; investigation of visual art and technology in a global context. **Prerequisites:** Junior or senior classification or approval of instructor. **Cross Listing:** GLST 408/ VIST 408.

VIST 409 Capstone Studio

Credits 3. 1 Lecture Hour. 5 Lab Hours. Completion of the proposed capstone project; integration of core methodologies, concept development, drawing and design, art history, aesthetics, research, methodology and processes, scripting and programming and digital communication; required peer reviewed publication or other appropriate venue. May be taken two times for credit. **Prerequisites:** Grade of C or better in VIST 305 and VIST 339.

VIST 415 Look Development II

Credits 3. 1 Lecture Hour. 4 Lab Hours. Advanced look development for photorealistic 3D assets and worlds; professional practices focused on efficiency and quality; managing project scale and complexity; procedural geometry-like hair, vegetation, and debris; procedural texture patterning; art and design principles for look development; integrating assets into larger creative projects using concept art and direction. **Prerequisite:** Grade C or better in VIST 215.

VIST 419 Motion Capture Animation

Credits 3. 2 Lecture Hours. 2 Lab Hours. Overview of motion capture technology, history, and techniques; application of motion-captured data to animate digital characters and props, including capture, cleaning and retargeting data for use. **Prerequisites:** Grade of C or better in VIST 305 or approval of instructor.

VIST 420 Business for Creatives

Credits 3. 3 Lecture Hours. Exploration of the essentials of entrepreneurship for creatives, from freelancing to small business ownership; hands-on development of business and financial plans, creating pitch decks, and gaining the knowledge needed to launch successful creative ventures while cultivating an entrepreneurial mindset. **Prerequisite:** Junior or senior classification, or approval of instructor.

VIST 425 Art Direction for Virtual Production

Credits 3. 2 Lecture Hours. 2 Lab Hours. Development of complementary skill sets specialized for the design of real-time environments design, real-time characters, and real-time props used in projects integrating physical and virtual sets for visual storytelling, and/or live performances and broadcast events; may include lighting studies cinematography, photogrammetry, performance capture and other uses of virtual production tools to help achieve the goals of a virtual art department. **Prerequisites:** Grade C or better in VIST 172 or VIST 225; junior or senior classification.

VIST 428 Advanced Game Design

Credits 3. 2 Lecture Hours. 2 Lab Hours. Emphasis on the application of game mechanics for different genres of games; development of mechanics for mobile, VR, PC, and console games; prototyping while also deeply engaging in the subject from an analytical perspective.

Prerequisites: Grade C or better in VIST 386, or approval of instructor.

VIST 429 On Set Virtual Production

Credits 3. 1 Lecture Hour. 4 Lab Hours. Development of advanced visual storytelling and visual communication projects utilizing virtual production technologies on a soundstage; emphasis on production efficiency on team-based collaborative projects with successive refinement of aesthetic intent; may include story development, expressive performance choreography, design and integrated use of virtual and practical sets and props, stage lighting, and sound; projects may be oriented toward live performance, live broadcast, or commercial production utilizing a combination of in-camera visual effects and post-processing and editing.

Prerequisites: Grade C or better in VIST 225, VIST 325, VIST 425, or approval of the instructor.

VIST 432 Applied Perception

Credits 3. 3 Lecture Hours. Topics in perceptual science useful for Visualization; cognitive, neural and evolutionary processes that undergird perceptual systems; perceptual factors that influence design decision.

Prerequisite: Upper division in Visualization.

VIST 439 Capstone Proposal Development

Credit 1. 2 Lab Hours. Individual proposal development for capstone studio; demonstration of ideation and concept development, drawing and design, art history, aesthetics, research, methodology and processes, scripting or programming and digital communication. **Prerequisites:** Grade of C or better in VIST 339.

VIST 441 Scientific and Technological Developments in Visual Arts

Credits 3. 3 Lecture Hours. Advanced level course focusing on the relationship between art, science and technology; visual arts before the digital revolution; the development of computer graphic arts.

Prerequisite: Upper division in Visualization.

VIST 442 Digital Characters - Art, Technology, Uses and Meaning

Credits 3. 2 Lecture Hours. 2 Lab Hours. Examination of the art and technology employed in the creation of digital characters; exploration of the reasons for, and impact of, their use in popular media and science; digital character creation techniques; estimating performance requirements; visual examples and written work used to illustrate topics and application areas. **Prerequisites:** Grade of C or better in VIST 206 and ARTS 349.

VIST 443 Algorithmic Design

Credits 3. 2 Lecture Hours. 2 Lab Hours. Best practices for the procedural generation of geometry, visual effects, and dynamics; process of creating geometry procedurally, how to create simple dynamic effects such as cloth and destruction simulations, and the fundamentals of creating visual effects such as explosions, smoke, and other fluids. **Prerequisites:** Grade C or better in VIST 272; junior or senior classification.

VIST 465 Video and Time Based Media

Credits 3. 2 Lecture Hours. 4 Lab Hours. Exploration of perception, vision and self-expression through video, film, and other time-based media; emphasis on language, theories, disciplines, and procedures used to plan and produce time-based works; exposure to the history of film and video and the social and conceptual influences on the medium. **Prerequisites:** Junior or senior classification.

VIST 470 Digital Rendering

Credits 3. 2 Lecture Hours. 2 Lab Hours. Creation of photorealistic images; rendering techniques and control; perceptual and physical principles related to creating realistic images; lighting and environmental effects; properties of materials; rendering models and techniques for adding visual detail; shading languages. **Prerequisites:** Grade of C or better in VIST 272; junior or senior classification.

VIST 472 Digital Compositing

Credits 3. 3 Lecture Hours. History, mathematical foundations, techniques and applications used in combining two dimensional images for film, video and multimedia; includes theoretical foundations of the digital image, color spaces and corrections, matte techniques, keying, rotoscoping, camera and object tracking, stereo compositing and process workflow. **Prerequisite:** Grade of C or better in VIST 272.

VIST 474 Designing for the Web

Credits 3. 2 Lecture Hours. 4 Lab Hours. Principles of web page and site creation; elements of visual design; typography for the web; web technologies; controlling the page real estate through cascading style sheets (CSS); imaging for the web; creation and use of color and graphics; web standards; building complete web sites. **Prerequisite:** Upper division in Visualization or minor in Graphic Design.

VIST 475 Character Animation

Credits 3. 2 Lecture Hours. 2 Lab Hours. Emphasis on the theoretical and practical approaches to 3D character animation; exploration of the 3D animation production pipeline; topics include the Twelve Principles of Animation, analysis of character animation in various media, and introduction to techniques and processes of implementing character animation into a game engine. **Prerequisites:** Grade C or better in VIST 206; junior or senior classification.

VIST 476/CSCE 447 Data Visualization

Credits 3. 3 Lecture Hours. Visual representation and design of data and information; 3D visualization, infographics, data narratives, principles of visual data encoding and interaction techniques. **Prerequisite:** Grade of C or better in VIST 272, or CSCE 221, or CSCE 441. **Cross Listing:** CSCE 447/VIST 476.

VIST 477/CSCE 446 Virtual Reality

Credits 3. 2 Lecture Hours. 2 Lab Hours. Theory and practice of virtual reality; interactive 3D virtual environments; input/output devices, 3D interaction techniques, augmented reality, role of realism in VR, navigation techniques, design guidelines and evaluation methods. **Prerequisite:** Grade of C or better in VIST 272, CSCE 221, or CSCE 441. **Cross Listing:** CSCE 446/VIST 477.

VIST 480 Game Level Design

Credits 3. 2 Lecture Hours. 2 Lab Hours. Game level design, the art of creating the game level context; game 2D & 3D spaces, spatial challenges; flow of game spaces and pacing; players engagement and communication through environment art; storytelling and rewards in game spaces. **Prerequisites:** Grade of C or better in VIST 386 or approval of instructor; junior or senior classification.

VIST 484 Summer Internship

Credits 3 to 6. 3 to 6 Other Hours. Practical experience in a visualization related company; equivalent of 240 hours over at least 5 weeks; departmental pre-approval through the departmental internship coordinator required; post evaluation conducted following the internship. May be taken two times for credit. **Prerequisites:** Upper division in Visualization and approval of visualization intern coordinator.

VIST 485 Directed Studies

Credits 1 to 6. 1 to 6 Other Hours. Special problems in visual studies. May be repeated for up to 9 credit hours. **Prerequisite:** Approval of instructor and undergraduate program coordinator.

VIST 487/CSCE 443 Game Development

Credits 3. 2 Lecture Hours. 2 Lab Hours. Aesthetic and technical aspects of computer game development, including game mechanics, story development, content creation and game programming; includes game design, interface design, 3D modeling and animation, graphics algorithms, shader programming and artificial intelligence; group project includes the design and development of a game from start to finish. **Prerequisites:** Grade of C or better in VIST 386 or CSCE 441, or approval of instructor. **Cross Listing:** CSCE 443/VIST 487.

VIST 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified field of visual studies. May be repeated for up to 9 credit hours. **Prerequisite:** Approval of instructor and undergraduate program coordinator.

VIST 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty members in visualization; emphasis on visual studies. May be repeated 2 times for credit. **Prerequisites:** Upper division in Visualization; approval of instructor and undergraduate program coordinator.

VIST 494 Internship

Credits 3 to 6. 3 to 6 Other Hours. Practical experience in a visualization related company; equivalent of 480-600 hours over at least 12-15 weeks; departmental pre-approval through the departmental internship coordinator required; post evaluation conducted following the internship. May be taken two times for credit. **Prerequisites:** Upper division in Visualization and approval of Visualization intern coordinator.

VLCS - Vet Large Animal Clin Sc (VLCS)

VLCS 422 Equine Disease and Epidemiology

Credits 3. 3 Lecture Hours. Principles and methods of epidemiology applied to equine health and prevention and control of selected equine infectious diseases. **Prerequisite:** Enrollment in equine certificate and junior or senior classification, or approval of instructor.

VLCS 485 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Directed individual study of selected problems in biomedical sciences approved by instructor. May be repeated for credit. **Prerequisites:** Senior classification in biomedical science and approval of department head.

VLCS 491 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under the direction of faculty member in large animal clinical services. May be taken three times for credit. **Prerequisites:** Junior or senior classification in biomedical sciences; approval of instructor.

VSCS - Vet Small Animal Clin Sc (VSCS)

VSCS 485 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Directed individual study of a selected problem in biomedical sciences approved by instructor. May be repeated for credit. **Prerequisites:** Junior or senior classification and approval of department head and instructor.

VSCS 491 Research

Credits 1 to 4. 1 to 4 Other Hours. Research conducted under guidance of the Small Animal Clinical Sciences faculty. May be taken three times for credit. **Prerequisites:** Junior or senior classification in Biomedical Sciences; approval of instructor.

VTPB - Veterinary Pathobiology (VTPB)

VTPB 212 Genetics in the News

Credits 3. 3 Lecture Hours. Use of contemporary news articles from the popular press to delve into the science of genetics and genomics and their methodologies to gain a deeper understanding of how data is analyzed and interpreted leading to news headlines. **Prerequisites:** Sophomore classification or approval of instructor; high school or college course in biology recommended.

VTPB 221 Great Diseases of the World

Credits 3. 3 Lecture Hours. Great infectious and parasitic diseases; introduction to the major diseases affecting humans and other mammals including plague, tuberculosis, AIDS and malaria. **Prerequisite:** Freshman or sophomore classification.

VTPB 285 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Directed individual study of selected problems in microbiology, parasitology, immunology, genetics or pathology as approved by instructor. **Prerequisites:** Approval of department head; freshman or sophomore classification.

VTPB 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of veterinary pathobiology. May be repeated for credit. **Prerequisite:** Freshman classification.

VTPB 301/RWFM 309 Wildlife Diseases

Credits 3. 3 Lecture Hours. Basic mechanisms of diseases as they occur in wildlife populations; interplay of habitat requirements, individual physiological requirements and disease producing mechanisms of varied wildlife species. **Prerequisite:** Junior classification or approval of department head. **Cross Listing:** RWFM 309/VTPB 301.

VTPB 303 Medical Communication in the International Community

Credits 3. 3 Lecture Hours. To develop an awareness that there is a culture associated with the practice of veterinary and human medicine in other countries. **Prerequisite:** Junior or senior classification.

VTPB 334 Poultry Diseases

Credits 4. 3 Lecture Hours. 2 Lab Hours. Poultry sanitation and diseases. Prevention and control of environmental, nutritional, parasitic and contagious diseases. **Prerequisites:** BIOL 107 or BIOL 111; junior or senior classification.

VTPB 405 Biomedical Microbiology

Credits 4. 3 Lecture Hours. 2 Lab Hours. Fundamentals of bacteriology, mycology, virology, infectious diseases, immunology and identification of pathogenic microorganisms. **Prerequisites:** Grade of C or better in BIOL 112 and CHEM 228; grade of C or better in MATH 142, MATH 147, MATH 151, or MATH 171; grade of C or better in PHYS 202; junior or senior classification.

VTPB 407 Advanced Veterinary Microbiology Laboratory

Credits 1 to 3. 1 to 4 Lab Hours. Modular course (one credit per module) that covers immunological and molecular techniques used with bacteria, parasites and viruses in animals for diagnostic and identification purposes. **Prerequisites:** VTPB 405, VTPB 409 and VTPB 438 or concurrent enrollment; junior or senior classification.

VTPB 408 Clinical Microbiology

Credits 3. 3 Lecture Hours. Conceptual basis for understanding pathogenic microorganisms and the mechanisms by which they cause disease in the human body; operates in an integrated manner with the spectrum of microorganisms including viruses, bacteria, fungi and parasites, describing the factors common to all infectious diseases; molecular biology, pathology and immunology explain the mechanisms for spread, immune response and recovery. **Prerequisites:** VTPB 405 or BIOL 456 and VTPB 409 or BIOL 454.

VTPB 409 Introduction to Immunology

Credits 3. 3 Lecture Hours. Diverse concepts relative to immunologic mechanisms inherent to domestic and laboratory animals. **Prerequisite:** Advanced classification.

VTPB 410 Cell Mechanisms of Disease

Credits 3. 3 Lecture Hours. Mechanisms, morphologic manifestations and clinical signs of disease processes at the cellular level. **Prerequisites:** CHEM 227 and CHEM 228, or equivalent; junior or senior classification; biomedical sciences major, biomedical engineering major or related field.

VTPB 411 One Health and Tropical Ecology

Credits 3. 2 Lecture Hours. 2 Lab Hours. Traditional lectures, guest lectures, field excursions, field laboratories, discussions, readings, student oral presentations and case studies; form and function of healthy ecosystems, various forms of ecosystem perturbation and how perturbations influence ecosystem, animal, and human health.

VTPB 415 Immunogenetics and Comparative Immunology

Credits 3. 3 Lecture Hours. Genetic mechanisms used to diversify immune receptors; immunoglobulins, T cell receptors, major histocompatibility complex, natural killer cell receptors, toll-like receptors and many others; selected comparative and veterinary examples of different immune recognition systems; evolution of the immune system. **Prerequisites:** Junior or senior classification, GENE 320/BIMS 320 and VTPB 409 or approval of instructor.

VTPB 421 Infectious Diseases of Humans and Animals

Credits 3. 3 Lecture Hours. Pathogenesis of selected bacterial pathogens of humans and animals; bacterial virulence factors, host immune responses; current concepts of extracellular, facultative intracellular and obligate intracellular bacterial diseases. **Prerequisites:** Junior or senior classification.

VTPB 425 Biomedical Microbiology

Credits 3. 3 Lecture Hours. Fundamentals of microbiology: bacteriology, mycology, virology, infectious diseases, immunology and identification of pathogenic microorganisms; specific emphasis on infectious diseases of humans and animals. **Prerequisites:** Grade of C or better in BIOL 112, CHEM 258, and PHYS 202; grade of C or better in MATH 142, MATH 147, MATH 151, or MATH 171; junior classification in Biomedical Sciences; may have concurrent enrollment with VTPB 426.

VTPB 426 Biomedical Microbiology Laboratory

Credit 1. 2 Lab Hours. Fundamentals of microbiology: mycology, virology, infectious diseases, immunology and identification of pathogenic microorganisms. Emphasis on infectious diseases of humans and animals. **Prerequisites:** Junior classification in BIMS; may be taken concurrently with VTPB 425.

VTPB 438 Biomedical Virology

Credits 3. 3 Lecture Hours. Fundamental study of nature and characteristics of human and animal viruses; classification, morphology, chemical structure, ability to cause disease and nature of resulting disease. **Prerequisite:** 3 hours of microbiology or approval of instructor.

VTPB 460 Mammalian Cell Pathobiology

Credits 3. 3 Lecture Hours. Cell signaling and organelle perspective of pathogenesis, mechanisms leading to a disease state; fundamental understanding of structural and functional properties of mammalian cells; molecular and cellular mechanisms underlying health-disease transitions. **Prerequisites:** BIOL 111 and BIOL 112, junior or senior classification or approval of instructor.

VTPB 485 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Directed individual study of selected problems in microbiology, parasitology, immunology, genetics or pathology as approved by instructor. **Prerequisites:** Approval of department head; junior or senior classification.

VTPB 487 Biomedical Parasitology

Credits 4. 3 Lecture Hours. 2 Lab Hours. Helminth and protozoan parasites of medical and veterinary importance; life cycles, morphology, taxonomic classification, economic and public health aspects and current topics in parasitic diseases. **Prerequisites:** BIOL 107 or BIOL 111; junior classification or approval of instructor.

VTPB 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of microbiology, pathology, genetics, immunology, parasitology, or physiological chemistry. May be repeated for credit. **Prerequisites:** Junior or senior classification and approval of department head.

VTPB 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Research conducted under the direction of faculty member in biomedical sciences. May be taken up to 9 hours for credit. **Prerequisites:** Junior or senior classification, or approval of instructor.

VTPP - Vet Physiology & Pharm (VTPP)

VTPP 123 Foundations of Physiology

Credits 3. 3 Lecture Hours. Introduction to fundamental concepts in physiology and the practice of physiology research through exploration of mathematical models used in physiology research; emphasis on prediction of complex adaptive behavior in health and disease from elementary math, physics, chemistry and biology. **Prerequisite:** Freshman or sophomore classification or approval of instructor.

VTPP 207 Methodologies of Physiology Education Research

Credits 3. 3 Lecture Hours. Creation and practice of physiology education research through quantitative, qualitative and mixed-methodology approaches; preliminary development of team-based research projects; emphasis on production and formal presentation of basic research using human subjects in a variety of physiology education topics.

VTPP 208 Analysis and Evaluation of Physiology Education

Credits 3. 3 Lecture Hours. Analysis and evaluation of research in physiology education; design of proper analytical techniques in quantitative, qualitative and mixed-methods analyses; emphasis on production of publishable applied research in physiology. **Prerequisite:** VTPP 207 or approval of instructor.

VTPP 223 Design of Experiments for Physiology Research

Credits 3. 2 Lecture Hours. 2 Lab Hours. Team or group formulation and refinement of novel hypotheses and design of controlled in vitro experiments; emphasis on production of publishable research in physiology. **Prerequisite:** VTPP 123 or approval of instructor.

VTPP 224 In Vitro Experimentation in Physiology Research

Credits 3. 2 Lecture Hours. 2 Lab Hours. Team or group collection, analysis and interpretation of data from in vitro experiments; emphasis on production of publishable research in physiology. **Prerequisite:** VTPP 223 or approval of instructor.

VTPP 234 Design of Models for Physiology Research

Credits 3. 3 Lecture Hours. Team or group design of novel models of physiological systems to predict homeostatic behavior arising from the interaction of subsystems; mastering bioinformatics toolboxes to process NextGen-omics data; emphasis on production and formal presentation of basic research in physiology.

VTPP 235 Analysis and Validation of Models for Physiology Research

Credits 3. 3 Lecture Hours. Team or group analysis and validation of models of physiological systems to explain disease states and design potential clinical interventions; analysis of NextGen-omics data; emphasis on production of publishable applied research in physiology. **Prerequisite:** VTPP 234 or approval of instructor.

VTPP 281 Seminar

Credits 4. 4 Other Hours. Exposure to scientists from a variety of biomedical disciplines through attendance at seminars followed by review and discussion of current scientific work in physiology and related subjects, and subsequent student seminar presentations. **Prerequisites:** Freshman or sophomore classification; approval of instructor.

VTPP 285 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Course for freshman and sophomore students who desire additional laboratory work in physiology to supplement required courses. **Prerequisites:** Freshman or sophomore classification; approval of department head.

VTPP 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of veterinary physiology and pharmacology. May be repeated for credit.

VTTP 291 Research

Credits 0 to 4. 0 to 4 Other Hours. Laboratory and/or field research supervised by a faculty member. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisites:** Freshman or sophomore classification; approval of instructor.

VTTP 323 Physiology of Domestic Animals

Credits 3. 3 Lecture Hours. Physiology essential to the understanding of life processes; for animal science, wildlife, agriculture and related fields. **Prerequisite:** BIOL 111 or equivalent; junior or senior classification.

VTTP 330 Biomedical Toxicology

Credits 3. 3 Lecture Hours. Understanding basic toxicologic concepts related to exposure, absorption and elimination of toxic compounds as well as mechanisms of action of toxicants and how they affect the body's organ systems; integration of toxicology with pharmacology and physiology to further understand how various toxicants impact on the body. **Prerequisites:** VIBS 222 or BIOL 319 or approval of instructor; junior or senior classification.

VTTP 401/BMEN 400 History of Human and Veterinary Medicine in Europe

Credits 4. 4 Lecture Hours. Addresses the major developments in human and veterinary medicine in Europe from the Middle Ages to the present; explores key events and figures in medical history and analyzes issues of current biomedical concern in a historical context; for example, animal rights, ethics of humane experimentation, euthanasia. **Prerequisites:** Admitted to major degree sequence in biomedical engineering; VTTP 434. **Cross Listing:** BMEN 400/VTTP 401.

VTTP 404 Food Toxicology and Safety

Credits 3. 3 Lecture Hours. Toxicity and safety of various foods and food additives, ingredients, and contaminants; occurrence, control and prevention of food transmitted diseases. **Prerequisite:** Junior or senior classification.

VTTP 405 Systemic Veterinary Physiology

Credits 3. 3 Lecture Hours. Aspects of cellular physiology, physiology of excitable membranes, physiology of body fluids, neurophysiology, and the physiology of smooth, cardiac and skeletal muscle; basic understanding of mammalian physiology essential as a framework for advanced studies. **Prerequisites:** BIMS 320/GENE 320; junior or senior classification; or approval of instructor; proper English composition and communication.

VTTP 420 Applied Pharmacology

Credits 2. 2 Lecture Hours. Modern themes about therapeutic drugs in animals and people including drug discovery and development, clinical use of drugs and drug regulation. **Prerequisites:** Grade of C or better in BICH 410, BIOL 320, VTTP 423, VTTP 434, or approval of instructor.

VTTP 423 Applied Biomedical Physiology I

Credits 4. 3 Lecture Hours. 2 Lab Hours. Human physiological principles, review of cellular physiology, and development of an understanding of the nervous system and muscle, cardiovascular, and renal physiology; clinical applications related to organ systems. **Prerequisites:** Grade of C or better in PHYS 202 and CHEM 228; junior classification.

VTTP 424/VIBS 424 Biomedical Neuroendocrinology and Endocrine Disorders

Credits 3. 3 Lecture Hours. Neuroendocrine (hypothalamus-pituitary) control of puberty, menstruation, ovulation, pregnancy, labor, lactation, female reproductive cycles, male reproductive functions, thyroid and parathyroid, adrenal and kidney, diabetes, obesity, sleep, memory, learning and aging and their endocrine disorders; overview on biosynthesis, transport and signaling of peptide and neuropeptide hormones, steroids and prostaglandins. **Prerequisites:** Honors, junior or senior classification, or approval of instructor. **Cross Listing:** VIBS 424/VTTP 424.

VTTP 425 Pharmacology

Credits 3. 3 Lecture Hours. Introduction to pharmacokinetics and pharmacodynamics; survey of major pharmaceutical classes; uses, mechanisms of action and adverse reactions of selected agents. **Prerequisites:** VTTP 423 or grade of C or better in BIOL 320; junior or senior classification or approval of instructor.

VTTP 427 Applied Biomedical Physiology II

Credits 3. 3 Lecture Hours. Human physiology focused on fluid balance and acid-base balance; development of an understanding of physiology as it applies to the cardiovascular, autonomic, renal, respiratory, gastrointestinal, endocrine, reproductive system; clinical applications related to organ systems. **Prerequisites:** VTTP 423 or grade of D or better in BIOL 320; junior or senior classification.

VTTP 434 Physiology for Bioengineers I

Credits 4. 3 Lecture Hours. 2 Lab Hours. Engineering analysis of living systems; quantitative aspects of physiology and engineering applications to clinical medicine; body fluid balance, solute transport, endocrinology, reproduction physiology, neurophysiology, skeletal and smooth muscle physiology. **Prerequisite:** Biomedical engineering (BMEN) major or approval of instructor.

VTTP 435 Physiology for Bioengineers II

Credits 4. 3 Lecture Hours. 2 Lab Hours. Engineering analysis of living systems; quantitative aspects of physiology and engineering applications to clinical medicine; vascular physiology, cardiac physiology, bone physiology, regenerative medicine, renal physiology, pathophysiology. **Prerequisite:** VTTP 434 or approval of instructor.

VTTP 438 Analysis of Genomic Signals

Credits 3. 2 Lecture Hours. 2 Lab Hours. Overview of current high throughput technology for data acquisition and analysis of genomic signals (e.g. mRNA or proteins); emphasis on the microarray technology, methods for analyzing microarray data, and approaches to model the underlying phenomena from the systems biology perspective. **Prerequisites:** Junior or senior classification; BIMS 320/GENE 320 or GENE 320/BIMS 320 and BIOL 111, BIOL 112 or BIOL 213 or equivalent; STAT 302 or equivalent.

VTPP 444 Practicum in Biomedical Research

Credits 3. 3 Other Hours. Team or group development of sustainable collaborations that include biomedical research, high-impact educational practices and community service; emphasis on lifelong learning and the impact of research on biomedical issues and physiology; focus on connecting research experience to future career goals. **Prerequisites:** VTPP 223 and VTPP 224, or VTPP 234 and VTPP 235, or VTPP 232 and VTPP 233, or VTPP 207 and VTPP 208; junior or senior classification; instructor approval.

VTPP 452 Fetal and Embryo Physiology

Credits 3. 3 Lecture Hours. Examination of the physiologic processes driving embryonic development and pregnancy; focus on embryo implantation, establishment of the placenta, development of the fetal circulatory systems and the molecular processes governing embryo differentiation and development; special emphasis on the major organ systems affected by pediatric disease and on the actions of teratogens. **Prerequisites:** BICH 409, BICH 410, or equivalent; or approval of instructor.

VTPP 481 Seminar

Credits 4. 4 Other Hours. Exposure to scientists from a variety of biomedical disciplines through attendance at seminars followed by review and discussion of current scientific work in physiology and related subjects, and subsequent student seminar presentations. **Prerequisites:** Junior or senior classification; approval of instructor.

VTPP 485 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Course for junior and senior students who desire additional laboratory work in physiology to supplement required courses. **Prerequisites:** Junior or senior classification and approval of department head.

VTPP 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of physiology, pharmacology, endocrinology or toxicology. May be repeated for credit. **Prerequisite:** Junior or senior classification.

VTPP 491 Research

Credits 0 to 4. 0 to 4 Other Hours. Laboratory and/or field research supervised by a faculty member. **Prerequisites:** Junior or senior classification; approval of instructor.

WFSC - Wildlife & Fisheries Sci (WFSC)

WFSC 425 Marine Fisheries

Credits 3. 3 Lecture Hours. Survey of fisheries for marine vertebrates and invertebrates primarily in the Gulf of Mexico and South Atlantic with special emphasis being directed to their biology, economics and management.

WGST - Women's & Gender Studies (WGST)

WGST 200 Introduction to Women's and Gender Studies

Credits 3. 3 Lecture Hours. Historical and cross-cultural perspectives on women's roles in culture, the workplace, the family and other socio-political institutions; the social construction of gender; sexuality and racism; social control mechanisms and ideologies.

WGST 205/SOCI 215 Introduction to Lesbian, Gay, Bisexual, Transgender, and Queer Studies

Credits 3. 3 Lecture Hours. Interdisciplinary survey of the histories of and theories regarding Lesbian, Gay, Bisexual, Transgender, Queer (LGBTQ +) identities and communities; the social construction of sexuality and gender; institutional ways in which homophobia, biphobia, and transphobia are systematically deployed; advocacy by and on behalf of LGBTQ+ individuals; evolution of desire and subjectivity. **Cross Listing:** SOCI 215/WGST 205.

WGST 207/SOCI 207 Introduction to Gender and Society

Credits 3. 3 Lecture Hours. Similarities and differences between females and males in a number of cultures throughout the world; sociological analysis of gender in relation to social structure. **Cross Listing:** SOCI 207/WGST 207.

WGST 210/PBSI 210 Psychological Aspects of Human Sexuality

Credits 3. 3 Lecture Hours. Interface between human sexuality, reproductive development and gender roles across the lifespan; theoretical and research literature promotes understanding of hormonal influences, learning processes, cultural differences, sexual response and love and attraction. **Prerequisite:** PBSI 107. **Cross Listing:** PBSI 210/WGST 210.

WGST 213/SOCI 213 Gender and Health

Credits 3. 3 Lecture Hours. An examination of social and historical context of health in the U.S., including inequities in health by gender, race, class and gendered issues in health professions. **Cross Listing:** SOCI 213/WGST 213.

WGST 220/GLST 220 Feminist Approaches to Science, Technology, and Medicine

Credits 3. 3 Lecture Hours. Introduction to selected topics about gender and the history of science; focus on feminist critique of science, technology, and medicine; exploration of the connections between the biomedical sciences and the politics of gender and sexuality in a global context. **Cross Listing:** GLST 220/WGST 220.

WGST 285 Directed Studies

Credits 0 to 3. 0 to 3 Other Hours. Readings and/or research for specific needs of students majoring or minoring in women's and gender studies. **Prerequisites:** WGST 200 and approval of instructor.

WGST 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of women's/gender studies. May be repeated for credit.

Prerequisite: Approval of director.

WGST 291 Research

Credits 0 to 3. 0 to 3 Other Hours. Research conducted under the direction of faculty member in women's and gender studies. May be taken four times for credit. **Prerequisites:** WGST 200; freshman or sophomore classification; and approval of instructor.

WGST 300/PBSI 300 Psychology of Women

Credits 3. 3 Lecture Hours. Theoretical and research literature relevant to psychological assumptions about the female personality; challenges to and verification of these assumptions by recent experimental studies. **Prerequisite:** PBSI 107. **Cross Listing:** PBSI 300/WGST 300.

WGST 303 Psychology of Women of Color

Credits 3. 3 Lecture Hours. Interdisciplinary theories to study the unique yet intersectional experiences of women from different racial groups, ethnicities, nationalities and cultural backgrounds; scholarly research from the diversity science field; contemporary topics that have developed in a global context; examination of complex issues, which affect women of color across the lifespan. **Prerequisites:** Grade of C or better in AFST 201, PBSI 107, or WGST 200, or approval of instructor. **Cross Listing:** AFST 303 and PBSI 303.

WGST 315/SOCI 315 The Marriage Institution

Credits 3. 3 Lecture Hours. Courtship, engagement, marriage, family formation, personal adjustment, conflict, financing and child rearing. **Prerequisite:** Junior or senior classification. **Cross Listing:** SOCI 315/WGST 315.

WGST 316/SOCI 316 Sociology of Gender

Credits 3. 3 Lecture Hours. Sociological explanations of status differences between men and women; cross-cultural comparisons; gender role socialization, cultural stereotypes, discrimination; gender roles and status in the family, economy, religion, science, other social institutions; deviance, victimization and gender; recent social changes. **Cross Listing:** SOCI 316/WGST 316.

WGST 318/ECON 318 The Economics of Gender and Race

Credits 3. 3 Lecture Hours. Theories and evidence on gender and race differences in labor market outcomes; labor supply and the role of family formation; the effect of human capital and discrimination on earnings; analysis of government policies; international comparisons. **Prerequisites:** ECON 323 with a grade of C or better; junior or senior classification. **Cross Listing:** ECON 318/WGST 318.

WGST 320 Feminist Inquiry and Research Methods

Credits 3. 3 Lecture Hours. Interdisciplinary exploration of feminist research methods and inquiry in the humanities, social sciences and sciences; ethical approaches to research; questions of epistemology; feminist research design. **Prerequisites:** WGST 200.

WGST 330 Women in Ancient Greece and Rome

Credits 3. 3 Lecture Hours. Survey of women in classical Greece and Rome; emphases on female occupations and family relationships, legal and political status, traditional values, notorious women, how women were viewed and how they viewed themselves. **Prerequisite:** Junior or senior classification. **Cross Listing:** CLAS 330 and HIST 330.

WGST 333/ENGL 333 Lesbian, Gay, Bisexual, Transgender and Queer Literatures

Credits 3. 3 Lecture Hours. Representations of sexuality and gender from classical times to the present, studied in their historical and cultural contexts. **Prerequisites:** Junior or senior classification. **Cross Listing:** ENGL 333/WGST 333.

WGST 334 Women's Health

Credits 3. 3 Lecture Hours. A broad range of health issues that are either unique to women or of special importance to women; information for the health consumer; preparation as an advocate of healthy lifestyles; awareness of the role health plays in the life of all women. **Prerequisites:** Junior or senior classification. **Cross Listing:** HLTH 334 and PHLT 360.

WGST 342 The Rhetoric of Gender and Health

Credits 3. 3 Lecture Hours. Study of field of rhetoric of health and medicine with specific attention to the study of gender, including issues in reproduction, expertise and illness; range of methods and methodological approaches within the field. **Prerequisite:** Junior or senior classification. **Cross Listing:** ENGL 342 and COMM 342.

WGST 343/FILM 343 Sex, Gender and Cinema

Credits 3. 3 Lecture Hours. Exploration of a significant topic at the intersection of women's/gender studies and film, such as cinema and sexuality studies, cinema and women, and cinema and masculinity; may include discussion of production, film content, and/or reception. **Prerequisites:** Junior or senior classification or approval of instructor. **Cross Listing:** FILM 343/WGST 343.

WGST 367/POLS 367 Women in Government in Comparative Perspective

Credits 3. 3 Lecture Hours. Examination of women's representation in government based on comparison across multiple nation-states; focus on legislative and executive branches of democratic governments. **Prerequisites:** POLS 206; junior or senior classification or approval of department head. **Cross Listing:** POLS 367/WGST 367.

WGST 369/ENGL 369 Lesbian, Gay, Bisexual, Transgender, and Queer Authorship

Credits 3. 3 Lecture Hours. Exploration of LGBTQ+ authorship through film and literary criticism and theories of performing the self in the act of authoring. **Prerequisites:** Junior or senior classification. **Cross Listing:** ENGL 369/WGST 369.

WGST 374/ENGL 374 Women Writers

Credits 3. 3 Lecture Hours. History of literature by women in English; emphasis on continuity of ideas and on literary contributions; study of a variety of genres with particular attention to the significance of gender in the racial, social, sexual and cultural contexts of women writing in English. **Prerequisite:** Junior or senior classification; ENGL-374 also taught at Galveston campus. **Cross Listing:** ENGL 374/WGST 374.

WGST 377 Africana Women's History

Credits 3. 3 Lecture Hours. Black women's history from the precolonial era to the present; emphasis on the cultural, political, legal, economic, sexual, social, and religious factors that shaped their experiences across the African Diaspora and the world. **Prerequisites:** Junior or senior classification. **Cross Listing:** AFST 377 and HIST 377.

WGST 394 Gender and Genre

Credits 3. 3 Lecture Hours. Exploration and analysis of the ways in which a single literary and/or film genre resonates with gendered perspectives and sexual subjectivity. **Prerequisites:** Junior or senior classification; WGST 200 or FILM 251/ENGL 251 or ENGL 251/FILM 251.

WGST 401 Feminist Theory

Credits 3. 3 Lecture Hours. Inquiry-based examination of feminist theory from various periods and disciplinary perspectives, with application to societal debates and controversies. **Prerequisites:** WGST 200 or approval of instructor; junior or senior classification.

WGST 403 Language and Gender

Credits 3. 3 Lecture Hours. Language and gender from a sociolinguistic perspective; gender in the words and structures of language; gender representation and gendered language use in the media, and a variety of sociocultural contexts; language use in intimate relationships; computer-mediated discourse; language, sexuality, and sexual orientation. **Prerequisite:** Junior or senior classification. **Cross Listing:** ENGL 403 and LING 403.

WGST 404/ANTH 404 Women and Culture

Credits 3. 3 Lecture Hours. Examines women's lives in evolutionary and cross-cultural perspective; women's roles in subsistence, politics, religion and economics in traditional cultures; women's roles in international development; the cultural and social construction of women's biology cross-culturally including circumcision, menstruation, pregnancy, childbirth and motherhood. **Prerequisite:** Junior or senior classification; approval of instructor. **Cross Listing:** ANTH 404/WGST 404.

WGST 407/COMM 407 Gender, Race and Media

Credits 3. 3 Lecture Hours. The contributions of women and ethnic groups to the evolution of the media; the portrayal of women and ethnic groups in the mass media; issues resulting from the recognition of women and ethnic groups as media audiences. **Prerequisite:** Junior or senior classification and approval of instructor. **Cross Listing:** COMM 407/WGST 407.

WGST 410/SOCI 410 Reproduction, Birth and Power

Credits 3. 3 Lecture Hours. Examination of topics related to reproductive practices, experiences and ideologies and of the constructed and contested meanings surrounding womanhood, motherhood, sexuality, reproductive freedom and eugenics. **Prerequisites:** SOCI 205; junior or senior classification. **Cross Listing:** SOCI 410/WGST 410.

WGST 411/COMM 411 Representations of Motherhood

Credits 3. 3 Lecture Hours. Examination of understandings of motherhood from a humanities perspective and over a variety of cultures and time periods, as reflected in written, media and/or oral texts. **Prerequisites:** Junior or senior classification or approval of instructor. **Cross Listing:** COMM 411/WGST 411.

WGST 413 Race, Gender, and the Environment

Credits 3. 3 Lecture Hours. Investigation of social inequalities related to environmental issues; focus on environmental justice and ecofeminism; exploration of the connections among racism, patriarchy, and the environment. **Prerequisites:** Junior or senior classification. **Cross Listing:** GLST 413 and HISP 413.

WGST 420/COMM 420 Gender and Communication

Credits 3. 3 Lecture Hours. Survey of the role of gender in communication processes; focus on communication differences between men and women in contexts such as the family, school and work organizations; discussion of media influence in gender stereotypes. **Cross Listing:** COMM 420/WGST 420.

WGST 421/SOCI 421 Gender & Crime

Credits 3. 3 Lecture Hours. Gender & Crime. Gender disparities in contemporary patterns of crime, victimization and incarceration; key concepts, major theories and empirical research studies around gender and crime. **Prerequisite:** Grade of C or better in SOCI 207/WGST 207, SOCI 211, SOCI 304, SOCI 316/WGST 316, WGST 200, WGST 207/ SOCI 207, or WGST 316/SOCI 316. **Cross Listing:** SOCI 421/WGST 421.

WGST 428/COMM 428 Women's Rhetoric

Credits 3. 3 Lecture Hours. Examination of the historical imbrication of masculinity and rhetoric in relation to women's participation in political life, reception of women's rhetoric in the public sphere, and remembrance and representation of women as rhetorical agents throughout history; consideration of women's rhetoric in various cultural arenas. **Prerequisite:** Junior or senior classification. **Cross Listing:** COMM 428/WGST 428.

WGST 430/MGMT 430 Employment Discrimination Law

Credits 3. 3 Lecture Hours. Legal issues surrounding employment discrimination, including disparate treatment and impact; intent; affirmative action; sexual harassment; pregnancy, sex, race, religious, salary, disability, age, and ethnic discrimination; policy issues and perspectives to aid human resource specialists and managers. **Prerequisite:** Senior classification. **Cross Listing:** MGMT 430/WGST 430.

WGST 445/SOCI 455 Queer Theory

Credits 3. 3 Lecture Hours. Examines origins of theories of gender and sexual diversity and their intersections with feminist theories; considers foundational and contemporary texts that address queer theory. **Prerequisites:** 6 hours in Women's and Gender Studies; senior classification or approval of instructor. **Cross Listing:** SOCI 455/WGST 445.

WGST 461/HIST 461 History of American Women

Credits 3. 3 Lecture Hours. Cultural, political, legal and religious factors that helped shape the role and character of women in American society from colonial times to the present; historical role of women in the development of the nation. **Cross Listing:** HIST 461/WGST 461.

WGST 462/POLS 462 Women and the Law

Credits 3. 3 Lecture Hours. The legal status of American women from the adoption of the Constitution to the present: constitutional developments; the 19th Amendment and the proposed Equal Rights Amendment; employment; family law; reproductive rights; education; sexual equality in context of other claims to equality; law and social norms. **Prerequisite:** POLS 206 or approval of department head. **Cross Listing:** POLS 462/WGST 462.

WGST 463 Gender in Asia

Credits 3. 3 Lecture Hours. Gender dynamics in Asia; changes in gender roles; women's movements; women and the economy; women and politics; men's and women's private lives. **Prerequisite:** Junior or senior classification or approval of instructor. **Cross Listing:** ASIA 463 and SOCI 463.

WGST 470 Lesbian, Gay, Bisexual, Transgender, and Queer Cinemas

Credits 3. 3 Lecture Hours. Examination of cinema by and about LGBTQ individuals or communities; discussion of production, film content and reception. **Prerequisites:** Grade of C or better in WGST 200, FILM 215/GLST 215, FILM 251/ENGL 251, ENGL 251/FILM 251, or FILM 299, and junior or senior classification; or approval of instructor.

WGST 473/HIST 473 Women's History in the Modern U.S.

Credits 3. 3 Lecture Hours. History of women in the U.S. from the late nineteenth century to the present; role of intersectionality in defining the experience of modern womanhood; women as activists, workers, consumers, mothers, and feminists; experiences, lives and influence of women of color; examination of contemporary social, political and economic histories. **Prerequisite:** Junior or senior classification or approval of instructor; HIST-473 also taught at Galveston campus. **Cross Listing:** HIST 473/WGST 473.

WGST 474/ENGL 474 Studies in Women Writers

Credits 3. 3 Lecture Hours. A different topic each term examining women's writing through historical period, genre, cross-cultural study and/or feminist literary theory. May be repeated for credit. **Prerequisites:** 3 credits of literature at the 300-level; junior or senior classification. **Cross Listing:** ENGL 474/WGST 474.

WGST 476/HIST 476 Sex and Sexuality in History

Credits 3. 3 Lecture Hours. Changing ideas about sex and sexuality over time; includes their interaction with ideas about gender, race, class, religion, science, technology, medicine, politics and popular culture; historical and cultural processes creating modern concerns about sex and sexuality. **Prerequisite:** Junior or senior classification. **Cross Listing:** HIST 476/WGST 476.

WGST 477/HIST 477 Women and Gender in Modern European History

Credits 3. 3 Lecture Hours. Women in Europe from the 18th century to the present: women's contributions to their societies; realities of their daily lives and their responses; perceptions of women; role of institutions in defining women's roles; significance for women of industrialization, revolution, warfare, scientific discoveries; interaction of class, race and gender. **Cross Listing:** HIST 477/WGST 477.

WGST 481 Senior Seminar

Credits 3. 3 Lecture Hours. Inquiry-based investigation of an issue, problem, or question, using gender or feminism as the organizing principle for analysis; methods and materials of scholarship in the field; includes opportunities for student research. **Prerequisite:** WGST 200 and junior or senior classification; or approval of instructor.

WGST 484 Internship in Women's and Gender Studies

Credits 0 to 4. 0 to 4 Other Hours. Directed internship in a public or private organization to provide students with on-the-job training and applied research experience; opportunity to observe first hand issues and problems covered in women's and gender studies courses; designed to enhance and clarify the student's career objectives. **Prerequisites:** WGST 200, junior or senior classification, and approval of instructor.

WGST 485 Directed Studies

Credits 0 to 4. 0 to 4 Other Hours. Readings and/or research for specific needs of students majoring or minoring in women's and gender studies. **Prerequisites:** WGST 200 and approval of instructor.

WGST 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of women's and gender studies. May be repeated for credit.

WGST 491 Research

Credits 0 to 3. 0 to 3 Other Hours. Research conducted under the direction of faculty member in women's and gender studies. May be taken four times for credit. **Prerequisites:** WGST 200; junior or senior classification; and approval of instructor.

ZOOL - Zoology (ZOOL)

ZOOL 289 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of zoology. May be repeated for credit. **Prerequisite:** Approval of instructor.

Z00L 291 Research

Credits 1 to 4. 1 to 4 Other Hours. Active research of basic nature under the supervision of a Department of Biology faculty member.

Prerequisites: Freshman or sophomore classification and approval of instructor.

Z00L 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of zoology. May be repeated once for credit.

Z00L 491 Research

Credits 1 to 4. 1 to 4 Other Hours. Active research of basic nature under the supervision of a Department of Biology faculty member.

Prerequisites: Junior or senior classification and approval of instructor.

FACULTY

Faculty

Aasi, Parisa, Clinical Assistant Professor
Information & Operations Mgmt
BDS, Amirkabir University of Technology, 2009
PHD, Stockholm University, 2018

Abanov, Artem G, Associate Professor
Physics & Astronomy
PHD, Texas A&M University, 1998

Abbassi, Rouzbeh, Professor
Chemical Engineering
PHD, Memorial University, 2010

Abbey, James D, Professor
Information & Operations Mgmt
PHD, The Pennsylvania State University, 2013

Abbott, Jeanna, Visiting Professor
Information & Operations Mgmt
PHD, University of Houston, 2013

Abdel-Wahab, Ahmed I, Professor
Chemical Engineering-Qatar Campus
PHD, Texas A&M University, 2003

Abdellatif, Hoda, Clinical Associate Professor
Public Health Sciences
BDS, University of Alexandria, Egypt, 1979
DrPH, University of Michigan, 1987

Abdelmutaal, Sadam, Visiting Senior Lecturer
Construction Science
MS, University of Texas at San Antonio, 2019

Abdi, Farshid, Assistant Professor
Finance
PHD, University of St. Gallen, 2018

Abedi, Sara, Associate Professor
Petroleum Engineering
PHD, University of Southern California, 2012

Abel, Richard D, Lecturer
Sociology
PHD, Texas A&M University, College Station, TX, 2020

Abido, Mahmoud Ymy, Instructional Assistant Professor
Mechanical Engineering
PHD, University of California, Merced, 2024

Aborahma, Dana, Clinical Faculty
Public Health Sciences
DDS, Texas A&M University College of Dentistry, 2021

Abraham, Celeste M, Clinical Associate Professor
Periodontics
DDS, Howard University, 1988

Abu Baker, Asim, Clinical Professor
College of Pharmacy
PHARM, Albany College of Pharmacy, 2003

Abuabara, Alexander, Instructional Assistant Professor
Land Arch & Urban Planning
PHD, Texas A&M University, 2022

Aburto Guerrero, Felipe Andres, Associate Professor
Soil & Crop Sciences
PHD, University of California Davis, 2014

Aburweis, Mohamed, Instructional Associate Professor
Statistics
PHD, South Dakota State University, 2017

Acero-Schertzer, Carmen E, Instructional Assistant Professor
Foundational Sciences
PHD, University of Miami, 1996

Acosta, Sandra T, Associate Professor
Educational Psychology
PHD, Texas A&M University, 2010

Adams, Brent Ray, Professor of the Practice
Finance
BBA, Texas A&M University, 1990

Adams, George C, Senior Lecturer
Global Languages & Cultures
MED, Temple University, 1996

Adams, Leslie Garry, Senior Professor
Veterinary Pathobiology
DVM, Texas A&M University, 1964
PHD, Texas A&M University, 1968

Adams, Rae A, Clinical Associate Professor
College of Medicine
MD, Texas A&M University, 2008

Adams, Terry B, Clinical Faculty
Orthodontics
DDS, University of Missouri, 1973

Adamyan, Luiza, Lecturer
Global Languages & Cultures
MA, University of Nebraska Lincoln, 2012

Adelman, Zach N, Professor
Entomology
PHD, Colorado State University Fort Collins, 2000

Adinku, Grace Uchechukwu, Senior Lecturer
College of Performance, Visualization & Fine Arts
PHD, Kwame Nkrumah University, 2013
MA, Texas A&M University, 2020

Adjei, Francis, Instructional Assistant Professor
Foundational Sciences
PHD, University of Texas at Dallas, 2017

Adkison, Katie, Assistant Professor
English
PHD, University of California, Santa Barbara, 2020

Adsley, Philip, Assistant Professor
Physics & Astronomy
PHD, University of York, 2013

Adyasari, Dini, Assistant Professor
Marine and Coastal Environmental Science
PHD, University of Bremen, 2019

Afenyo, Mawuli, Assistant Professor
Maritime Business Administration
PHD, Memorial University of Newfoundland, 2017

Agarwal, Girish S, Professor
Biological & Agricultural Eng
PHD, University of Rochester, 1969

Agnolet, Glenn, Professor
Physics & Astronomy
PHD, Cornell University, 1983

Agrawal, Anupam, Associate Professor
Information & Operations Mgmt
PHD, INSEAD France, 2008

Aguilar, Guillermo, Professor
Mechanical Engineering
PHD, University of California - Santa Barbara, 1999

Aguilar, Kaysey N, Instructional Assistant Professor
Environmental & Occpnl Hlth
DrPH, Texas A&M University, 2022

Aguilar, Yuriana, Assistant Professor
Vet Physiology & Pharmacology
PHD, University of California, Merced, 2016

Ahdieh, Robert B., Professor
School of Law
JD, Yale Law School, 1997

Ahenda, Petronella, Instructional Assistant Professor
Epidemiology & Biostatistics
DrPH, Texas A&M University, 2024

Ahmed, Anwer S, Professor
Accounting
PHD, University of Rochester, 1992

Ahmed, Karim E, Associate Professor
Nuclear Engineering
PHD, Purdue University, 2015

Aicher, Kathleen, Assistant Professor
Vet Small Animal Clinical Sc
DVM, Texas A&M University, 2012

Aimar, Fabrizio, Assistant Professor of the Practice
Architecture
PHD, Polytechnic University of Turin, 2022

Ajayi, Kobi Vanessa, Research Assistant Professor
Health Behavior
PHD, Texas A&M University, 2023

Akbulut, Mustafa, Professor
Chemical Engineering
PHD, University of California at Santa Barbara, 2007

Akinlotan, Marvellous, Clinical Assistant Professor
Pediatric Dentistry
BDS, Obafemi Awolowo Univ. College of Health Sciences, 2009
PHD, Texas A&M University, 2019

Akkutlu, I. Yucel, Professor
Petroleum Engineering
PHD, University of Southern California, 2002

Akleman, Derya G, Instructional Professor
Statistics
PHD, Texas A&M University, 1996

Akleman, Ergun, Professor
College of Performance, Visualization & Fine Arts
PHD, Georgia Institute of Technology, 1992

Al-Mohannadi, Nasser Saqer L H, Professor of the Practice
Petroleum Engineering-Qatar Campus
PHD, Colorado School of Mines, 2004

Al-Ramthan, Ahmed, Instructional Assistant Professor
College of Engineering
PHD, Texas A&M University, 2019

Al-Sowidi, Khalifa, Professor of the Practice
Chemical Engineering-Qatar Campus
BEN, Arizona State University, 1984

AlMujalhem, Manayer, Assistant Professor
Petroleum Engineering-Qatar Campus
PHD, Texas A&M University, 2021

Alagaraja, Meera, Associate Professor
Educ Admn & Human Resource Dev
PHD, Texas A&M University, 2010

Alajlouni, Khaldoun F, Clinical Faculty
Comprehensive Dentistry
DDS, Jordan University of Science and Technology, Irbid Jordan, 1998

Alam, Mohammad S, Senior Lecturer
Chemical Engineering
PHD, University of Hong Kong, 1999

Alavizadeh, Ashley, Clinical Faculty
Comprehensive Dentistry
DDS, University of Oklahoma, 2007

Albanese, Brian, Assistant Professor
Psychological & Brain Sciences
PHD, Florida State University, 2020

Albeaino, Gilles, Assistant Professor
Construction Science
PHD, University of Florida - M.E. Rinker, Sr. School of Construction
Management, 2023

Aldemir, Tugce, Assistant Professor
Teaching, Learning & Culture
PHD, Pennsylvania State University, 2021

Alex, Ann Mary, Research Assistant Professor
College of Medicine
PHD, University of Kerala, 2019

Alexander, Adam, Instructional Professor
Health Policy & Management
EDD, University of Louisiana at Monroe, 2015
DMD, University of Mississippi Medical Center, 2014

Alexander, David, Professor of the Practice
Marketing
BBA, Texas A&M University, 1998

Alexander, Gerianne, Professor
Psychological & Brain Sciences
PHD, McGill University, 1991

Alexander, Gia O, Lecturer
Petroleum Engineering
MA, Texas A&M University, 1991

Aleyasin, Sobhan, Visiting Lecturer
Marine Engineering Technology
PHD, University of Manitoba, 2019

Alfriend, Terry, Professor
Aerospace Engineering
PHD, Virginia Polytechnic Institute and State University, 1967

Alge, Daniel L, Professor
Biomedical Engineering
PHD, Purdue University, 2010

Ali, Ahmed K, Associate Professor
Architecture
PHD, Virginia Polytechnic Institute, 2012

Alkon, Cynthia J, Professor
School of Law
JD, University of California, 1990

Allaire, Douglas L, Associate Professor
Mechanical Engineering
PHD, Massachusetts Institute of Technology, 2009

Allen, Angela J, Instructional Associate Professor
Mathematics
MS, Texas A&M University, 2005

Allen, David Henry, Professor
Ocean Engineering
PHD, Texas A&M University, 1980

Allen, Gregg C, Instructional Associate Professor
College of Medicine
PHD, Texas A&M University, 2001

Allen, Jonathon, Assistant Professor of the Practice
Maritime Transportation
BS, U.S. Merchant Marine Academy, 2014

Allen, Justin P, Assistant Professor
Educational Psychology
PHD, University of Kansas, 2016

Allen, Natalie, Principal Lecturer
Accounting
MS, Texas A&M University, 1988

Allen, Roland E, Professor
Physics & Astronomy
PHD, The University of Texas at Austin, 1969

Allgood, Kristi, Assistant Professor
Epidemiology & Biostatistics
PHD, University of Michigan School of Public Health, 2021

Allihien, Saint-Martin, Clinical Assistant Professor
College of Medicine
MD, Kwame Nkrumah University of Science and Technology, India, 2015

Allison, Lee, Associate Professor
Eng Tech & Ind Distribution
PHD, Oklahoma State University, 2016

Alonzo, Armando C, Associate Professor
History
PHD, Indiana University, 1994

Alonzo, Joy P, Clinical Associate Professor
College of Pharmacy
PHARM D, Howard University, 2010

Alonzo, Juan J, Associate Professor
English
PHD, The University of Texas at Austin, 2003

Alshbool, Fatima Z, Associate Professor
College of Pharmacy
PHD, Loma Linda University School of Medicine, 2014

Alsmadi, Tariq, Clinical Faculty
Endodontics
DMD, University of Pennsylvania, 2003

Altomose, Alicia Sioux, Instructional Associate Professor
Chemistry
PHD, Penn State University, 2020

Altman, Alison, Assistant Professor
Chemistry
PHD, University of California, Berkeley, 2017

Alvarado, Jorge L, Professor
Eng Tech & Ind Distribution
PHD, University of Illinois, 2004

Alvarado, Leonel, Associate Professor of the Practice
College of Engineering
MED, University of Texas-Pan American, 2009

Alvarado-Bremer, Jaime, Professor
Marine Biology
PHD, University of Toronto, 1994

Alvard, Michael S, Associate Professor
Anthropology
PHD, University of New Mexico, 1993

Alvarez, Adam, Associate Professor
Teaching, Learning & Culture
PHD, University of Pittsburgh, 2018

Alvarez, Martha H, Clinical Faculty
Pediatric Dentistry
DDS, Instituto de Ciencias de la Salud (CES), Medellin, Colombia, 1997

Alwood, Hilary, Lecturer
Psychological & Brain Sciences
MA, Baylor University, 2021

Alyismail, Hamed, Associate Professor
Pharmaceutical Sciences
PHD, Okayama University, Japan, 2007

Amani, Mahmood, Professor
Petroleum Engineering-Qatar Campus
PHD, Texas A&M University, 1997

Amaral, Ernesto F. L., Associate Professor
Sociology
PHD, The University of Texas at Austin, 2007

Ambrose, Robert O, University Distinguished Professor
Mechanical Engineering
PHD, University of Texas at Austin, 1991

Amin, Md Tanjin, Visiting Lecturer
Chemical Engineering
PHD, Memorial University of Newfoundland, 2022

Amon, Rainer, Professor
Marine and Coastal Environmental Science
PHD, The University of Texas at Austin, 1995

Amos, Nicky, Associate Professor of the Practice
Finance
MER, Texas A&M University, 2005

Amrein, Hubert O, Professor
College of Medicine
PHD, University of Zürich, 1989

An, Yonghong, Professor
Economics
PHD, John Hopkins University, 2011

Anand, Binay, Visiting Lecturer
Construction Science
DEN, University of Houston, 2004

Anand, N. K., Regents Professor
Mechanical Engineering
PHD, Purdue University, 1983

Anders, Katherine C, Associate Professor
English
PHD, University of Nevada, 2014

Anderson, Ashley, Clinical Faculty
College of Nursing
MSN, University of Texas Health Science Center at Houston, 2017

Anderson, Brian A, Professor
Psychological & Brain Sciences
PHD, John Hopkins University, 2014

Anderson, Chante A, Lecturer
Communication & Journalism
PHD, Texas A&M University, 2021

Anderson, Monya, Instructional Assistant Professor
Anthropology
PHD, University of Oregon, 2019

Anderson, Stephen J., Professor
Marketing
PHD, London Business School, 2015

Anderson, Terry H, Professor
History
PHD, Indiana University, 1978

Andersson, Leif B, Professor
Vet Integrative Biosciences
PHD, Swedish University of Agricultural Sciences, Uppsala, 1984

Andreasen, Liana Vrajitoru, Visiting Lecturer
Health Behavior
PHD, Binghamton University, 2004

Andreassen, Mayet Maria, Instructional Associate Professor
College of Performance, Visualization & Fine Arts
MFA, School of Animation and Visual Effects, Academy of Art University, 2006

Andrei, Alina, Assistant Professor
Management
PHD, Erasmus University Rotterdam, 2025

Andrews-Polymenis, Helene, Professor
College of Medicine
DVM, Texas A&M University, 2001
PHD, Tufts University, 1999

Andreyeva, Elena, Assistant Professor
Health Policy & Management
PHD, Georgia State University, 2016

Annapareddy, Narasimha, Professor
Electrical & Computer Eng
PHD, University of Illinois at Urbana-Champaign, 1990

Anshevlevich, Michael V, Professor
Mathematics
PHD, University of California at Berkeley, 2000

Antao, Dion S, Associate Professor
Mechanical Engineering
PHD, Drexel University, 2013

Antonaros, Richard, Visiting Senior Lecturer
Eng Tech & Ind Distribution
PHD, Capella University, 2010

Antony Babu, Sanjay, Assistant Professor
Plant Pathology & Microbiology
PHD, Newcastle University, 2018

Anwar, Saira, Assistant Professor
Multidisciplinary Engineering
PHD, Purdue University, 2020

Aoufi, Rabah, Senior Lecturer
Eng Tech & Ind Distribution
MS, Missouri University of Science & Technology, 1980

Appel, David N, Senior Professor
Ecology and Conservation Biology
PHD, Virginia Polytechnic Institute and State University, 1980

Appiah, Brenda, Clinical Faculty
Comprehensive Dentistry
DDS, Texas A&M University School of Dentistry, 2016

Aprahamian, Hrayr, Associate Professor
Industrial & Systems Engineering
PHD, Virginia Tech, 2018

Aprilakis, Emmanuel, Visiting Lecturer
Global Languages & Cultures
MA, Rutgers University, The State University of New Jersey, 2018

Aramayo, Rodolfo, Associate Professor
Biology
PHD, University of Georgia, 1992

Arenas, Angela M, Associate Professor
Veterinary Pathobiology
DVM, La Salle University, Colombia, 2002
PHD, Texas A&M University, 2007

Arfaoui, Turkia, Senior Lecturer
Global Languages & Cultures
MED, Texas A&M University, 2012

Aristidou, Aristos A, Professor
Chemical Engineering
PHD, William Marsh Rice University, 1995

Arizpe, Norma L, Senior Lecturer
Global Languages & Cultures
MA, University of Michigan Ann Arbor, 1977

Arizpe, Victor, Professor
Global Languages & Cultures
PHD, University of Michigan Ann Arbor, 1982

Armitage, Anna, Professor
Marine Biology
PHD, University of California at Los Angeles, 2003

Armstrong, Carisa L, Associate Professor
College of Performance, Visualization & Fine Arts
MFA, Case Western Reserve University, 2002

Arnold, Michael A, Professor
Horticultural Sciences
PHD, North Carolina State University, 1990

Arnold, Stacey R, Instructional Assistant Professor
College of Medicine
EDD, Texas A&M University, 2007

Arnosky, Caroline Hattox, Lecturer
Accounting
MS, Texas A&M University, 2015

Aronson, Carl Lawrence, Instructional Assistant Professor
Foundational Sciences
PHD, University of Michigan at Ann Arbor, 1999

Arora, Vivek, Professor of the Practice
Management
JD, Columbia Law School, 2006

Arosh, Joe A, Professor
Vet Integrative Biosciences
DVM, University, Madras, India, 1985
PHD, Universite Laval, 2004

Arrants, Courtlandt, Instructional Assistant Professor
Kinesiology & Sport Management
MS, Texas A&M University, 2023

Arreola Vargas, Jorge, Instructional Assistant Professor
Plant Pathology & Microbiology
PHD, Instituto Potosino de Investigación Científica y Tecnológica, San Luis Potosí, Mexico, 2014

Arreola-Risa, Antonio, Associate Professor
Information & Operations Mgmt
PHD, Stanford University, 1989

Arroyave, Raymundo, Professor
Materials Science & Engr
PHD, Massachusetts Inst of Technology, 2004

Arroyo Relion, Jesus Daniel, Assistant Professor
Statistics
PHD, University of Michigan, 2018

Artamonova, Tatiana, Instructional Assistant Professor
Global Languages & Cultures
PHD, Purdue University, 2017

Arthur, Winfred E, Professor
Psychological & Brain Sciences
PHD, The University of Akron, 1988

Arumugam, Ranga, Lecturer
Information & Operations Mgmt
MBA, University of Texas at Austin, 2010

Aryal, Ashrant, Assistant Professor
Construction Science
PHD, University of Southern California, 2020

Asadi, Amir, Associate Professor
Eng Tech & Ind Distribution
PHD, University of Manitoba, 2013

Aschenbeck, Stacy H, Lecturer
Communication & Journalism
MA, Texas State University, 1999

Ashcraft, Sandra M, Assistant Lecturer
Educational Psychology
MS, Texas A&M University, 1999

Ashley, Candice R, Lecturer
Teaching, Learning & Culture
PHD, Capella University, 2014

Ashley, Frank B, Senior Professor
Public Service and Administration
EDD, The University of Alabama, 1986

Ashraf, Fahad, Clinical Assistant Professor
Comprehensive Dentistry
DDS, University of Maryland, 2006

Assad, Chahriar, Senior Lecturer
Eng Tech & Ind Distribution
PHD, Texas A&M University, 1994

Atassi, Sami H, Instructional Assistant Professor
Maritime Studies
PHD, Indiana University Bloomington, 2023

Athrey, Giri, Associate Professor
Poultry Science
PHD, University of Louisiana at Lafayette, 2009

Athreya, Sheela, Professor
Anthropology
PHD, Washington University in St. Louis, 2003

Atiee, Genna Fishgold, Clinical Assistant Professor
Vet Small Animal Clinical Sc
DVM, Texas A&M University, 2013

Atli, Kadri Can, Instructional Associate Professor
Materials Science & Engr
PHD, Texas A&M University, 2011

Atoba, Olabisi, Instructional Associate Professor
Psychological & Brain Sciences
PHD, Texas A&M University, 2017

Attari, Vahid, Research Assistant Professor
Materials Science & Engr
PHD, Texas A&M University, 2019

Aubeny, Charles P, Professor
Civil & Environmental Engineering
PHD, Massachusetts Inst of Technology, 1992

Aucoin, B. Michael, Senior Lecturer
Eng Tech & Ind Distribution
PHD, Texas A&M University, 1982

August, John R, Professor
Vet Small Animal Clinical Sc
BVetMed, University of London, 1973

Aunon-Chancellor, Serena Maria, Clinical Professor
College of Medicine
MD, University of Texas Health Science Center, 2001

Ausprey, Ian, Assistant Professor
Ecology and Conservation Biology
PHD, University of Florida, 2021

Austin, Amy L, Instructional Associate Professor
Mathematics
MS, Texas A&M University, 1994

Authement, Renae S, Clinical Associate Professor
College of Nursing
DNP, Loyola University, 2015

Avazmohammadi, Reza, Assistant Professor
Biomedical Engineering
PHD, University of Pennsylvania, Philadelphia, PA, 2014

Ayari, Salah, Instructional Professor
Global Languages & Cultures
PHD, University of Minnesota, 1998

Aybas, Yunus, Assistant Professor
Economics
MA, Stanford University, 2020

Aydogmus, Turkan, Associate Professor of the Practice
Chemical Engineering
PHD, Texas A&M University, 2004

Ayres, Nicola M, Principal Lecturer
Biochemistry & Biophysics
PHD, University of Nebraska at Lincoln, 1987

Ayres, Susan, Professor
School of Law
JD, Baylor University, 1988

Azad, Ariful, Associate Professor
Computer Science & Engineering
PHD, Purdue University, 2014

Baaske, Benjamin E, Instructional Assistant Professor
Architecture
PHD, Texas A&M University, 2022

Baca, Michaela R, Lecturer
English
PHD, Texas A&M University, 2022

Bach, Damon R, Senior Lecturer
History
PHD, Texas A&M University, 2013

Baek, Eunkyeng, Associate Professor
Educational Psychology
PHD, University of South Florida, 2015

Baetge, Claire C, Instructional Assistant Professor
Health Behavior
PHD, Texas A&M University, 2014

Baetge, Courtney L, Clinical Associate Professor
Vet Small Animal Clinical Sc
DVM, Texas A&M University, 2003

Baffoe-Bonnie, Anthony, Assistant Professor
Agricultural Economics
PHD, University of Georgia, 2018

Bagavathiannan, Muthukumar V, Professor
Soil & Crop Sciences
PHD, University of Manitoba, Canada, 2010

Bagley, Niky Ruhiyyih, Adjunct Professor of Law
School of Law
JD, Seattle University, 2007

Bagnato, Vanderlei S, Professor
Biomedical Engineering
PHD, Massachusetts Institute of Technology, 1987

Bailey, Jackson, Visiting Associate Professor of the Practice
Construction Science
BS, Texas A&M University, 2018

Bailey, Krista J, Clinical Professor
Educ Admn & Human Resource Dev
PHD, Texas A&M University, 2011

Bailey, Michael, Visiting Lecturer
Public Service and Administration
PHD, Colorado Technical University, 2016

Bailey, Murl, Senior Professor
Vet Physiology & Pharmacology
DVM, Texas A&M University, 1964
PHD, Iowa State University, 1968

Bajan, Adam R, Lecturer
Communication & Journalism
PHD, Texas A&M University, 2021

Bakchan, Amal, Assistant Professor
Construction Science
PHD, University of Texas - Austin, 2021

Bake, Shameena, Research Associate Professor
College of Medicine
PHD, University of Kerala, 2001

Baker, Clark, Senior Lecturer
Construction Science
MS, University of Kansas, 1996

Baker, Lane, Professor
Chemistry
PHD, Texas A&M University, 2001

Baker, Madison, Clinical Assistant Professor
Vet Large Animal Clinical Sc
DVM, The Ohio State University, 2021

Baker, Robert K, Professor of the Practice
Maritime Business Administration
MBA, University of Houston, 1983

Balas, Mark J, Professor
Mechanical Engineering
PHD, University of Denver, 1974

Balawi, Shadi Omar, Instructional Professor
Mechanical Engineering
PHD, University of Cincinnati, 2007

Balbuena, Perla B, Professor
Chemical Engineering
PHD, The University of Texas at Austin, 1996

Bales, Stephen E, Professor
Global Languages & Cultures
PHD, University of Tennessee, Knoxville, 2008

Baletka, Dawn Marie, Visiting Lecturer
Health Behavior
PHD, Sam Houston State University, 2006

Baliang, Melody, Clinical Instructor
College of Nursing
MSN, Grand Canyon University, 2022

Balke, Kevin N, Visiting Instructional Professor
Civil & Environmental Engineering
PHD, Texas A&M University, 1998

Ball, Daniel L, Professor of the Practice
College of Engineering
MS, Auburn University, 1994

Ball, James R, Associate Professor
College of Performance, Visualization & Fine Arts
PHD, New York University, 2012

Ballingall, Timothy, Instructional Assistant Professor
Maritime Studies
PHD, Texas Christian University, 2021

Ballouli, Khalid W, Adjunct Assistant Professor
Kinesiology & Sport Management
PHD, Texas A&M University, 2011

Balog, Robert S, Professor
Electrical & Computer Eng
PHD, University of Illinois, 2006

Baltazar, Juan Carlos, Professor
Architecture
PHD, Texas A&M University, 2006

Baltensperger, David D, Professor
Soil & Crop Sciences
PHD, New Mexico State University, 1981

Bandyopadhyay, Arkasama, Instructional Assistant Professor
Mechanical Engineering
PHD, University of Texas Austin, 2020

Banerjee, Amarnath, Professor
Industrial & Systems Engineering
PHD, University of Illinois at Chicago, 1999

Banerjee, Debjyoti, Professor
Mechanical Engineering
PHD, University of California at Los Angeles, 1999

Banerjee, Sarbajit, Senior Professor
Materials Science & Engr
PHD, State University of New York at Stony Brook, 2004

Bangstein, Bjorn Harald, Professor of the Practice
College of Engineering
EDD, American College of Education, 2023

Bankaitis, Vytas A, Professor
College of Medicine
PHD, University of North Carolina, 1984

Banks, Bulkeley, Associate Professor of the Practice
Finance
MPS, Georgetown University, 2010

Bankston, Sarah K, Assistant Professor
English
MFA, North Carolina State University, 2007

Banu, Sakhila K, Professor
Vet Integrative Biosciences
PHD, University of Madras, 2002

Bao, Jiayi, Assistant Professor
Management
PHD, University of Pennsylvania, 2020

Bapst, David William, Instructional Assistant Professor
Geology & Geophysics
PHD, University of Chicago, 2013

Barbier, Robert, Visiting Associate Professor of the Practice
Health Policy & Management
MBA, University of Houston, 2023

Barboza, Perry S, Professor
Ecology and Conservation Biology
PHD, University of New England, 1991

Barboza, Perry S, Professor
Rangeland, Wildlife and Fisheries Management
PHD, University of New England, 1991

Bard, Jared Abraham, Assistant Professor
Biology
PHD, University of California, Berkeley, 2018

Bare, Daniel R, Associate Professor
Global Languages & Cultures
PHD, Texas A&M University, 2018

Barge, James K, Professor
Communication & Journalism
PHD, University of Kansas, 1985

Barlev, Dan M, Instructional Associate Professor
College of Medicine
MD, State University of New York at Stony Brook, 1990

Barnes, Glenn, Clinical Associate Professor
College of Nursing
DNP, Texas Tech University, 2019

Barnes, Kate, Clinical Associate Professor
Vet Small Animal Clinical Sc
DVM, Oregon State University, 2011

Barnes, Wayne R, Professor
School of Law
JD, Texas Tech University, 1995

Barnett, Brandon W, Adjunct Professor of Law
School of Law
JD, Texas Tech University, 2005
LLM, The George Washington University, 2012

Barnett, Mitchell, Instructional Professor
Pharmaceutical Sciences
PHARMD, University of Iowa, 2004

Barondeau, David P, Associate Professor
Chemistry
PHD, Texas A&M University, 1996

Barr, Andrew C, Professor
Economics
PHD, University of Virginia, 2015

Barrett, Julie Ann, Senior Lecturer
Teaching, Learning & Culture
EDD, Sam Houston State University, 2013

Barrington, Jennifer J, Clinical Associate Professor
Comprehensive Dentistry
DDS, University of Texas Health Science Center at Houston, 1996

Barron, Chrissy, Instructional Assistant Professor
Vet Integrative Biosciences
DVM, Ross University, School of Veterinary Medicine, 2012

Barron, Stephanie, Lecturer
English
PHD, Texas A&M University, 2000

Barroso Garcia, Connie, Assistant Professor
Educational Psychology
PHD, Florida State University, 2020

Barroso, Luciana R, Associate Professor
Civil & Environmental Engineering
PHD, Stanford University, 1999

Barrows, Timothy, Assistant Professor of the Practice
Maritime Transportation
BS, Texas A&M University at Galveston, 2017

Barrufet, Maria A, Professor
Petroleum Engineering
PHD, Texas A&M University, 1987

Barry, Adam, Professor
Health Behavior
PHD, Texas A&M University, 2007

Barteau, Mark A, Professor
Chemical Engineering
PHD, Stanford University, 1981

Bartel, Fritz, Associate Professor
International Affairs
PHD, Cornell University, 2017

Bartlett, Gillian, Professor
College of Medicine
PHD, McGill University, 2001

Bartoskewitz, Patricia, Professor of the Practice
Accounting
MS, Texas A&M University, 1991

Baskin, Dean R, Professor
Mathematics
PHD, Stanford University, 2010

Bassichis, William H, Professor
Physics & Astronomy
PHD, Case Western Reserve University, 1963

Bastian, Peter A, Professor of the Practice
Petroleum Engineering
MS, Texas A&M University, 1983

Basu, Samarpita, Instructional Assistant Professor
Biology
PHD, Indian Institute of Technology Guwahati, Assam, India, 2016

Batista, Paul J, Associate Professor
Kinesiology & Sport Management
JD, Baylor University, 1976

Batteas, James D, Professor
Chemistry
PHD, University of California at Berkeley, 1995

Battle, Guy A, Professor
Mathematics
PHD, Duke University, 1977

Baudier, Florent P, Associate Professor
Mathematics
PHD, Universite De Besancon, 2010

Baule, William James, Research Assistant Professor
Atmospheric Sciences
PHD, Michigan State University, 2022

Baumann, Todd M, Clinical Faculty
Comprehensive Dentistry
DDS, Baylor College of Dentistry, 2002

Bausseron, Sylvie B, Senior Lecturer
Global Languages & Cultures
PHD, The Pennsylvania State University, 1999

Baxter, Douglas, Instructional Professor
School of Engineering Medicine
PHD, University of Texas, 1981

Bayat, Noushin, Visiting Professor of the Practice
Eng Tech & Ind Distribution
EDD, Pepperdine University, 2018

Bayless, Kayla J, Associate Professor
College of Medicine
PHD, Texas A&M University, 1999

Bayraktaroglu, Hanife Canan, Clinical Faculty
Comprehensive Dentistry
DDS, Marmara Univ. Faculty of Dentistry, 2002

Bazan, Daniela Z, Clinical Associate Professor
College of Pharmacy
PHARM.D, The University of Texas, 2011

Bazer, Fuller W, Distinguished Professor
Animal Science
PHD, North Carolina State University, 1969

Bearce, David, Professor
International Affairs
PHD, The Ohio State University, 2001

Beasley, John P, Adjunct Professor of Law
School of Law
MS, Texas A&M University, 2015

Beathard, Karen M, Instructional Professor
Nutrition
PHD, Texas A&M University, College Station, 2021

Beatty, Robert C, Clinical Assistant Professor
Comprehensive Dentistry
DDS, University of Buffalo - The State University of New York, 1989

Beaver, Bonnie V, Professor
Vet Small Animal Clinical Sc
DVM, University of Minnesota, 1968

Beck, Jake, Lecturer
Communication & Journalism
PHD, Southern Illinois University, 2021

Beck, Matt, Assistant Professor
Animal Science
PHD, Lincoln University, New Zealand, 2020

Beck, Sarah Lindsey, Senior Lecturer
Communication & Journalism
PHD, University of Colorado Boulder, 2019

Becka, Matt, Clinical Faculty
College of Nursing
DNP, Chamberlain University, 2019

Becker, Aaron C, Clinical Professor
Information & Operations Mgmt
PHD, University of Oklahoma, 2009

Becker, Cecily A, Senior Lecturer
School of Law
JD, Gonzaga University, 1997

Becker, Katrin, Professor
Physics & Astronomy
PHD, University of Bonn, 1994

Becker, Kristin, Lecturer
College of Nursing
MSN, University of Texas Health Science Center at El Paso, 2019

Becker, Mauro R, Professor of the Practice
Geology & Geophysics
PHD, The University of Texas at Austin, 1996

Bedford, Diane C, Clinical Associate Professor
College of Performance, Visualization & Fine Arts
MFA, The Florida State University, 2010

Befort, Jeffrey Leo, Visiting Senior Lecturer
Construction Science
JD, Texas Tech University, 2000

Begley, Tadhg P, Distinguished Professor
Chemistry
PHD, California Institute of Technology, 1983

Begovic, Miroslav M, Professor
Electrical & Computer Eng
PHD, Virginia Polytechnic Institute, 1989

Behmer, Spencer T, Professor
Entomology
PHD, University of Arizona, 1998

Beideman, Calvin J, Instructional Assistant Professor
Computer Science & Engineering
PHD, University of Illinois at Urbana-Champaign, 2023

Belabbassi, Leila, Lecturer
Oceanography
PHD, Texas A&M University, 2006

Belanger, Christina L, Associate Professor
Geology & Geophysics
PHD, University of Chicago, IL, 2011

Belcik, Kim, Clinical Associate Professor
College of Nursing
PHD, University of Texas at Austin, 2011

Bell, Brook, Lecturer
School of Law
JD, Texas A&M University, 2016

Bell-Pedersen, Deborah, Professor
Biology
PHD, State University of New York at Albany, 1991

Bellezzo, Fausto, Clinical Associate Professor
Vet Large Animal Clinical Sc
DVM, Universidade Federal de Viçosa Viçosa –Minas Gerais – Brazil, 1993

Beltran, Liliana O, Associate Professor
Architecture
PHD, University of California at Berkeley, 1997

Belyanin, Alexey, Professor
Physics & Astronomy
PHD, Institute of Applied Physics Russian Academy of Sciences, 1995

Benavides Espinoza, Claudia, Clinical Associate Professor
Kinesiology & Sport Management
PHD, Texas A&M University, 2009

Benavides Iglesias, Alfonso, Lecturer
Geology & Geophysics
PHD, Texas A&M University, 2007

Benden, Mark E, Professor
Environmental & Occpnl Hlth
PHD, Texas A&M University, 2006

Bender, Steven D, Clinical Associate Professor
Comprehensive Dentistry
DDS, Baylor College of Dentistry, 1986

Benedict, Moble, Professor
Aerospace Engineering
PHD, University of Maryland, 2010

Benedik, Michael J, Professor
Biology
PHD, Stanford University, 1982

Benjamin, Chandler C, Assistant Professor
School of Engineering Medicine
PHD, University of Wisconsin, Madison, 2017

Bennett, Brad S, Clinical Assistant Professor
Vet Small Animal Clinical Sc
PHD, Texas A&M University, 2007

Bennett, Gregg R, Professor
Kinesiology & Sport Management
PHD, Auburn University, 1997

Bennett, Kem, Senior Professor
Industrial & Systems Engineering
PHD, Texas Tech University, 1970

Benson, Monica A, Adjunct Professor of Law
School of Law
JD, Texas Wesleyan University, 2005

Bento, Pedro, Associate Professor
Economics
PHD, University of Toronto, 2013

Benzerga, Amine A, Professor
Aerospace Engineering
PHD, Ecole Nationale Supérieure Des Mines De Paris, 2000

Benzerga, Amine A, Professor
Materials Science & Engr
PHD, Ecole Nationale Supérieure Des Mines De Paris, 2000

Berberian, Rose, Lecturer
Information & Operations Mgmt
MBA, University of Houston - Victoria, 2004

Bergamini, Marco, Clinical Assistant Professor
Comprehensive Dentistry
DDS, Universidad Europea de Madrid, Centro Adscrito de, 2017

Bergbreiter, David E, Professor
Chemistry
PHD, Massachusetts Institute of Technology, 1974

Bergeron, Christine S, Clinical Professor
College of Performance, Visualization & Fine Arts
MFA, Florida State University, 1998

Bergman, Mindy E, Professor
Psychological & Brain Sciences
PHD, University of Illinois at Urbana-Champaign, 2001

Berkolaiko, Gregory, Professor
Mathematics
PHD, University of Bristol, 2001

Bermudez, Jose Luis, Professor
Philosophy
PhD, Cambridge University, 1992

Bernal, Julio S, Professor
Entomology
PHD, University of California at Riverside, 1995

Bernard, Jessica A, Professor
Psychological & Brain Sciences
PHD, University of Michigan, 2012

Berry, Leonard L, Distinguished Professor
Marketing
PHD, Arizona State University, 1968

Berry, Michael Chad, Adjunct Professor of Law
School of Law
JD, Western Michigan University, 1997

Bettati, Riccardo, Professor
Computer Science & Engineering
PHD, University of Illinois at Urbana-Champaign, 1994

Bhargava, Divya, Instructional Assistant Professor
Aerospace Engineering
PHD, Purdue University, 2021

Bhattacharya, Anirban, Professor
Statistics
PHD, Duke University, 2012

Bhattacharya, Nandini, Professor
English
PHD, University of Rochester, 1992

Bhattacharya, Raktim, Professor
Aerospace Engineering
PHD, University of Minnesota, 2003

Bhatti, Zafar Iqbal, Associate Professor of the Practice
Civil & Environmental Engineering
PHD, Osaka University, 1995

Bhesaniya, Kalpesh P, Clinical Assistant Professor
College of Medicine
MD, MGM Medical College, 2007

Bicer, Ali, Associate Professor
Teaching, Learning & Culture
PHD, Texas A&M University, 2016

Bicer, Aysenur, Instructional Assistant Professor
Physics & Astronomy
PHD, Texas A&M University, 2018

Bickham, Troy O, Professor
History
PHD, University of Oxford, 2001

Bieber, Susannah, Associate Professor
College of Performance, Visualization & Fine Arts
PHD, Freie Universitat Berlin, 2012

Bierman, Leonard, Professor
Management
JD, University of Pennsylvania Law School, 1978

Billingsley, Andrew J, Assistant Lecturer
Architecture
MS, Texas A&M University, 2020

Biradar, Aparna S, Clinical Assistant Professor
Comprehensive Dentistry
MPH, University of Texas Health Science Center, 2010

Birchfield, Adam Barlow, Assistant Professor
Electrical & Computer Eng
PHD, Texas A&M University, 2018

Birely, Anna C, Associate Professor
Civil & Environmental Engineering
PHD, University of Washington, 2012

Bishop, Michael P, Professor
Geography
PHD, Indiana State University, 1987

Bishop, Robert H, Professor
Aerospace Engineering
PHD, Rice University, 1990

Biswas, Saurabh, Professor of the Practice
Biomedical Engineering
PHD, Texas A&M University, 2011

Bitouni, Anneta, Clinical Associate Professor
Comprehensive Dentistry
DDS, Kapodistrian University of Athens, 2004

Black, Lance, Professor of the Practice
School of Engineering Medicine
MD, Louisiana State University Health Sciences Center-New Orleans,
2006

Black, Steve, Adjunct Professor of Law
School of Law
JD, Brigham Young University, 1994
LLM, University of Washington, 2000

Blackburn, Christine Crudo, Assistant Professor
Health Policy & Management
PHD, Washington State University, 2015

Blackmon, Heath L, Associate Professor
Biology
PHD, University of Texas at Arlington, 2015

Blacksin, Isaac, Assistant Professor
Communication & Journalism
PHD, University of California, Santa Cruz, 2021

Blackwell, James A, Visiting Lecturer
International Affairs
PHD, Tufts University, 1984

Blake, Jamilia J, Professor
Health Behavior
PHD, University of Georgia, 2007

Blalock, Katherine E, Clinical Associate Professor
College of Medicine
MD, Texas A&M University, 2011

Blanton, Hart C, Professor
Communication & Journalism
PHD, Princeton University, 1994

Blasdel, Gavin, Assistant Professor
Global Languages & Cultures
PHD, The University of Pennsylvania, 2023

Blasingame, Thomas A, Professor
Petroleum Engineering
PHD, Texas A&M University, 1989

Blasor, Tara N, Principal Lecturer
Accounting
MS, Texas A&M University, 2007

Blizzard, Gary Edward, Senior Lecturer
Chemical Engineering
MBA, The University of Texas at Austin, 2000

Bloch-Wehba, Hannah, Professor
School of Law
JD, New York University, 2013

Bloink, Robert, Adjunct Professor of Law
School of Law
JD, Wayne State University, 1995
LLM, University of Florida, 1997

Bloom, Rosaleen Duggan, Assistant Professor
College of Nursing
PHD, University of Utah, 2017

Blue-McLendon, Alice, Clinical Associate Professor
Vet Physiology & Pharmacology
DVM, Texas A&M University, 1989

Bluemel, Janet F, Professor
Chemistry
PHD, Technical University of Munich, Germany, 1989

Blum, Emily, Assistant Professor
Accounting
PHD, University of Alabama, 2020

Blumberg, Ryan, Adjunct Professor of Law
School of Law
JD, Seattle University, 2013

Boadu, Frederick O, Professor
Agricultural Economics
JD, Georgia State University, 1988
PHD, University of Kentucky, 1981

Bobkova, Irina, Associate Professor
Mathematics
PHD, Northwestern University, 2014

Bodson, Bruce R, Lecturer
Marine and Coastal Environmental Science
JD, South Texas College of Law, 1993

Bogdan, Bradley, Clinical Assistant Professor
College of Medicine
MSW, Boise State University, 2012

Bohnsack, John, Visiting Lecturer
Agricultural Economics
MS, North Dakota State University, 2011

Boivie, Steven R, Professor
Management
PHD, The University of Texas at Austin, 2006

Bojakowski, Peter, Assistant Professor
Anthropology
PHD, Texas A&M University, 2012

Bokobo, Susana, Adjunct Professor of Law
School of Law
DJ, Universidad Autonoma de Madrid, 1996

Bolander, Willy C, Professor
Eng Tech & Ind Distribution
PHD, University of Houston, 2011

Bolanos, Carlos A, Professor
Psychological & Brain Sciences
PHD, Northeastern University, 2000

Boldt, Gary L, Senior Lecturer
Construction Science
BS, Texas A&M University, 1983

Bolick, Barbara Jean, Instructor
Health Behavior
BA, The University of Texas at Austin, 1994

Bolin, Jane L, Senior Professor
College of Nursing
PHD, Pennsylvania State University, 2002

Bollinger, Kathryn L, Instructional Associate Professor
Mathematics
MS, Texas A&M University, 1998

Bologan, Anatol, Instructional Associate Professor
College of Performance, Visualization & Fine Arts
MFA, Texas A&M University, 2018

Bond, Jon R, Professor
Political Science
PHD, University of Illinois at Urbana-Champaign, 1978

Bondos, Sarah E, Associate Professor
College of Medicine
PHD, University of Illinois at Urbana-Champaign, 1998

Bonfardeci, John, Visiting Lecturer
Information & Operations Mgmt
MS, Texas A&M University, 2018

Bonilla, Minerva, Assistant Professor
Construction Science
PHD, North Carolina State University, 2023

Bonito, Andrea, Professor
Mathematics
PHD, Ecole Polytechnique Federale de Lausanne, Switzerland, 2006

Bonner, Christopher, Assistant Professor
Global Languages & Cultures
PHD, New York University, 2015

Boone, Jessica, Visiting Lecturer
College of Performance, Visualization & Fine Arts
MFA, The University of Utah, 2023

Boone, Ted, Principal Lecturer
Information & Operations Mgmt
MS, Pennsylvania State University, 2000

Boone, Timothy, Clinical Professor
School of Engineering Medicine
MD, The University of Texas Health Science Center at Houston, 1985
PHD, The University of Texas Health Science Center at Houston, 1985

Boran, John David, Instructional Assistant Professor
College of Performance, Visualization & Fine Arts
MFA, The School of Visual Arts, New York, 2019

Borazjani, Iman, Professor
Mechanical Engineering
PHD, University of Minnesota, 2008

Borchardt, Craig W, Instructional Assistant Professor
College of Medicine
PHD, Texas A&M University, 1996

Bordin, Angela I, Assistant Professor
Vet Large Animal Clinical Sc
DVM, Federal University of Santa Maria, Brazil, 2002
PHD, Texas A&M University, 2014

Borges Gonzalez, Alejandro, Associate Professor
Architecture
MAR, Cornell University, 1994

Borovoy Hofman, Nilly, Clinical Faculty
Pediatric Dentistry
DDS, Universidad Tecnologica de Mexico, 2006

Borsh, Robert M, Associate Professor of the Practice
Eng Tech & Ind Distribution
MID, Texas A&M University, 2003

Borzenets, Ivan, Assistant Professor
Physics & Astronomy
PHD, Duke University, 2012

Bosshard, John C, Lecturer
Eng Tech & Ind Distribution
PHD, Texas A&M University, 2012

Boswell, Wendy R, Professor
Management
PHD, Cornell University, 2000

Botacin, Marcus Felipe, Assistant Professor
Computer Science & Engineering
PHD, Federal University of Paraná (UFPR), 2021

Boucher, Tony M, Clinical Associate Professor
Kinesiology & Sport Management
PHD, Texas Women's University, 2008

Boudreaux, Lowell A, Instructional Professor
Maritime Business Administration
MML, Texas A&M University at Galveston, 2017
MBA, Lamar University, 1996

Boulahouache, Chaouki, Instructional Associate Professor
Foundational Sciences
PHD, Syracuse University, 2002

Bounds, Brittany, Instructional Associate Professor
Division of Arts and Sciences-Qatar Campus
PHD, Texas A&M University, 2015

Bouton, Cynthia A, Professor
History
PHD, State University of New York, Binghamton, 1985

Boutros, Joseph J, Professor
Electrical & Computer Eng-Qatar Campus
PHD, Telecom Paris Tech (ENST), 1996

Bouwman, Christa, Professor
Finance
PHD, University of Michigan, 2005

Bowen, Daniel H, Associate Professor
Educ Admn & Human Resource Dev
PHD, University of Arkansas, 2013

Bowers, Brooke Nicole, Visiting Senior Lecturer
Eng Tech & Ind Distribution
MID, Texas A&M University, 2020

Bowersox, Rodney D, Professor
Aerospace Engineering
PHD, Virginia Tech, 1992

Bowles, Boone, Assistant Professor
Finance
PHD, University of North Carolina Chapel Hill, 2019

Bowman, Kenneth P, Research Professor
Atmospheric Sciences
PHD, Princeton University, 1984

Boyce, Matt, Assistant Professor
Health Policy & Management
PHD, Georgetown University, 2024

Boyd, Barry L, Associate Professor
Ag Leadership, Educ & Comm
PHD, Texas A&M University, 1991

Boyd, James G, Associate Professor
Aerospace Engineering
PHD, Texas A&M University, 1994

Bradbury, James D, Adjunct Professor of Law
School of Law
JD, University of Idaho, 1991

Bradley, Gary D, Senior Lecturer
Eng Tech & Ind Distribution
MS, Texas A&M University, 2013

Bradley, Nicholas Bronson, Visiting Lecturer
Communication & Journalism
BA, The University of Memphis, 2018

Braga Neto, Ulisses, Professor
Electrical & Computer Eng
PHD, Johns Hopkins University, 2002

Brakora, Katherine A., Instructional Associate Professor
College of Medicine
PHD, University of California at Berkley, 2012

Brandao, Alice, Instructional Assistant Professor
Animal Science
DVM, SÃO PAULO STATE UNIVERSITY, 2013
PHD, Texas A&M University, 2021

Brandt, Paul C, Instructional Professor
College of Medicine
PHD, University of Kentucky, 1990

Brannstrom, Christian, Professor
Geography
PHD, University of Wisconsin, Madison, 1998

Bray, Amanda E, Clinical Assistant Professor
College of Medicine
MD, Louisiana State University, 2012

Breithaupt, Charles, Visiting Professor
Kinesiology & Sport Management
EDD, The University of Texas at Austin, 1996

Brekken, Kirstin L, Instructional Professor
Kinesiology & Sport Management
MS, Texas A&M University, 1982

Brenner, David A, Senior Lecturer
Global Languages & Cultures
PHD, The University of Texas at Austin, 1993

Breyer, Betsy, Instructional Assistant Professor
Geography
PHD, University of Illinois at Urbana-Champaign, 2019

Briaud, Jean-Louis, Professor
Civil & Environmental Engineering
PHD, University of Ottawa, Canada, 1979

Briers, Gary E, Professor
Ag Leadership, Educ & Comm
PHD, Iowa State University, 1978

Bright, Leonard, Professor
Public Service and Administration
PHD, Portland State University, 2003

Brightsmith, Donald J, Professor
Veterinary Pathobiology
PHD, Duke University, 1999

Brill, Alan, Adjunct Professor of Law
School of Law
MBA, New York University, 1968

Brinkmeyer-Langford, Candice L, Associate Professor
Environmental & Occpnl Hlth
PHD, Texas A&M University, 2006

Briscoe, Kristy, Lecturer
College of Nursing
MSN, The University of Texas Health Science Center at Houston, 2016

Brister, Chelsey, Instructional Assistant Professor
College of Medicine
MS, University of North Carolina at Greensboro, 2016

Brister-Antley, Cendy, Clinical Assistant Professor
College of Nursing
DNP, University of Nevada, Reno, 2017

Brock, Ralph A, Clinical Faculty
Orthodontics
DDS, Meharry Medical College, 2000

Brody, Samuel D, Professor
Marine and Coastal Environmental Science
PHD, University of North Carolina, 2002

Brooker, Rebecca, Professor
Psychological & Brain Sciences
PHD, Pennsylvania State University, 2011

Brooks, Randy, Professor of the Practice
College of Engineering
MED, Purdue University, 2017

Brooks, Sarah D, Professor
Atmospheric Sciences
PHD, University of Colorado, 2002

Broussard, Albert S, Professor
History
PHD, Duke University, 1977

Brown, Alexander L, Professor
Economics
PHD, California Institute of Technology, 2008

Brown, Charles Edward Lee, Clinical Professor
College of Medicine
MD, Tulane University School of Medicine, 1980

Brown, Gary Duane, Professor of the Practice
International Affairs
JD, University of Nebraska-Lincoln, 1987
LLM, University of Cambridge, 1988

Brown, Jamie, Professor
Finance
PHD, Washington University in St. Louis, 2004

Brown, Jason, Visiting Associate Professor of the Practice
International Affairs
MA1, Georgetown University, 2022

Brown, Kevin H., Clinical Associate Professor
College of Medicine
MD, Medical College of Georgia, 1998

Brown, Maureen D, Clinical Assistant Professor
Dental Hygiene
MS, Texas A&M University Commerce, 2020

Brown, Peter J, Research Associate Professor
Physics & Astronomy
PHD, Pennsylvania State University, 2009

Brown, Philip R, Associate Professor
Foundational Sciences
PHD, Texas A&M University, 2000

Brown, Robert D, Professor
Land Arch & Urban Planning
PHD, University of Guelph, 1985

Brown, T.W., Adjunct Professor of Law
School of Law
JD, University of Arkansas at Fayetteville, 2013

Brown, Trelisha Marie, Adjunct Professor of Law
School of Law
JD, John Marshall Law School, 2000

Brown, William A, Professor
Public Service and Administration
PHD, Claremont Graduate University, 2000

Bruce, Scott Alan, Associate Professor
Statistics
PHD, Temple University, 2018

Brugler, Brandon, Clinical Faculty
Comprehensive Dentistry
DDS, Texas A&M HSC Baylor College of Dentistry, 2009

Brumbelow, Kelly, Associate Professor
Multidisciplinary Engineering
PHD, Georgia Institute of Technology, 2001

Brundage, Adrienne L, Instructional Associate Professor
Entomology
PHD, Texas A&M University, 2012

Bruner, Michael A, Instructional Assistant Professor
College of Performance, Visualization & Fine Arts
MFA, University of Texas, Austin, 2021

Brunson, Takkara K, Associate Professor
History
PHD, The University of Texas-Austin, 2011

Brunstedt, Jonathan Jay, Associate Professor
History
PHD, University of Oxford, 2011

Bryan, Burt C, Clinical Faculty
Comprehensive Dentistry
DDS, Baylor College of Dentistry, 1979

Bryan, Laura K, Clinical Associate Professor
Veterinary Pathobiology
DVM, University of Georgia, 2011
PHD, Texas A&M University, 2018

Bryant, Henry L, Research Professor
Agricultural Economics
PHD, Texas A&M University, 2003

Bryk, Mary E, Associate Professor
Biochemistry & Biophysics
PHD, Albany Medical College, 1994

Brysch, Carmen, Instructional Associate Professor
Geography
PHD, Texas State University, 2014

Buchanan, John J, Professor
Kinesiology & Sport Management
PHD, Florida Atlantic University, 1996

Buchmann, Marisa, Lecturer
College of Nursing
MSN, Texas A&M University, 2018

Buchwald, Todd, Adjunct Professor of Law
School of Law
JD, Yale University, 1981

Buckley, John J, Professor of the Practice
Health Policy & Management
MBA, George Washington University, 1969

Buckley, Rebecca Creasy, Instructional Associate Professor
Food Science and Technology
PHD, University of Florida, 2013

Buckner, Christopher, Visiting Professor of the Practice
Management
BBA, Texas A&M University, 2007

Budimlic, Zoran, Instructional Associate Professor
Computer Science & Engineering
PHD, Rice University, 2001

Budke, Christine M, Professor
Vet Integrative Biosciences
DVM, Purdue University, 2001
PHD, Philosophisch-Naturwissenschaftliche Fakultät der Universität
Basel, 2004

Budzise-Weaver, Tina M, Associate Professor
College of Performance, Visualization & Fine Arts
MLS, University of North Texas, 2012

Buenger, Sarah D, Visiting Lecturer
Agricultural Economics
MS, College for Financial Planning, 2015

Bugbee, Andrew, Clinical Associate Professor
Vet Small Animal Clinical Sc
DVM, Texas A&M College of Veterinary Medicine, 2009

Buie, Christine Amanda, Clinical Associate Professor
Comprehensive Dentistry
DDS, Baylor College of Dentistry, 2012

Bujnoch, Emily A, Instructional Assistant Professor
College of Performance, Visualization & Fine Arts
MFA, Texas A&M University, 2022

Bujnoch, Zachary W, Associate Professor of the Practice
Biomedical Engineering
MBA, University of Texas - San Antonio, 2022

Bukkapatnam, Satish T, Professor
Industrial & Systems Engineering
PHD, Pennsylvania State University, 1997

Bullard, Jeff, Professor
Civil & Environmental Engineering
PHD, University of California at Berkeley, 1993

Bullard, Jeff, Professor
Materials Science & Engr
PHD, University of California at Berkeley, 1993

Bullock, Justin B, Visiting Lecturer
Public Service and Administration
PHD, The University of Georgia, 2014

Bulut, Rifat, Professor
Construction Science
PHD, Texas A&M University, 2001

Burch, Dan, Clinical Professor
Pediatric Dentistry
DDS, University of Tennessee, 2013

Burdine, James N, Professor
Health Behavior
DrPH, University of North Carolina at Chapel Hill, 1979

Burge, Mark E, Professor
School of Law
JD, The University of Texas, 1997

Burger, Stephanie, Clinical Instructor
College of Nursing
MSN, The University of Texas Medical Branch at Galveston, 2022

Burgess, Joshua, Adjunct Professor of Law
School of Law
JD, Washington and Lee School of Law, 1997

Burgess, Kevin, Professor
Chemistry
PHD, The University of Cambridge, 1983

Burghardt, Robert C, Senior Professor
Vet Integrative Biosciences
PHD, Wayne State University, 1976

Burgner, Gerald S, Instructional Assistant Professor
Horticultural Sciences
PHD, Texas A&M University, 2019
MLA, Louisiana State University, 1994

Burnett, Janna E, Clinical Associate Professor
Comprehensive Dentistry
DDS, Baylor College of Dentistry, 2009

Burnham, Michael, Assistant Professor
Political Science
PHD, Pennsylvania State University, 2022

Burns, Karrie M, Visiting Senior Lecturer
Eng Tech & Ind Distribution
BA, Texas A&M University, 2005

Burescia, John Joseph, Lecturer
Construction Science
MS, Georgia Institute of Technology, 2009

Burress, Cynthia B, Instructional Associate Professor
School of Law
JD, Seattle University, 2003

Burris, Mark W, Professor
Civil & Environmental Engineering
PHD, University of South Florida, 2001

Burt, Zach, Adjunct Professor of Law
School of Law
JD, Texas Wesleyan University, 2009

Burton, Tom, Associate Professor of the Practice
Communication & Journalism
MA, Ohio University, 2021

Buser, Michael, Professor
Biological & Agricultural Eng
PHD, Texas A&M University, 2004

Bustamante, Juan J, Instructional Associate Professor
Pharmaceutical Sciences
PHD, University of Texas at San Antonio, 2003

Butenko, Sergiy I, Professor
Industrial & Systems Engineering
PHD, University of Florida, 2003

Butkus, Shannon E, Adjunct Assistant Professor
Health Policy & Management
PHD, Texas A&M University, 2018

Butler, Brady G, Visiting Assistant Professor
Materials Science & Engr
PHD, Johns Hopkins University, 2017

Butler, Chris, Instructional Associate Professor
Biology
PHD, Oxford University, 2004

Butler, Scott N, Lecturer
Eng Tech & Ind Distribution
MS, Sam Houston State University, 1986

Butler-Purry, Karen L, Professor
Electrical & Computer Eng
PHD, Howard University, 1994

Byers, Andrew, Visiting Lecturer
International Affairs
PHD, Duke University, 2012

Byrnes, William H, Executive Professor
School of Law
JD, Loyola University, 1992
LLM, Universiteit van Amsterdam, 1995

Byrns, Glenda E, Visiting Clinical Professor
Educational Psychology
PHD, Texas A&M University, 2007

Bömer Galvão, Cassia, Associate Professor
Maritime Business Administration
PHD, Pontificia Universidade Catolica, 2017

Caesar, Divine Livingstone, Assistant Professor
Maritime Business Administration
PHD, University of Tasmania, 2016

Caffey, Stephen M, Instructional Associate Professor
Architecture
PHD, The University of Texas - Austin, 2008

Cagin, Tahir, Professor
Materials Science & Engr
PHD, Clemson University, 1988

Cahill, Anthony T, Associate Professor
Civil & Environmental Engineering
PHD, Johns Hopkins University, 1998

Cai, Heng, Assistant Professor
Geography
PHD, Louisiana State University, 2017

Cai, James, Professor
Vet Integrative Biosciences
PHD, University of Hong Kong, 2006

Cai, Yuguang, Instructional Associate Professor
Chemistry
PHD, Princeton University, 2003

Cairns, David M, Professor
Geography
PHD, University of Iowa, 1995

Calabrese, Salvatore, Assistant Professor
Biological & Agricultural Eng
PHD, Princeton University, 2019

Calabria, Michael, Visiting Senior Lecturer
Eng Tech & Ind Distribution
BS, State University of New York at Oswego, 1975

Calboli, Irene, Professor
School of Law
PHD, University of Pavia, 1997
LLM, London School of Economics and Political Science, 1999

Call, Matthew L, Associate Professor
Management
PHD, University of South Carolina, 2016

Calles-Ramirez, Ivette Marie, Instructional Associate Professor
Psychological & Brain Sciences
PHD, Texas A&M University, 2018

Campagnol, Gabriela, Instructional Associate Professor
Architecture
PHD, University of Sao Paulo - USP, 2008

Campbell, August J, Instructional Professor
Kinesiology & Sport Management
MED, Texas State University, 2005

Campbell, Heidi A, Professor
Communication & Journalism
PHD, The University of Edinburgh, 2002

Campbell, Lisa, Research Professor
Oceanography
PHD, State University of New York at Stony Brook, 1985

Campbell, Mary E, Professor
Sociology
PHD, University of Wisconsin, Madison, 2004

Campbell, Matthew Alan, Instructional Associate Professor
College of Performance, Visualization & Fine Arts
PHD, The Ohio State University, 2019

Cannaday, Rania A, Clinical Associate Professor
College of Medicine
MD, University of Texas Health Science Center at Houston, 2014

Cannon, Carolyn L, Associate Professor
College of Medicine
MD, University of Texas Health Science Center at Houston, 1993
PHD, University of Texas Health Science Center at Houston, 1993

Cantrell, Emily S, Clinical Professor
Teaching, Learning & Culture
PHD, Texas A&M University, 2008

Cantrell, Pierce E, Senior Associate Professor
Electrical & Computer Eng
PHD, Georgia Institute of Technology, 1981

Cantrell-Bruce, Tosha, Visiting Lecturer
Public Service and Administration
PHD, University of Illinois at Springfield, 2008

Cantu, Justin C, Instructional Assistant Professor
Mathematics
PHD, Texas A&M University, 2019

Capar, Ismail, Associate Professor
Eng Tech & Ind Distribution
PHD, Mississippi State University, 2007

Capareda, Sergio C, Professor
Biological & Agricultural Eng
PHD, Texas A&M University, 1990

Capps, Oral, Executive Professor
Agricultural Economics
PHD, Virginia Tech, 1979

Cardoso, Leonardo, Associate Professor
College of Performance, Visualization & Fine Arts
PHD, The University of Texas at Austin, 2013
MMU, The University of Texas at Austin, 2010

Cardoso, Rodolfo, Associate Professor
Animal Science
DVM, Sao Paulo State University, 2005
PHD, Texas A&M University, 2014

Carley, Robert F, Associate Professor
International Affairs
PHD, Texas A&M University, 2012

Carlisle, Martin C, Professor of the Practice
Computer Science & Engineering
PHD, Princeton University, 1993

Carlson, Deborah N, Professor
Anthropology
PHD, University of Texas, 2004

Carlson, Kimberly A, Senior Lecturer
Construction Science
MAR, Texas A&M University, 2002

Carly-Miles, Claire I, Instructional Associate Professor
English
PHD, Texas A&M University, 2008

Carmona, Ricardo Luis, Adjunct Professor of Law
School of Law
JD, Emory University, 2000

Carpenter, Donnie, Visiting Lecturer
Agricultural Economics
MS, Texas Tech University, 2006

Carpenter, Robert Owens, Clinical Professor
College of Medicine
MD, Baylor College of Medicine, 1999

Carrell, Travis James, Instructional Assistant Professor
Biomedical Engineering
PHD, Texas A&M University, 2022

Carrillo, Genny, Professor
Environmental & Occpnl Hlth
PHD, Tulane University, 1993

Carrillo, Roberto, Clinical Faculty
Orthodontics
DDS, Universidad Autonoma de Nuevo Leon, 2002

Carroll, Jenny Elizabeth, Professor
School of Law
JD, University of Texas at Austin, 1997

Carroll, Raymond J, Distinguished Professor
Statistics
PHD, Purdue University, 1974

Carson, James, Professor
Kinesiology & Sport Management
PHD, The Ohio State University, 1993

Carson, Katherine H, Instructional Assistant Professor
Soil & Crop Sciences
PHD, University of Arkansas, 1999

Carstens, Gordon E, Professor
Animal Science
PHD, Colorado State University, 1998

Cartee, Elliot, Instructional Assistant Professor
Mathematics
PHD, Cornell University, 2020

Carter, Courtney, Clinical Instructor
College of Nursing
MSN, Texas A&M University, 2016

Carter, Tamara A, Instructional Associate Professor
Mathematics
PHD, Texas A&M University, 2005

Cartwright, John T, Lecturer
College of Performance, Visualization & Fine Arts
MFA, The Ohio State University, 2023

Casado Perez, Vanessa, Professor
School of Law
DJS, New York University, 2014
LLM, University of Chicago, 2009

Case, Adam J, Associate Professor
College of Medicine
PHD, University of Iowa, 2011

Casellas Connors, Ishara, Assistant Professor
Public Service and Administration
PHD, Boston College, 2020

Casellas Connors, John Patrick, Associate Professor
Geography
PHD, Arizona State University, 2015

Casola, Claudio, Associate Professor
Ecology and Conservation Biology
PHD, University of Pisa, Italy, 2006

Castaneda-Lopez, Homero, Professor
Materials Science & Engr
PHD, Penn State University, 2001

Castell-Perez, M E, Professor
Biological & Agricultural Eng
PHD, Michigan State University, 1990

Castillo, Alex, Associate Professor
Food Science and Technology
PHD, Texas A&M University, 1998

Castillo, Alyssa M, Clinical Assistant Professor
College of Pharmacy
PHARM D, University of Texas at Austin, 2022

Castillo, Jasen J, Associate Professor
International Affairs
PHD, University of Chicago, 2003

Castillo, Linda, Professor
Educational Psychology
PHD, University of Utah, 1999

Castillo, Marco, Professor
Economics
PHD, University of Wisconsin, Madison, 2001

Castillo, Mariano, Professor of the Practice
Communication & Journalism
MIA, Columbia University, 2009

Castro Olivo, Sara M, Associate Professor
Educational Psychology
PHD, University of Oregon, 2007

Castro, Arnold, Professor of the Practice
Information & Operations Mgmt
MS, Texas A&M University, 2022

Castro, Juan F, Clinical Assistant Professor
College of Pharmacy
MD, Texas A&M University, 1988

Cate, Bain Chodorov, Clinical Assistant Professor
College of Medicine
MD, University of Texas Health Science Center - Houston, 1985

Caton, Amy J, Instructional Associate Professor
Maritime Studies
MLS, University of North Texas, 2012

Caudal, Andrew, Adjunct Professor of Law
School of Law
JD, Columbia University, 1995

Cavasin, Joao Pedro, Clinical Assistant Professor
Vet Small Animal Clinical Sc
BVM, Universidade Federal do Parana, 2017

Cavazos, Charity Caridad, Instructional Assistant Professor
Vet Physiology & Pharmacology
PHD, University of Oklahoma, 2016

Caverlee, James, Professor
Computer Science & Engineering
PHD, Georgia Institute of Technology, 2007

Cecchini, Fabiana, Instructional Professor
Global Languages & Cultures
PHD, University of Pennsylvania, 2007

Cecchini, Simone, Assistant Professor
Mathematics
PHD, Northeastern University, 2017

Cecil, Tom, Adjunct Professor of Law
School of Law
JD, University of Virginia, 2009

Cengil, Aysenur Betul, Visiting Instructional Assistant Professor
Eng Tech & Ind Distribution
PHD, University of Arkansas, 2024

Cengil, Fatih, Visiting Instructional Assistant Professor
Eng Tech & Ind Distribution
MS, Ozyegin University, 2018

Cerrato, Maddalena A, Assistant Professor
International Affairs
PHD, Italian Institute for Human Sciences, 2013

Cetina, Jill, Professor of the Practice
Finance
MPA, Princeton University, 1998

Ceylan Koydemir, Hatice, Assistant Professor
Biomedical Engineering
PHD, MIDDLE EAST TECHNICAL UNIVERSITY, 2013

Chai, Dae Seok, Associate Professor
Educ Admn & Human Resource Dev
PHD, Texas A&M University, 2016

Chakraborty, Abhishek, Assistant Professor
Statistics
PHD, Harvard Graduate School of Arts and Sciences, 2016

Chakraborty, Mahul, Assistant Professor
Biology
PHD, University of Rochester, 2014

Chakraborty, Sanjukta, Associate Professor
College of Medicine
PHD, Indian Institute of Science BanGalore, 2007

Chakravarthi, Srinivasan, Adjunct Professor of Law
School of Law
JD, Southern Methodist University, 2011

Chakravorty, Suman, Professor
Aerospace Engineering
PHD, University of Michigan, 2004

Chamberland, Jean-Francois, Professor
Electrical & Computer Eng
PHD, University of Illinois, 2004

Chambers, Bridgette, Professor of the Practice
Management
PHD, NorthCentral University, 2018

Chamitoff, Gregory E, Professor of the Practice
Aerospace Engineering
PHD, Massachusetts Institute of Technology, 1992

Champine, Tyler A, Lecturer
Communication & Journalism
PHD, Texas A&M University, 2023

Chan, Christina, Clinical Assistant Professor
Vet Small Animal Clinical Sc
DVM, University of Tennessee, 2011

Chancellor, Jeff, Associate Professor
College of Medicine
PHD, Texas A&M University, 2018

Chaney, Kristin P, Clinical Professor
Vet Integrative Biosciences
DVM, Colorado State University, 2003

Chang, Heesun, Assistant Professor
Educational Psychology
PHD, The University of Georgia, 2022

Chang, Jiang, Professor
College of Medicine
MD, Wuhan University School of Medicine, 1986
PHD, Texas A&M University, 1999

Chang, Kuang-An, Professor
Civil & Environmental Engineering
PHD, Cornell University, 1999

Chang, Nai-wen, Clinical Assistant Professor
Periodontics
DDS, Taipei Medical University, Taiwan, 2014

Chang, Ping, Professor
Oceanography
PHD, Princeton University, 1988

Chang, Wen, Assistant Professor
Hospitality Hotel Management & Tourism
PHD, University of Nevada, Las Vegas, 2015

Chang, Wen-Hsuan, Assistant Professor
Educational Psychology
PHD, University of North Carolina at Charlotte, 2021

Chao, Michael, Associate Professor
Animal Science
PHD, University of Nebraska, Lincoln, 2015

Chapa, Hector O, Clinical Associate Professor
College of Medicine
MD, UNIVERSITY OF TEXAS SOUTHWESTERN MEDICAL CENTER, 1996

Chapkin, Robert S, Professor
Nutrition
PHD, University of California at Davis, 1986

Chappell, Thomas M, Associate Professor
Plant Pathology & Microbiology
PHD, Duke University, 2010

Charkasova, Aynur, Clinical Assistant Professor
Educ Admn & Human Resource Dev
PHD, Southern Illinois University, 2021

Charles, Laurie A, Clinical Assistant Professor
College of Nursing
MSN, Western Governor's University, 2015

Charner, Flora, Professor of the Practice
Communication & Journalism
MA, Columbia University, 2013

Charoenphol, Ploy Phapanin, Instructional Associate Professor
Mechanical Engineering
PHD, University of Michigan, 2012

Chatziefstathiou, Dikaia, Instructional Assistant Professor
Kinesiology & Sport Management
PHD, Loughborough University, 2005

Chau, Vonica, Clinical Assistant Professor
Comprehensive Dentistry
DDS, Baylor College of Dentistry, 1993

Chavana, Adrian, Assistant Professor
History
PHD, University of Minnesota - Twin Cities, 2023

Chavarria, Isaac, Visiting Lecturer
English
MFA, University of Texas - Pan-American, 2010

Chavez, Luis R, Visiting Assistant Professor of the Practice
Horticultural Sciences
MBA, Universidad del Valle de Guatemala, 1998

Chellam, Shankar, Professor
Civil & Environmental Engineering
PHD, Rice University, 1995

Chen, Chieh, Research Assistant Professor
College of Medicine
PHD, Michigan State University, 2013

Chen, Goong, Professor
Mathematics
PHD, University of Wisconsin, Madison, 1977

Chen, Hamn-Ching, Senior Professor
Civil & Environmental Engineering
PHD, The University of Iowa, 1982

Chen, Jenn Hwan, Clinical Associate Professor
Comprehensive Dentistry
DMD, Temple University, 2006

Chen, Jianer, Professor
Computer Science & Engineering
PHD, Columbia University, 1990
PHD, New York University, 1987

Chen, Lei-Shih, Professor
Health Behavior
PHD, Texas A&M University, 2007

Chen, Po-Ju, Professor
Hospitality Hotel Management & Tourism
PHD, The Pennsylvania State University, 2003

Chen, Shirley, Assistant Professor of the Practice
Architecture
MAR, Princeton University, 2023

Chen, Wei, Assistant Professor
Mechanical Engineering
PHD, University of Maryland, 2019

Chen, Wei-An, Instructional Assistant Professor
Multidisciplinary Engineering
PHD, The University of Tokyo, 2020

Chen, Weijung, Professor
College of Medicine
PHD, State University of New York at Binghamton, 1992

Chen, Wensi, Assistant Professor
Civil & Environmental Engineering
PHD, Georgia Institute of Technology, 2022

Chen, Willa W, Professor
Statistics
PHD, New York University, 2000

Chen, Xiaowei, Associate Professor
Geology & Geophysics
PHD, University of California, San Diego, 2013

Chen, Xin, Assistant Professor
Electrical & Computer Eng
PHD, Harvard University, 2022

Chen, Yong, Professor
Finance
PHD, Boston College, 2007

Chen, Zhilei, Professor
College of Medicine
PHD, University of Illinois, 2006

Cheng, Linda L, Clinical Associate Professor
Comprehensive Dentistry
DDS, Baylor College of Dentistry, 1999

Cheong, So-Min, Professor
Public Service and Administration
PHD, University of Washington, 2001

Chester, Frederick M, Professor
Geology & Geophysics
PHD, Texas A&M University, 1988

Chester, Judith S, Professor
Geology & Geophysics
PHD, Texas A&M University, 1992

Chetty, Deepak, Assistant Professor
College of Performance, Visualization & Fine Arts
MFA, University of Texas at Austin, 2015

Chiang, Shawn, Assistant Professor
Health Behavior
MPH, George Washington University, 2017

Chichester, Ronald, Adjunct Professor of Law
School of Law
JD, University of Houston, 1991

Chico, Diane E, Instructional Professor
College of Medicine
PHD, The University of Texas Medical Branch at Galveston, 2002

Chin, Abby Williams, Lecturer
College of Performance, Visualization & Fine Arts
MFA, University of Illinois at Urbana-Champaign, 2023

Chin, Michelle, Instructional Professor
Political Science
PHD, Texas A&M University, 2001

Chin, Siu A, Professor
Physics & Astronomy
PHD, Stanford University, 1975

Chinchilla, Alexandra, Assistant Professor
International Affairs
PHD, University of Chicago, 2021

Chiu, Weihsueh A, Professor
Vet Physiology & Pharmacology
PHD, Princeton University, 1998

Cho, Jae H, Associate Professor
Biochemistry & Biophysics
PHD, State University of New York at Stony Brook, 2006

Chockalingam, Karu, Research Assistant Professor
College of Medicine
PHD, University of Illinois at Urbana-Champaign, 2006

Choe, Kyoungin, Lecturer
Agricultural Economics
MA1, North Carolina State University, 2024

Choe, Yoonsuck, Professor
Computer Science & Engineering
PHD, The University of Texas at Austin, 2001

Choi, K. Yeon, Research Associate Professor
College of Medicine
PHD, University of California at Davis, 1997

Choi, Kunhee, Professor
Construction Science
PHD, University of California at Berkeley, 2008

Choi, Seong G, Associate Professor
Electrical & Computer Eng
PHD, University of Illinois, 1994

Choudhury, Hafiz, Adjunct Professor of Law
School of Law
MA, University of London, 1986

Choudhury, Mahua, Professor
Pharmaceutical Sciences
PHD, University of Missouri Columbia, 2008

Chow, Jacqueline, Clinical Faculty
Comprehensive Dentistry
DDS, UTHSC School of Dentistry, 2019

Chriesman-Green, Nikki, Adjunct Professor of Law
School of Law
JD, Texas Wesleyan University, 2009

Chu, Candice, Assistant Professor
Veterinary Pathobiology
DVM, National Taiwan University, 2013
PHD, Texas A&M University, 2018

Chu, Christine, Clinical Assistant Professor
Comprehensive Dentistry
DDS, University at Buffalo, 2009

Chu, Hung Viet, Visiting Assistant Professor
Mathematics
PHD, University of Illinois Urbana-Champaign, 2023

Chu, Kung-Hui, Professor
Civil & Environmental Engineering
PHD, University of California at Berkeley, 1998

Chu, Wenhui, Instructional Assistant Professor
Computer Science & Engineering
PHD, University of Houston, 2021

Chu, Xiaohong Joy, Clinical Faculty
Orthodontics
DDS, College of Stomatology, Beijing Medical University, 1987
PHD, College of Dentistry, Ohio State University, 1996

Chukkapalli, Sasanka S, Research Assistant Professor
Biomedical Engineering
PHD, Post Graduate Institute of Medical Education & Research (PGIMER)
Chandigarh, India, 2009

Chung, Brian, Assistant Professor
Management
MS, University of Southern California, 2018

Chupp, Jesse A, Lecturer
Political Science
PHD, Texas A&M University, 2012

Ciminello, Vito J, Instructional Professor
Maritime Business Administration
MBA, Northwestern University, 1979

Cipicchio, Domenic, Adjunct Professor of Law
School of Law
JD, Catholic University of America, 1984

Cirillo, Jeffrey D, Professor
College of Medicine
PHD, Albert Einstein College of Medicine, 1992

Cisneros-Zevallos, Luis A, Professor
Horticultural Sciences
PHD, University of California at Davis, 1998

Cizmas, Leslie H, Instructional Associate Professor
Environmental & Occpnl Hlth
PHD, Texas A&M University, 2003

Cizmas, Paul G, Professor
Aerospace Engineering
PHD, Duke University, 1995

Claridge, David E, Professor
Mechanical Engineering
PHD, Stanford University, 1976

Clark, Annette M, Clinical Assistant Professor
College of Medicine
MSW, University of Minnesota-Rochester, 2009

Clark, Connor, Assistant Professor
Hospitality Hotel Management & Tourism
PHD, Arizona State University, 2022

Clark, Heather R, Assistant Professor of the Practice
Health Behavior
DrPH, Texas A&M University, 2014

Clark, Jonathan, Associate Professor of the Practice
Land Arch & Urban Planning
JD, Southern Methodist University School of Law, 1995

Clark, Karl, Associate Professor
Animal Science
PHD, University of Minnesota, 2003

Clark, Kristie, Visiting Lecturer
Teaching, Learning & Culture
MED, Texas A&M University, 2019

Clark, Lance, Associate Professor of the Practice
Civil & Environmental Engineering
MS, The Airforce Institute of Technology, Dayton, OH, 2001

Clark, Norman L, Instructional Professor
Eng Tech & Ind Distribution
PHD, Texas A&M University, 2015

Clark, Shaunna, Associate Professor
College of Medicine
PHD, University of California at Los Angeles, 2010

Clark, Valerie, Clinical Faculty
College of Nursing
PHD, Fielding Graduate University, 2021

Clark, William, Professor
Political Science
PHD, Rutgers University, 1994

Clarke, Roger, Associate Professor of the Practice
Construction Science
MS, Northwest Missouri State University, 2022

Clayton, Mark J, Professor
Architecture
PHD, Stanford University, 1998

Clements, Paul, Clinical Professor
College of Nursing
PHD, University of Pennsylvania, 2000

Clemetson, Jonathan C, Clinical Faculty
Comprehensive Dentistry
DDS, Baylor College of Dentistry, 2002

Clendenin, Angela G, Instructional Associate Professor
Epidemiology & Biostatistics
PHD, Texas A&M University, 2017

Clifford, Scott, Professor
Political Science
PHD, Florida State University, 2013

Climenhaga, Nevin, Assistant Professor
Philosophy
PHD, Notre Dame University, 2017

Cline, Daren B.H., Professor
Statistics
PHD, Colorado State University, 1983

Cline, Kayla M, Clinical Assistant Professor
Accounting
PHD, Texas A&M University, 2017

Clubb, Fred J, Clinical Professor
Veterinary Pathobiology
DVM, Auburn University, 1971
PHD, University of Alabama at Birmingham, 1983

Coates, Craig J, Instructional Professor
Entomology
PHD, Australian National University, 1997

Cobb, Cory, Assistant Professor
Health Behavior
PHD, University of Central Arkansas, 2019

Cobb, David E, Associate Professor of the Practice
Ocean Engineering
MS, Texas A&M University, 1999

Coburn, Chad, Senior Lecturer
Animal Science
MS, Angelo State University, 1995

Cofer, Cody Lee, Adjunct Professor of Law
School of Law
JD, Texas Tech School of Law, 2008

Coffelt, Vanessa Lea, Instructional Associate Professor
Mathematics
MS, Kansas State University, 2005

Cohen, Glenn T, Clinical Faculty
Orthodontics
DMD, University of Florida, 2007

Cohen, Noah D, Professor
Vet Large Animal Clinical Sc
VMD, University of Pennsylvania, 1983
PHD, Johns Hopkins University, 1988

Cohn, William B, Instructional Associate Professor
Biology
PHD, Texas A&M University, 2000

Cokinos, Gregory, Visiting Lecturer
Construction Science
JD, South Texas College of Law, 1982

Coldwell, Peter, Clinical Faculty
College of Medicine
MD, Medical College of Ohio, 1994

Coleman, Gerard T, Professor of the Practice
Marine Engineering Technology
MS, The George Washington University, 1996

Collins, Daniel P, Instructional Associate Professor
Chemistry
PHD, University of South Carolina, 2012

Collins, John, Adjunct Professor of Law
School of Law
JD, Washburn University, 1991

Collins, Michael S, Professor
English
PHD, Columbia University, 1999

Collins, Monte K, Clinical Faculty
Orthodontics
DDS, Baylor College of Dentistry, 1984

Collins, Sean P, Clinical Assistant Professor
Vet Small Animal Clinical Sc
DVM, Ross University School of Veterinary Medicine, 2009

Colvin, Lisa Cooper, Clinical Associate Professor
Kinesiology & Sport Management
PHD, University of Southern Mississippi, 2003

Colwell, Brian, Professor
Health Behavior
PHD, Indiana University at Bloomington, 1992

Comech, Andrew, Associate Professor
Mathematics
PHD, Columbia University, 1997

Comstock, Tom, Senior Lecturer
Eng Tech & Ind Distribution
MBA, Texas A&M University, 1976

Cong, Qian, Assistant Professor
Biomedical Sciences
PHD, Shanghai Jiao Tong University, 2016

Conkey, Andrew Paul, Instructional Professor
Multidisciplinary Engineering
PHD, Texas A&M University, 2007

Conklin, Michael, Adjunct Professor of Law
School of Law
JD, Washburn University, 2007

Connolly, John F, Professor of the Practice
Aerospace Engineering
MEN, University of Colorado, 1996

Connor, William Klugh, Senior Lecturer
College of Performance, Visualization & Fine Arts
PHD, Royal Holloway University of London, 2012

Conway, Daniel W, Professor
Philosophy
PHD, University of California at San Diego, 1985

Conway, Kevin W, Professor
Ecology and Conservation Biology
PHD, San Louis University, 2010

Cook, Audrey K, Professor
Vet Small Animal Clinical Sc
DVM, University of Edinburgh, 1989

Cook, Emily Elizabeth, Assistant Professor
Economics
PHD, University of Virginia, 2020

Cook, Joel, Clinical Assistant Professor
College of Medicine
DO, University of North Texas Health Science Center, 2012

Cook, Meg C, Assistant Professor
College of Performance, Visualization & Fine Arts
MFA, Texas A&M University, 2019

Cook, Scott J, Associate Professor
Political Science
PHD, University of Pittsburgh, 2014

Cook, Walter E, Clinical Professor
Veterinary Pathobiology
DVM, University of California at Davis, 1994
PHD, University of Wyoming, 1999

Cooke, Brett, Professor
Global Languages & Cultures
PHD, University of California at Berkeley, 1983

Cooke, Guy Clarence, Visiting Lecturer
Construction Science
BS, Texas A&M University, 1980

Cooke, Reinaldo F, Professor
Animal Science
PHD, University of Florida, 2008

Cooper, John T, Professor of the Practice
Land Arch & Urban Planning
PHD, University of North Carolina at Chapel Hill, 2004

Cooper, Marcia A, Associate Professor
Mechanical Engineering
PHD, California Institute of Technology, 2004

Cooper, Rich P, Instructional Associate Professor
English
PHD, Louisiana State University, 2011

Cooperstein, Stephane, Assistant Professor
Physics & Astronomy
PHD, Princeton University, 2019

Cope, Dale A, Professor of the Practice
Mechanical Engineering
PHD, Wichita State University, 2002

Cordes, Laurie Wittig, Instructional Assistant Professor
Ocean Engineering
MS, Texas A&M University, 1993

Cordes, Roger D, Professor of the Practice
Ocean Engineering
BDS, University of Clemson, 1992
PHD, Northwestern University, 1996

Corleto, Carlos Roberto, Professor of the Practice
Mechanical Engineering
PHD, Texas A&M University, 1990

Cornejo, Juan Antonio, Instructional Assistant Professor
College of Engineering
PHD, Texas A&M University, 2020

Cornell, Karen K, Professor
Vet Small Animal Clinical Sc
DVM, Purdue University, 1988
PHD, Purdue University, 1998

Correa Talutto, Debora, Adjunct Professor of Law
School of Law
JD, Faculdades de Direito Miltom Campos, 2002
DJS, University of Florida, 2018

Corte, Guilherme, Assistant Professor
Marine Biology
PHD, State University of Campinas, 2016

Cortes, Kalena E, Professor
Public Service and Administration
PHD, University of California at Berkeley, 2002

Coseo, Lara T, Clinical Assistant Professor
Comprehensive Dentistry
DDS, Texas A&M University, 2004

Costa, Michael George, Adjunct Assistant Professor
Health Policy & Management
MA, University of Cincinnati, 2021

Cote, Gerard L, Professor
Biomedical Engineering
PHD, University of Connecticut, 1990

Cote, Murray J, Associate Professor
Health Policy & Management
PHD, Texas A&M University, 1996

Cotter, Jane C, Associate Professor
Dental Hygiene
MS, Texas A&M University, 2009

Coulson, Robert N, Professor
Entomology
PHD, University of Georgia, 1969

Coussons, Donna, Instructional Assistant Professor
Construction Science
MED, Sam Houston State University, 2016

Cowen, Brandy Sue, Clinical Assistant Professor
Dental Hygiene
MS, Texas Woman's University, 2018

Craig, Cheryl J, Professor
Teaching, Learning & Culture
PHD, University of Alberta, Canada, 1992

Craig, David O, Senior Lecturer
Eng Tech & Ind Distribution
MS, The University of Texas at Austin, 1997

Crawford, Max, Visiting Lecturer
Atmospheric Sciences
BS, Texas A&M University, 2013

Crawford, Scott, Instructional Professor
Statistics
PHD, Texas A&M University, 2012

Crawford, Victoria G, Assistant Professor
Computer Science & Engineering
PHD, University of Florida, 2022

Creel, James, Visiting Research Associate Professor
Aerospace Engineering
PHD, Trinity College Dublin, 2017

Creel, Roger, Assistant Professor
Geology & Geophysics
PHD, Columbia University, 2024

Creevy, Kate E, Professor
Vet Small Animal Clinical Sc
DVM, University of Tennessee, 1998

Cremar, Lee Daniel, Lecturer
Chemistry
PHD, University of Illinois at Urbana-Champaign, 2012

Cresswell, Jacquelyn N, Visiting Lecturer
Marine Biology
PHD, Texas A&M University, 2019

Crews, Molly E, Instructional Assistant Professor
Vet Small Animal Clinical Sc
MLS, Texas Women's University, 2020

Crick, Nathan A, Professor
Communication & Journalism
PHD, University of Pittsburgh, 2005

Crider, Jason, Assistant Professor
English
PHD, University of Florida, 2021

Criscione, Charles D, Professor
Biology
PHD, Oregon State University, 2005

Criscione, John C, Professor
Biomedical Engineering
MD, Johns Hopkins University, 1999
PHD, Johns Hopkins University, 1999

Criscitiello, Michael F, Professor
Veterinary Pathobiology
PHD, University of Miami, 2003

Crisman, Kevin J, Professor
Anthropology
PHD, University of Pennsylvania, 1989

Crisman-Cox, Casey, Assistant Professor
Political Science
PHD, University of Rochester, 2016

Crocker, Katherine Mims, Professor
School of Law
JD, University of Virginia, 2012

Cromer, Walter E, Instructional Assistant Professor
College of Medicine
PHD, Louisiana State University Health Science Center Shreveport, 2011

Crompton, John L, Distinguished Professor
Hospitality Hotel Management & Tourism
PHD, Texas A&M University, 1977

Crosby, Garth Valentine, Associate Professor
Eng Tech & Ind Distribution
PHD, Florida International University, 2007

Crosby, Kevin M, Professor
Horticultural Sciences
PHD, Texas A&M University, 1999

Crowe, Ronald E., Instructional Assistant Professor
Agricultural Economics
PHD, University of Central Florida, 1997

Crump, Thomas B, Clinical Faculty
Periodontics
DDS, Baylor College of Dentistry, 1997

Cruz-Reyes, Jorge A, Professor
Biochemistry & Biophysics
PHD, London School of Hygiene & Tropical Medicine, 1992

Cruzado Garcia, Aitor, Research Assistant Professor
Aerospace Engineering
PHD, Mondragon University, 2013

Cuevas, Carolyn, Adjunct Assistant Professor
Health Policy & Management
PHD, Texas A&M University, 2021

Culbertson, Avery, Instructional Assistant Professor
Ag Leadership, Educ & Comm
PHD, University of Florida, 2013

Culp, Charles H, Professor
Architecture
PHD, Iowa State University, 1976

Cunningham, J. Thomas, Professor
College of Medicine
PHD, University of Iowa, 1988

Curley, Kevin, Instructional Associate Professor
Vet Integrative Biosciences
PHD, Texas A&M University, 2012

Curran, Chris, Associate Professor of the Practice
Multidisciplinary Engineering
BS, Texas A&M University, 1987

Currie-Gregg, Nancy J, Professor of the Practice
Aerospace Engineering
PHD, University of Houston, 1997

Currie-Gregg, Nancy J, Professor of the Practice
College of Engineering
PHD, University of Houston, 1997

Currie-Gregg, Nancy J, Professor of the Practice
Industrial & Systems Engineering
PHD, University of Houston, 1997

Curry, Guy L, Senior Professor
Industrial & Systems Engineering
PHD, University of Arkansas, 1971

Curry, Richard K, Associate Professor
Global Languages & Cultures
PHD, Arizona State University, 1982

Curtsinger, Wanda F, Senior Lecturer
Information & Operations Mgmt
PHD, Morehead State University, 2007

Custer Bojakowski, Katie, Instructional Assistant Professor
Anthropology
PHD, Texas A&M University, 2011

Cuthbert, Kristy, Clinical Assistant Professor
Psychological & Brain Sciences
PHD, Boston University, 2022

Cziraki, Peter, Assistant Professor
Finance
PHD, Tilburg University, 2012

D'Amelio, Andrew Robert, Clinical Faculty
Endodontics
DDS, Emory University School of Dentistry, 1983

Da Silva, Bruno, Adjunct Professor of Law
School of Law
PHD, University of Amsterdam, 2016
LLM, Vienna University of Economics and Business Administration, 2008

Da Silva, Dilma M, Professor
Computer Science & Engineering
PHD, Georgia Institute of Technology, 1997

Dabney, Alan R, Professor
Statistics
PHD, University of Washington, 2006

Dabral, Neha, Clinical Assistant Professor
Veterinary Pathobiology
BVSc, Govind Ballabh Pant University of Agriculture and Technology, 2008
PHD, Purdue University, 2014

Dacso, Sheryl, Adjunct Professor of Law
School of Law
JD, South Texas College of Law, 1979

Dague, Laura A, Professor
Public Service and Administration
PHD, University of Wisconsin, 2012

Daigle, Courtney L, Associate Professor
Animal Science
PHD, Michigan State University, East Lansing, MI, 2013

Daigneault, Melissa S, Visiting Lecturer
Construction Science
JD, Wake Forest University School of Law, 2003

Daly, Sara A, Visiting Lecturer
International Affairs
MA, The George Washington University, 1997

Damjanovic, Ivan, Professor
Civil & Environmental Engineering
PHD, The University of Texas at Austin, 2006

Damodaran, Chendil, Professor
Pharmaceutical Sciences
PHD, University of Madras, 1995

Dancy, Joe, Senior Lecturer
School of Law
JD, Oklahoma City University, 1984

Daniel, Julianne, Visiting Lecturer
Hospitality Hotel Management & Tourism
MBA, Texas Tech University, 2000

Daniels, John T., Clinical Assistant Professor
Comprehensive Dentistry
DDS, Howard University, College of Dentistry, 1983

Dao, Thy, Lecturer
Statistics
PHD, University of Arkansas, 2021

Darbha, Swaroop V, Professor
Mechanical Engineering
PHD, University of California at Berkeley, 1994

Darby, Leslie, Adjunct Professor of Law
School of Law
JD, Baylor University, 2007

Darensbourg, Donald J, Professor
Chemistry
PHD, University of Illinois at Urbana-Campaign, 1968

Darensbourg, Marcetta, Distinguished Professor
Chemistry
PHD, University of Illinois at Urbana-Champaign, 1967

Daripa, Prabir, Professor
Mathematics
PHD, Brown University, 1985

Darwish, Ahmed, Assistant Professor
Horticultural Sciences
PHD, Hiroshima University, 2015

Dashwood, Roderick H, Professor
College of Medicine
PHD, University of Portsmouth, 1986

Dass, Sapna, Assistant Professor
Animal Science
PHD, Dublin Institute of Technology, 2020

Datta, Aniruddha, Professor
Electrical & Computer Eng
PHD, University of Southern California, 1991

Dattagupta, Akhil, Professor
Petroleum Engineering
PHD, The University of Texas at Austin, 1992

Davidson, Dillon, Assistant Professor of the Practice
Maritime Transportation
MIA, Texas A&M University, 2024

Davidson, Jacqueline R, Clinical Professor
Vet Small Animal Clinical Sc
DVM, University of Minnesota, 1986

Davies, Peter J, Professor
College of Medicine
MD, University of Miami School of Medicine, 1972
PHD, University of Miami, 1975

Davis, Amanda R, Clinical Assistant Professor
Vet Physiology & Pharmacology
PHD, Texas A&M University, 2017

Davis, Benjamin, Assistant Professor
Global Languages & Cultures
PHD, Emory University, 2020

Davis, Bret W, Visiting Associate Professor of the Practice
International Affairs
JD, St. Mary's University, 1991

Davis, Brian W, Assistant Professor
Veterinary Pathobiology
PHD, Texas A&M University, 2013

Davis, Danny W, Professor of the Practice
Public Service and Administration
PHD, Texas A&M University, 2003

Davis, Deidra D, Instructional Assistant Professor
Land Arch & Urban Planning
PHD, Southern Illinois University Carbondale, 2017

Davis, Donovan, Instructional Assistant Professor
Biological & Agricultural Eng
BS, Texas A&M University, 2020

Davis, Katherine M, Associate Professor
Electrical & Computer Eng
PHD, University of Illinois at Urbana-Champaign, 2011

Davis, Lauren K, Instructional Assistant Professor
Vet Integrative Biosciences
PHD, Texas A&M University, 2015

Davis, Randall W, Professor
Marine Biology
PHD, University of California at San Diego, 1980

Davis, Timothy A, Professor
Computer Science & Engineering
PHD, University of Illinois at Urbana-Champaign, 1989

Davis, Trina J, Associate Professor
Teaching, Learning & Culture
PHD, Texas A&M University, 2005

Davison, Chayla H, Associate Professor
Educ Admn & Human Resource Dev
PHD, University of Denver, 2013

Davlasheridze, Meri, Associate Professor
Marine and Coastal Environmental Science
PHD, Pennsylvania State University, 2013

Dawson, Lindsay A, Assistant Professor
Vet Physiology & Pharmacology
PHD, Tulane University, 2014

Day, Leslie, Instructional Professor
School of Engineering Medicine
PHD, Northeastern University, 2005

De Lima Vaz Xavier, Davi, Assistant Professor of the Practice
Architecture
BAR, University of Brazil, 2010

De Miranda, Michael A, Professor
Teaching, Learning & Culture
PHD, University of California, Riverside, 1996

De Ruiter, Darryl J, Professor
Anthropology
PHD, University of the Witwatersrand, South Africa, 2001

DeBree, Dan, Associate Professor of the Practice
Public Service and Administration
MA, Marine Corps University, 2003

DeMars, Kyle J., Professor
Aerospace Engineering
PHD, University of Texas, 2010

DeSantiago, Annette C, Clinical Assistant Professor
College of Pharmacy
PHARM D, Southwestern Oklahoma State University, 2017

DeVine, Thomas, Adjunct Professor of Law
School of Law
JD, University of Denver, 2004

DeWitt, Avery Ellis, Visiting Lecturer
Construction Science
MS, Texas A&M University, 2019

Deck, Jennifer P, Clinical Assistant Professor
Pediatric Dentistry
DDS, Texas A&M University, 2009

Decker, Lance Nelson, Visiting Senior Lecturer
Eng Tech & Ind Distribution
PHD, Texas A&M University, 2023

Deer, Shannon K, Clinical Associate Professor
Accounting
PHD, Texas A&M University, 2017

Deere, Don Thomas, Assistant Professor
Philosophy
PHD, DePaul University, 2016

Deere, Paul P, Associate Professor of the Practice
Multidisciplinary Engineering
BS, Texas A&M University, 1992

Delaney, Casey, Adjunct Professor of Law
School of Law
JD, University of Oklahoma, 2005

Deleon, Joy Yong Barros, Instructional Assistant Professor
Health Behavior
PHD, University of Alabama - Birmingham, 2017

Delgado, Adolfo, Associate Professor
Mechanical Engineering
PHD, Texas A&M University, 2008

Delgado, Steven, Visiting Lecturer
Construction Science
BS, Texas A&M University, 2009

Dellapenna, Timothy M, Professor
Marine and Coastal Environmental Science
PHD, The College of William & Mary, 1999

Demblon, Alexander Robert, Research Assistant Professor
Materials Science & Engr
PHD, Texas A&M University, 2023

Deming, Kimberly, Lecturer
College of Nursing
MSN, The University of Texas at Tyler, 2022

Demkowicz, Michael J, Professor
Materials Science & Engr
PHD, Massachusetts Institute of Technology, 2005

Demlow, Alan, Professor
Mathematics
PHD, Cornell University, 2002

Deng, Jinyang, Associate Professor
Hospitality Hotel Management & Tourism
PHD, University of Alberta, Canada, 2004

Deng, Youjun, Professor
Soil & Crop Sciences
PHD, Texas A&M University, 2001

Denly, Michael, Assistant Professor
International Affairs
PHD, University of Texas at Austin, 2022

Dennie, Christian S, Adjunct Professor of Law
School of Law
JD, University of Oklahoma, 2004

Denning, Jeffrey, Professor
Economics
PHD, The University of Texas, Austin, 2015

Depoy, Darren L, Professor
Physics & Astronomy
PHD, University of Hawaii at Manoa, 1987

Derr, James N, Professor
Veterinary Pathobiology
PHD, Texas A&M University, 1990

Derry, Paul J, Instructional Assistant Professor
College of Medicine
PHD, Rice University, 2016

Despain, Kyle, Visiting Lecturer
Animal Science
MS, Texas A&M University, College Station, 2024

Dessler, Andrew E, Professor
Atmospheric Sciences
PHD, Harvard University, 1994

Deutz, Nicolaas, Professor
Kinesiology & Sport Management
MD, University of Amsterdam, 1988

Devarenne, Timothy P, Associate Professor
Biochemistry & Biophysics
PHD, University of Kentucky, 2000

Deveau, Michael A, Clinical Associate Professor
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DVM, Kansas State University, 2005

Devore, Ronald A, Distinguished Professor
Mathematics
PHD, Ohio State University, 1967

Dewsnap, Michael A, Instructional Assistant Professor
College of Medicine
PHD, Colorado State University, 2019

Dexter, Rayna M, Instructional Associate Professor
College of Performance, Visualization & Fine Arts
MFA, Kent State University, 2009

Dharmasena, Senarath, Instructional Associate Professor
Agricultural Economics
PHD, Texas A&M University, 2010

Dhingra, Amit, Professor
Horticultural Sciences
PHD, University of Delhi, 2002

Di Sciullo, Alan, Adjunct Professor of Law
School of Law
JD, Georgetown University, 1977

DiGeorgio-Lutz, JoAnn, Professor
Maritime Studies
PHD, University of North Texas, 1993

Diamantaras, Damon Evangelos, Visiting Professor of the Practice
Management
BBA, Texas A&M University, 1992

Diaz Artilles, Ana, Associate Professor
Aerospace Engineering
PHD, Massachusetts Institute of Technology, 2015

Diaz Garelli, Franck, Instructional Associate Professor
Biomedical Engineering
PHD, University of Texas Health Science Center Houston, 2016

Diaz Rodriguez, Ivan De Jesus, Instructional Associate Professor
Multidisciplinary Engineering
PHD, Texas A&M University, 2017

Diaz, Michelle C, Clinical Associate Professor
Accounting
PHD, Texas A&M University, 2005

Diaz, Viviana, Lecturer
Global Languages & Cultures
PHD, University of Houston, 2019

Diaz, William Ben, Professor of the Practice
College of Arts & Sciences
MA, University of Oklahoma, 2023

Dicaglio, Joshua M, Associate Professor
English
PHD, Pennsylvania State University, 2016

Dicaglio, Sara, Assistant Professor
English
PHD, Pennsylvania State University, 2016

Dickerson, Vanna, Associate Professor
Vet Small Animal Clinical Sc
DVM, University of Georgia, 2013

Dickey, Danielle M, Instructional Assistant Professor
College of Medicine
EDD, University of Mary Harden-Baylor, 2018

Dickey, John Charles, Adjunct Professor of Law
School of Law
JD, Samford University, 1978

Dickey, Judy, Instructional Assistant Professor
Atmospheric Sciences
PHD, Texas A&M University, 2024

Dickey, Nancy W, Instructional Professor
College of Medicine
MD, University of Texas Health Science Center at Houston, 1976

Dietz, Carlen, Visiting Lecturer
Construction Science
MS, Texas A&M University, 2021

Dikec, Altay, Clinical Associate Professor
Marketing
PHD, Konkuk University - Miller Graduate School of Business, 2012

Dimarco, Steven F, Professor
Oceanography
PHD, The University of Texas at Dallas, 1991

Dimitriyev, Michael S, Assistant Professor
Materials Science & Engr
PHD, Georgia Institute of Technology, 2017

Dindot, Scott V, Professor
Veterinary Pathobiology
PHD, Texas A&M University, 2003

Dirani, Khalil M, Professor
Educ Admn & Human Resource Dev
PHD, University of Illinois at Urbana-Champaign, 2007

Dixit, Madhavi Manish M, Lecturer
Land Arch & Urban Planning
PHD, Texas A&M University, 2021

Dixit, Manish K, Associate Professor
Construction Science
PHD, Texas A&M University, 2013

Dixon, Benika, Assistant Professor
Epidemiology & Biostatistics
DrPH, Texas A&M University, 2020

Dixon, Marlene A, Professor
Kinesiology & Sport Management
PHD, Ohio State University, 2002

Dixon, Stuart M, Instructional Associate Professor
Kinesiology & Sport Management
MED, Concordia University Texas, 2009

Diyashev, Iskander Rasimovich, Professor of the Practice
Petroleum Engineering
PHD, Texas A&M University, 1998

Djire, Abdoulaye, Assistant Professor
Chemical Engineering
PHD, University of Michigan, 2016

Do, Michael D, Professor of the Practice
Industrial & Systems Engineering
PHD, University of Arizona, 2012

Dobberstine, Jim, Visiting Lecturer
Marine Biology
MS, University of Houston-Clear Lake, 2007

Dodge, Tisha, Adjunct Professor of Law
School of Law
JD, Southern Methodist University, 1995

Dogariu, Arthur, Associate Professor
Aerospace Engineering
PHD, University of Central Florida, 1997

Domel, Jill, Instructional Assistant Professor
Poultry Science
PHD, Texas A&M University, 2020

Dominguez, Amanda, Clinical Faculty
College of Nursing
BSN, University of Texas Health Science Center at San Antonio, 2010

Domsky, Darren K, Associate Professor
Maritime Studies
PHD, York University, 2006

Dong, Juan, Professor
Biochemistry & Biophysics
PHD, University of California, Riverside, 2005

Donkor, David A, Associate Professor
Global Languages & Cultures
PHD, Northwestern University, 2008

Donkor, David A, Associate Professor
College of Performance, Visualization & Fine Arts
PHD, Northwestern University, 2008

Donnell, James M, Professor of the Practice
Multidisciplinary Engineering
BS, Texas A&M University, 1982

Donovan, Arthur D, Professor of the Practice
Geology & Geophysics
PHD, Colorado School of Mines, 1985

Donzis, Diego, Professor
Aerospace Engineering
PHD, Georgia Institute of Technology, 2007

Dooley, Kim E, Professor
Ag Leadership, Educ & Comm
PHD, Texas A&M University, 1995

Dorman, Taft, Adjunct Professor of Law
School of Law
PHD, Texas Tech University, 2016

Dormire, Sharon L, Professor
College of Nursing
PHD, University of Florida, 1992

Dorpalen-Barry, Galen, Assistant Professor
Mathematics
PHD, University of Minnesota, 2021

Dorsey, Leroy G, Professor
Communication & Journalism
PHD, Indiana University, 1993

Dostal, Christopher M, Assistant Professor
Anthropology
PHD, Texas A&M University, 2017

Douglas, Charles Allen, Instructional Associate Professor
Pharmaceutical Sciences
PHD, University of Florida, 2011

Douglass, April G, Instructional Assistant Professor
Civil & Environmental Engineering
PHD, Texas A&M University, 2011

Douphrate, David, Associate Professor
Environmental & Occpnl Hlth
PHD, Colorado State Univeristy, 2008

Dow, Andy, Adjunct Professor of Law
School of Law
JD, Southern Methodist University, 1991

Dowd, Sara M, Lecturer
Psychological & Brain Sciences
PHD, Texas A&M University, 2021

Dox, Donnalee, Professor
Global Languages & Cultures
PHD, University of Minnesota, Twin Cities, 1995

Dravid, Shashank, Professor
College of Medicine
PHD, University of Georgia, 2003

Drayer, Penelope R, Clinical Associate Professor
Comprehensive Dentistry
DDS, Baylor College of Dentistry, 2009

Dresser, Steven, Clinical Faculty
Comprehensive Dentistry
DDS, Baylor College of Dentistry, 1981

Droleskey, Suzanne, Visiting Lecturer
Kinesiology & Sport Management
PHD, Texas A&M University, 2000

Dror, Olga, Professor
History
PHD, Cornell University, 2003

Dryden, Joseph, Adjunct Professor of Law
School of Law
JD, California Western School of Law, 1990
EDD, University of North Texas, 2010

Du, Jiabi, Assistant Professor
Marine and Coastal Environmental Science
PHD, College of William and Mary, 2017

Duan, Benchun, Professor
Geology & Geophysics
PHD, University of California at Riverside, 2006

Dubois, Dustin W, Instructional Assistant Professor
College of Medicine
PHD, Texas A&M University, 2004

Dubriwny, Tasha N, Associate Professor
Communication & Journalism
PHD, University of Georgia, 2005

Dudley, Drew, Visiting Lecturer
Construction Science
MEN, Texas A&M University, 2012

Dudley, Taylor Scott, Visiting Lecturer
Eng Tech & Ind Distribution
MBA, University of Texas at Austin, 2018

Duffield, Nicholas G, Professor
Electrical & Computer Eng
PHD, Queen Mary College, Univ. of London, 1987

Duffy, Thomas J, Adjunct Professor of Law
School of Law
JD, Syracuse University, 1973

Dugi, Daniel David, Clinical Associate Professor
College of Medicine
MD, University of Texas Health Science Center, San Antonio, 1980

Dulin, Jennifer N, Associate Professor
Biology
PHD, University of Texas Health Science Center, 2012

Dumbrigue, Herman Bernardo, Clinical Associate Professor
Comprehensive Dentistry
DMD, University of the Phillipines, 1989

Dunbar, Bonnie Jeanne, Professor
Aerospace Engineering
PHD, University of Houston, 1983

Dunham, Thomas Leigh, Lecturer
Vet Integrative Biosciences
PHD, University of Texas Southwestern Medical Center, 2023

Dunlap, Kathrin A, Instructional Professor
Animal Science
PHD, Texas A&M University, 2006

Dunn, Allison L, Instructional Associate Professor
Ag Leadership, Educ & Comm
PHD, Texas A&M University, 2018

Dunn, Koren M, Clinical Assistant Professor
College of Pharmacy
PHARM D, Texas A&M University, 2022

Duran Vinent, Orencio, Associate Professor
Ocean Engineering
PHD, University of Stuttgart, 2007

Duran, Robert, Associate Professor
Sociology
PHD, University of Colorado Boulder, 2006

Durden, Aaron, Visiting Assistant Professor of the Practice
Agricultural Economics
MBA, City University of Seattle, 2007

Durden, Jesse, Visiting Senior Lecturer
Construction Science
MBA, Texas A&M University, 2007

Dutta, Bhaskar, Professor
Physics & Astronomy
PHD, Oklahoma State University, 1995

Duysak, Alpaslan, Instructional Associate Professor
Computer Science & Engineering
PHD, Bournemouth University, 2004

Dvorak, Bruce D, Professor
Land Arch & Urban Planning
MLA, University of Illinois at Urbana-Champaign, 1994

Dwivedi, Priyanka, Associate Professor
Management
PHD, The Pennsylvania State University, 2017

Dworkin, Ira M, Associate Professor
English
PHD, City University of New York, 2003

Dwyer, William, Visiting Lecturer
Public Service and Administration
JD, Rutgers Law School, 2004

Dye, Richard T, Clinical Professor
Finance
PHD, Texas A&M University, 1993

Dyer, Megan K, Senior Lecturer
Political Science
PHD, Texas A&M University, 2017

Dykema, Kenneth J, Professor
Mathematics
PHD, University of California at Berkeley, 1993

Dyson, Joseph Brandon, Visiting Lecturer
Eng Tech & Ind Distribution
MID, Texas A&M University, 2006

Earhart, Amy E, Associate Professor
English
PHD, Texas A&M University, 1999

Earle, Thomas, Associate Professor
Maritime Studies
PHD, Rice University, 2017

Early, Tim, Associate Professor of the Practice
Land Arch & Urban Planning
MS, Texas A&M University, 1991

Easterwood, Leslie A, Clinical Associate Professor
Vet Large Animal Clinical Sc
DVM, Texas A&M University, 1995

Ebner, Lisa, Visiting Lecturer
Vet Small Animal Clinical Sc
DVM, University of Georgia, 2006

Echols, Katherine E, Instructional Professor
Maritime Studies
PHD, University of Houston, 2015

Eckel, Catherine C, Professor
Economics
PHD, University of Virginia, 1983

Eckman, David J, Assistant Professor
Industrial & Systems Engineering
PHD, Cornell University, 2019

Eckman, Stacy L, Clinical Professor
Vet Small Animal Clinical Sc
DVM, Texas A&M University, 2001

Eckstein, Gabriel E, Professor
School of Law
JD, American University Washington College of Law, 1995

Economou, Ioannis, Professor
Chemical Engineering-Qatar Campus
PHD, Johns Hopkins University, 1993

Eden, Heather, Instructional Assistant Professor
Hospitality Hotel Management & Tourism
PHD, University of Wollongong, 2014

Eden, Lorraine, Adjunct Professor of Law
School of Law
PHD, Dalhousie University, Canada, 1976

Edenfield, George, Professor of the Practice
Maritime Transportation
MA, American Military University, 2013

Edens, John F, Professor
Psychological & Brain Sciences
PHD, Texas A&M University, 1996

Edens, Pamela S, Instructional Associate Professor
Psychological & Brain Sciences
PHD, Texas A&M University, 1997

Edlin, Brian Scott, Adjunct Professor of Law
School of Law
JD, Villanova University, 2000

Edwards, Andrea G, Instructional Assistant Professor
College of Performance, Visualization & Fine Arts
MA, University of Illinois at Urbana Champaign, 1992

Edwards, Joseph Andrew, Assistant Professor
Plant Pathology & Microbiology
PHD, University of California, Davis, 2017

Edwards, Josh David, Instructional Assistant Professor
Chemistry
PHD, University of Utah, 2022

Edwards, Kristy D., Clinical Associate Professor
College of Medicine
MD, Texas Tech University Health Sciences Center School of Medicine, 1997

Edwards, Thomas, Associate Professor
Vet Small Animal Clinical Sc
DVM, University of Georgia College of Veterinary Medicine, 2006
PHD, University of Illinois, Urbana, 1997

Efendiev, Yalchin R, Professor
Mathematics
PHD, California Institute of Technology, 1999

Ege, Matthew, Professor
Accounting
PHD, University of Texas, 2013

Egenolf, Susan B, Associate Professor
English
PHD, Texas A&M University, 1995

Ehlers, Scott, Clinical Assistant Professor
Diagnostic Sciences
DMD, Arizona Campus-Midwestern University, 2013

Ehsani, Mehrdad, Professor
Electrical & Computer Eng
PHD, University of Wisconsin, Madison, 1981

Eichler, Dan, Assistant Professor of the Practice
Hospitality Hotel Management & Tourism
MA1, Conrad N Hilton College of Global Hospitality, 1996

Eide, Marian, Professor
English
PHD, University of Pennsylvania, 1994

Eitan, Shoshana, Associate Professor
Psychological & Brain Sciences
PHD, Weizmann Institute of Science, 1997

Ekin, Sabit, Associate Professor
Eng Tech & Ind Distribution
PHD, Texas A&M University, 2012

Eksin, Ceyhun, Associate Professor
Industrial & Systems Engineering
PHD, University of Pennsylvania, 2015

El-Halwagi, Mahmoud M, Professor
Chemical Engineering
PHD, University of California at Los Angeles, 1990

Elabd, Yossef A, Professor
Chemical Engineering
PHD, Johns Hopkins University, 2001

Elane, George, Assistant Professor
Vet Large Animal Clinical Sc
DVM, Virginia Tech, 2016

Elbashir, Nimir O, Professor
Chemical Engineering-Qatar Campus
PHD, Auburn University, 2004

Elbert, Chanda D, Associate Professor
Ag Leadership, Educ & Comm
PHD, The Pennsylvania State University, 2000

Elizondo, Jon P, Lecturer
Industrial & Systems Engineering
PHD, Texas A&M University, 2021

Elliot, Jack, Professor
Ag Leadership, Educ & Comm
PHD, Ohio State University, 1988

Elliott, Matt S, Instructional Associate Professor
Mechanical Engineering
PHD, Texas A&M, 2013

Elliott, Stephen Dwight, Visiting Senior Lecturer
Eng Tech & Ind Distribution
MID, Texas A&M University, 2005

Ellis, Debra R, Senior Lecturer
Construction Science
JD, Baylor University, 1993

Ellis, Gary D, Professor
Ag Leadership, Educ & Comm
PHD, North Texas State University, 1983

Ellis, Robert B, Instructional Assistant Professor
Kinesiology & Sport Management
BA, Oklahoma State University, 1964

Ellis, Thomas H, Instructional Assistant Professor
Philosophy
MA, Texas A&M University, 2009

Elms, Rene D, Professor of the Practice
College of Engineering
PHD, Texas A&M University, 2009

Elshorbagy, Walid E A, Instructional Professor
Ocean Engineering
PHD, University of Arizona, 1995

Elwany, Alaa, Associate Professor
Industrial & Systems Engineering
PHD, Georgia Institute of Technology, 2009

Elza, Susan, Visiting Lecturer
Kinesiology & Sport Management
EDD, Lamar University, 2014

Emmert, Wade, Adjunct Professor of Law
School of Law
JD, Baylor University, 1995

Emre, Side, Associate Professor
History
PHD, University of Chicago, 2009

Engelen, Marielle P, Professor
Kinesiology & Sport Management
PHD, Maastricht University, Netherlands, 2000

England, Peter S, Instructional Associate Professor
Civil & Environmental Engineering
PHD, Texas Tech University, 2011

Enjeti, Prasad N, Professor
Electrical & Computer Eng
PHD, Concordia University, Montreal, 1988

Ennemoser, Benjamin, Assistant Professor
Architecture
MAR, University of Innsbruck, 2014

Entesari, Kamran, Professor
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PHD, University of Michigan, 2006

Epifanio, Craig C, Associate Professor
Atmospheric Sciences
PHD, University of Washington, 1999

Erbeli, Florina, Associate Professor
Educational Psychology
PHD, University of Ljubljana, 2015

Erdemir, Ali, University Distinguished Professor
Mechanical Engineering
PHD, Georgia Institute of Technology, 1986

Erickson, James W, Associate Professor
Biology
PHD, University of Wisconsin, Madison, 1989

Erickson, Timothy, Assistant Professor
Epidemiology & Biostatistics
PHD, University of Texas Health Science Center, 2019

Erminy Castillo, Marcel, Professor of the Practice
Architecture
BAR, Central University of Venezuela, 1987

Erraguntla, Madhav, Professor of the Practice
Industrial & Systems Engineering
PHD, Texas A&M University, 1996

Ershler, Jeffrey Ronald, Adjunct Professor of Law
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JD, University of the Pacific, McGeorge School of Law, 1995

Erskine, Didine M, Visiting Lecturer
Agricultural Economics
BA, University of Maine, 2023

Erukhimova, Tatiana L, Instructional Professor
Physics & Astronomy
PHD, Institute of Applied Physics, Russian Academy of Sciences, 1999

Erukulangara, Muhammed Rashad, Instructional Assistant Professor
Mathematics
PHD, University of South Florida, 2024

Escamilla, Edelmiro E, Instructional Associate Professor
Construction Science
PHD, Texas A&M University, 2011

Escobar-Lemmon, Maria, Professor
Political Science
PHD, The University of Arizona, 2000

Espina, Eduardo D, Professor
Global Languages & Cultures
PHD, Washington University in St. Louis, 1987

Espinoza Bardales, Luis, Assistant Professor
International Affairs
MA, University of Michigan, 2018
MPA, Kennedy School of Government at Harvard, 2014

Espinoza, Jason, Clinical Assistant Professor
Comprehensive Dentistry
DDS, Texas A&M University College of Dentistry, 2014

Esplin, Bryn S, Instructional Associate Professor
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JD, University of Nevada, 2014

Essman, Spenser, Assistant Professor
Management
PHD, University of South Carolina, 2021

Estevez-Rios, Valentin, Lecturer
Economics
PHD, University of Chicago, 2005

Estrada, Martha Alicia, Clinical Assistant Professor
Dental Hygiene
MS, Texas A&M University Commerce, 2025

Estrada, Rocio Yvette, Clinical Faculty
Dental Hygiene
BS, Texas A&M University, 2014

Estrela, Sylvie, Assistant Professor
Nutrition
PHD, University of Edinburgh, 2015

Ettekal, Andrea V, Associate Professor
Educational Psychology
PHD, Arizona State University, 2014

Ettekal, Idean, Associate Professor
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PHD, Arizona State University, 2016

Ettelbrick, Kelli L, Clinical Faculty
Pediatric Dentistry
DDS, University of Iowa, 1996

Eusebi, Ricardo, Professor
Physics & Astronomy
PHD, University of Rochester, 2006

Evans, Rhonda D, Instructional Assistant Professor
Sociology
PHD, Texas A&M University, 2002

Evans, Steven Gary, Lecturer
Rangeland, Wildlife and Fisheries Management
MS, Colorado State University, 2018

Everett, Mark E, Professor
Geology & Geophysics
PHD, University of Toronto, 1991

Everett-Houser, Joan M, Instructional Assistant Professor
College of Pharmacy
PHARM D, University of the Pacific, 1983

Ezell, Margaret, Distinguished Professor
English
PHD, Cambridge University, 1981

Ezzo, Paul J, Clinical Faculty
Periodontics
DDS, Baylor College of Dentistry, 1983
PHD, Baylor College of Dentistry, 2000

Fadamiro, Henry, Professor
Entomology
PHD, Green College, University of Oxford, 1995

Fader, Robyn Rice, Clinical Associate Professor
College of Medicine
MD, University Texas At Houston Medical School, 1999

Fadlelmula, Mohamed, Instructional Associate Professor
Petroleum Engineering-Qatar Campus
PHD, Middle East Technical University, 2012

Fahrenwald, Carl, Clinical Associate Professor
Educ Admn & Human Resource Dev
EDD, University of South Dakota, 1999

Fahrenwald, Nancy Lynn, Professor
College of Nursing
PHD, University of Nebraska Medical Center, 2002

Fajt, Virginia R, Clinical Professor
Vet Physiology & Pharmacology
DVM, Auburn University, 1995
PHD, Iowa State University, 2000

Falvo, Kathryn R, Assistant Professor
Maritime Studies
PHD, Pennsylvania State University, 2018

Falzarano, Jeffrey M, Professor
Ocean Engineering
PHD, University of Michigan, Ann Arbor, 1990

Fan, Hongshuo, Assistant Professor
College of Performance, Visualization & Fine Arts
PHD, The University of Manchester, 2022

Fancher, Kristen, Adjunct Professor of Law
School of Law
JD, Texas Tech University, 2008

Fang, Lei, Professor
Chemistry
PHD, Northwestern University, 2010

Farhy, Isabella, Assistant Professor
Biology
PHD, Tel Aviv University, 2013

Faris, Joseph Basam, Associate Professor of the Practice
Maritime Transportation
BS, Texas A&M University at Galveston, 2011

Farkas, Tibor, Associate Professor
Veterinary Pathobiology
DVM, University of Veterinary Medicine Budapest Hungary, 1988

Farmer, Karen C, Senior Lecturer
Accounting
MS, Texas A&M University, 2009

Farnell, Morgan B, Professor
Poultry Science
PHD, Texas A&M University, 2003

Farnell, Yuhua Z, Instructional Associate Professor
Poultry Science
PHD, Texas A&M University, 2002

Farooqi, Mohammed Junaid, Instructional Assistant Professor
Physics & Astronomy
PHD, The University of Texas at San Antonio, 2018

Farr, Gregory, Clinical Assistant Professor
Comprehensive Dentistry
DDS, Univ. of TX Health Science Center Dental School at San Antonio,
1984

Farris, Charlotte A, Clinical Associate Professor
College of Pharmacy
PHARM D, The University of Texas, 2009

Fathi, Nima, Assistant Professor
Marine Engineering Technology
PHD, University of New Mexico, 2017

Faulk, Larry H., Clinical Associate Professor
Management
PHD, Louisiana State University, 2002

Favrie, Nicolas, Visiting Professor
Mathematics
PHD, Universite Aix Marseille 1, 2008

Fazioli, Andrea L, Assistant Professor of the Practice
Maritime Transportation
BS, Texas A&M University at Galveston, 1994

Feagin, Russell A, Professor
Ecology and Conservation Biology
PHD, Texas A&M University, 2003

Feare, Donald Duffield, Adjunct Professor of Law
School of Law
JD, Texas Wesleyan University, 1996

Fehr, Sara K, Instructional Associate Professor
Health Behavior
PHD, University of Cincinnati, 2015

Fei, Chengcheng, Assistant Professor
Agricultural Economics
PHD, Texas A&M University, 2019

Feigenbaum, Leslie H, Senior Lecturer
Construction Science
MS, Texas A&M University, 1985

Feldman, Paul, Assistant Professor
Agricultural Economics
PHD, University of California - San Diego, 2019

Feldman, Rich, Senior Professor
Industrial & Systems Engineering
PHD, Northwestern University, 1975

Felts, Jonathan R, Associate Professor
Mechanical Engineering
PHD, University of Illinois Urbana Champaign, 2013

Feng, Peter, Visiting Senior Lecturer
Construction Science
PHD, University of California at Berkeley, 2009

Ferdinand, Alva O, Associate Professor
Health Policy & Management
PHD, University of Alabama Birmingham, 2013

Fernando, Sandun D, Professor
Biological & Agricultural Eng
PHD, University of Nebraska, 2003

Ferraro, Giacomo Hermes, Visiting Assistant Professor
Mathematics
PHD, Universite Bourgogne Franche-Comte, 2023

Ferreira Cabido, Leticia, Clinical Associate Professor
Diagnostic Sciences
DDS, Universidade Federal da Bahia, 2007

Ferris, Thomas K, Associate Professor
Industrial & Systems Engineering
PHD, University of Michigan at Ann Arbor, 2010

Fertitta Woods, Kelli, Instructional Assistant Professor
Maritime Business Administration
JD, South Texas College of Law, 2013

Fickel, Larry W, Senior Lecturer
Construction Science
BS, Texas A&M University, 1981

Field, Christopher C, Visiting Assistant Professor of the Practice
Agricultural Economics
MA, Abilene Christian University, 2013

Fieldhouse, Andrew, Assistant Professor
Finance
PHD, Cornell University, 2019

Fields, Sherecce A, Professor
Psychological & Brain Sciences
PHD, University of South Florida, 2008

Fields, Steven D, Adjunct Professor of Law
School of Law
JD, University of Oklahoma, 1986

Fields, Susan S, Clinical Associate Professor
Teaching, Learning & Culture
EDD, Boston University, 2017

Fierro, Alonso, Visiting Lecturer
Eng Tech & Ind Distribution
MS, Texas A&M University, 2010

Figlus, Jens, Associate Professor
Ocean Engineering
PHD, University of Delaware, 2010

Figueiredo, Virginia, Instructional Associate Professor
College of Performance, Visualization & Fine Arts
PHD, University of California, LA, 2009
MMU, California State University, Fullerton, 2006

Filippi, Anthony M, Associate Professor
Geography
PHD, University of South Carolina, 2003

Fillman, Jake, Assistant Professor
Mathematics
PHD, Rice University, 2015

Finberg, Christopher Jason, Associate Professor of the Practice
Multidisciplinary Engineering
BS, University of Minnesota - Twin Cities, 1994

Finch, Krista S, Assistant Professor
College of Performance, Visualization & Fine Arts
MFA, Maryland Institute College of Art, 2000
MFA, Maryland Institute, College of Art, 2000

Fink, Rainer J, Professor
Eng Tech & Ind Distribution
PHD, Texas A&M University, 1995

Finkelstein, Alexander, Professor
Physics & Astronomy
PHD, Laudau Institute for Theoretical Physics, 1972

Finlayson, Scott A, Associate Professor
Soil & Crop Sciences
PHD, University of Calgary, 1994

Fiorina, Carlo, Associate Professor
Nuclear Engineering
PHD, Politecnico di Milano, 2013

Fischer, Rebecca SB, Associate Professor
Epidemiology & Biostatistics
PHD, The University of Texas, 2014

Fisk, John David, Lecturer
Mathematics
MA, University of Houston, 2018

Fitzgerald, Lee A, Professor
Ecology and Conservation Biology
PHD, University of New Mexico, 1993

Fitzgerald, Tristan, Assistant Professor
Finance
PHD, University of California at Berkeley, 2018

Fitzpatrick, Courtney, Assistant Professor
Biology
PHD, Duke University, 2012

Fitzsimmons, Jessica N, Professor
Oceanography
PHD, Massachusetts Institute of Technology, 2013

Flaherty, Thomas Michael, Assistant Professor
Political Science
PHD, University of California, San Diego, 2023

Fleming, Dixie A, Visiting Senior Lecturer
Eng Tech & Ind Distribution
MS, St Edwards University, 2015

Fleming, Kenneth J, Instructional Assistant Professor
Teaching, Learning & Culture
PHD, Texas A&M University, 2017

Fletcher, Ryan L., Instructional Assistant Professor
History
PHD, University of Mississippi, 2013

Fletcher, Samantha A, Instructional Associate Professor
Biology
PHD, Texas A&M University, 2019

Flint, Gerald David, Clinical Professor
Management
PHD, Texas A&M University, 1997

Flores, Krystal, Instructional Associate Professor
Health Behavior
DrPH, Texas A&M University, 2019

Flores, Mark, Adjunct Professor of Law
School of Law
JD, University of Kentucky, 2010

Fluckey, James D, Professor
Kinesiology & Sport Management
PHD, The Pennsylvania State University, 1995

Fogarty, Melissa S, Clinical Professor
Educational Psychology
PHD, Texas A&M University, 2012

Folden, Charles M, Professor
Chemistry
PHD, University of California at Berkeley, 2004

Foley, Nicole M, Research Assistant Professor
Vet Integrative Biosciences
PHD, University College Dublin, 2017

Foote, Lorien L, Professor
History
PHD, University of Oklahoma at Norman, 1999

Foran, Ali, Instructional Associate Professor
Mathematics
PHD, Texas A&M University, 2018

Forbes, Kathleen, Clinical Professor
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Ford, Albert L, Professor
Physics & Astronomy
PHD, The University of Texas at Austin, 1972

Ford, Eric W, Adjunct Professor
Health Policy & Management
PHD, University of Alabama at Birmingham, 2000

Ford, John R, Associate Professor
Nuclear Engineering
PHD, University of Tennessee, 1992

Foroughirad, Vivienne, Assistant Professor
Marine Biology
PHD, Duke University, 2019

Fortney, Susan, Professor
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JD, Antioch School of Law, 1977
DJS, Columbia University, 1997

Foster, Courtney E, Senior Lecturer
Accounting
MS, Texas A&M University, 2008

Foster, Holly A, Professor
Sociology
PHD, University of Toronto, 2001

Foucart, Simon, Professor
Mathematics
PHD, University of Cambridge, 2005

Fout, Alison, Professor
Chemistry
PHD, Indiana University, Bloomington, 2009

Fovelle, Audrey, Visiting Assistant Professor
Mathematics
PHD, Universite Bourgogne Franche-Comte, 2023

Fowler, Rhonda M, Clinical Professor
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PHD, Texas A&M University, 2013

Fox, Darin, Adjunct Professor of Law
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JD, University of Oklahoma, 1992

Fox, Eric, Clinical Assistant Professor
Dental Hygiene
MS, Texas A&M University, 2005

Fox, Rafael O, Associate Professor of the Practice
Multidisciplinary Engineering
MS, Texas A&M University Kingsville, 1996

Foyle, Deborah M, Clinical Associate Professor
Periodontics
DDS, University of Dublin Trinity College, 1982

Francis, James, Instructional Associate Professor
English
PHD, Middle Tennessee State University, 2010

Frank-Cannon, Tamy C, Clinical Associate Professor
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DVM, Texas A&M University, 1996
PHD, Texas A&M University, 2005

Franks, Todd, Instructional Assistant Professor
Rangeland, Wildlife and Fisheries Management
PHD, Colorado State University, 2023

Frauenfeld, Oliver, Professor
Geography
PHD, University of Virginia, 2003

Frech, Devek K, Clinical Faculty
Orthodontics
DDS, Baylor College of Dentistry, 1986

Frederick, Keith, Adjunct Professor of Law
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MBA, Our Lady of the Lake University, 1991

Frias Ferreira, Heidy B, Instructional Assistant Professor
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MD, Universidad Central del Este San Pedro de Macoris, Dominican Republic, 2007

Fridley, Jennifer, Clinical Assistant Professor
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DVM, Mississippi State University, 2014

Friedman, Jennifer Diane, Clinical Associate Professor
College of Medicine
MD, University of California at San Francisco, 1997

Fries, Rainer J, Professor
Physics & Astronomy
PHD, University of Regensburg, Germany, 2001

Friesen, Rebecca F., Assistant Professor
Mechanical Engineering
PHD, Northwestern University, 2020

Fry, Calli, Clinical Assistant Professor
College of Medicine
DO, Liberty University College of Osteopathic Medicine, 2020

Frye, Nicole Marie, Clinical Faculty
College of Nursing
MSN, Concordia University Texas, 2020

Frymire, Read, Senior Lecturer
Eng Tech & Ind Distribution
BS, Texas A&M University, 1983

Fu, Dan, Assistant Professor
Atmospheric Sciences
PHD, Texas A&M University, 2018

Fu, Yusi, Assistant Professor
College of Medicine
PHD, Peking University, 2016

Fuhrmann, Matthew C, Professor
Political Science
PHD, University of Georgia, 2008

Fujiwara, Masami, Professor
Ecology and Conservation Biology
PHD, Massachusetts Inst of Technology, 2002

Fulk, Craig, Visiting Assistant Professor
Kinesiology & Sport Management
MS, The University of North Texas, 2020

Fuller, Lisa, Lecturer
College of Nursing
MSN, University of Texas Medical Branch, 2013

Fulton, Bill, Professor of the Practice
Land Arch & Urban Planning
MA, University of California, Los Angeles, 1985

Fulton, Sam, Visiting Professor of the Practice
Health Policy & Management
MBA, Sam Houston State University, 2012

Funk, Jenna, Clinical Assistant Professor
Vet Large Animal Clinical Sc
DVM, Iowa State University, 2015

Furth, Brett H, Instructional Assistant Professor
Maritime Studies
PHD, Texas A&M University, 2015

Furth, Mirjam, Assistant Professor
Ocean Engineering
PHD, University of Southampton, Southampton, UK, 2014

GARCIA G MENENDEZ, JORGE LUIS, Associate Professor
Economics
PHD, University of Chicago, 2018

Gabbai, Francois P, Professor
Chemistry
PHD, Technische Universitat Munchen, Germany, 1999

Gabriel, Eleanor L, Adjunct Professor of Law
School of Law
JD, Texas Tech University, 1980

Gaddy, Dana, Professor
Vet Integrative Biosciences
PHD, Baylor College of Medicine, 1991

Gaede, Holly C, Instructional Professor
Chemistry
PHD, University of California at Berkeley, 1995

Gagne, Jeffrey R, Associate Professor
Educational Psychology
PHD, Boston University, 2008

Gaharwar, Akhilesh K, Professor
Biomedical Engineering
PHD, Purdue University, 2011

Galan, Jhenny F, Instructional Professor
Foundational Sciences
PHD, University of Connecticut, 2006

Galanti, Tomer, Assistant Professor
Computer Science & Engineering
PHD, Tel Aviv University, 2021

Galdo, Juan, Associate Professor
Global Languages & Cultures
PHD, University of Colorado, 2003

Galindo, Luis, Adjunct Professor of Law
School of Law
JD, University of Texas, 1985

Galloway-Pena, Jessica, Assistant Professor
Veterinary Pathobiology
PHD, University of Texas, 2013

Galvan Mandujano, Martha C, Lecturer
Maritime Studies
PHD, The University of Oklahoma, 2015

Gamache, Kevin R, Visiting Lecturer
Public Service and Administration
PHD, Texas A&M University, 2014

Gammenthaler, Kyle S, Clinical Assistant Professor
Management
EDD, Baylor University, 2023

Gammon, Angelique C, Professor of the Practice
Communication & Journalism
BA, Texas A&M University, 1982

Gan, Jianbang, Professor
Ecology and Conservation Biology
PHD, Iowa State University, 1990

Gan, Li, Professor
Economics
PHD, University of California at Berkeley, 1998

Ganguly, Nivedita, Instructional Assistant Professor
School of Engineering Medicine
MD, Jawaharlal Neru Medical College, 1991

Gannaway, Mark E, Clinical Faculty
Comprehensive Dentistry
DDS, Baylor College of Dentistry, 1981

Gao, Huachao, Associate Professor
Marketing
PHD, University of Texas at San Antonio, 2016

Gao, Huilin, Professor
Civil & Environmental Engineering
PHD, Princeton University, 2005

Gao, Jun, Visiting Senior Lecturer
Eng Tech & Ind Distribution
PHD, University of New Mexico, 2007

Gao, Wei, Associate Professor
Mechanical Engineering
PHD, University of Texas at Austin, 2014

Garant, Michele, Clinical Assistant Professor
College of Medicine
DO, Western University of Health Sciences - College of Osteopathic Medicine, 1998

Garay, Juan A, Professor
Computer Science & Engineering
PHD, The Pennsylvania State University, 1989

Garcia Sanchez, Guillermo J, Professor
School of Law
DJS, Harvard University, 2017
LLM, Tufts University, 2011

Garcia, Alfredo A, Professor
Industrial & Systems Engineering
PHD, University of Michigan, 1997

Garcia, Bradford A, Lecturer
Mathematics
PHD, Texas A&M University, 2022

Garcia, Deni S, Adjunct Professor of Law
School of Law
JD, Texas Wesleyan University, 2000

Garcia, Ivis, Associate Professor
Land Arch & Urban Planning
PHD, University of Illinois at Chicago, 2015

Garcia, Lily, Professor
Comprehensive Dentistry
DDS, Texas A&M Health Science Center, 1984

Garcia, Lucas, Instructional Assistant Professor
Agricultural Economics
PHD, Walden University, 2019

Garcia, Luis R, Professor
Biology
PHD, University of Texas, 1996

Garcia-Rada, Ximena, Assistant Professor
Marketing
DBA, Harvard Business School, 2021

Gard, Joel, Visiting Instructional Assistant Professor
Foundational Sciences
PHD, University of Houston, 2023

Garey, William D, Professor of the Practice
Finance
MBA, University of Houston at Clear Lake, 1980

Garney, Whitney R, Associate Professor
Health Behavior
PHD, Texas A&M University, 2015

Garritano, Carmela, Associate Professor
International Affairs
PHD, Michigan State University, 2001

Gary, Jodie C, Associate Professor
College of Nursing
PHD, University of Texas at Tyler, 2012

Garza, Brent A, Clinical Assistant Professor
Accounting
PHD, University of Illinois at Urbana-Champaign, 2017

Garza, Jose, Visiting Senior Lecturer
Construction Science
JD, Thurgood Marshall School of Law, Houston, 1991

Gasson, Shelby B, Assistant Professor
Vet Small Animal Clinical Sc
DVM, Texas A&M College of Veterinary Medicine, 2016
PHD, Texas A&M University, 2020

Gastel, Barbara J, Professor
Vet Integrative Biosciences
MD, Johns Hopkins University, 1978

Gatlin, Delbert M, Professor
Ecology and Conservation Biology
PHD, Mississippi State University, 1983

Gatson, Sarah N, Associate Professor
Sociology
PHD, Northwestern University, 1999

Gauthier, Eliska, Clinical Assistant Professor
Dental Hygiene
MBA, Texas Woman's University, 2018

Gayk, Michael James, Instructional Associate Professor
College of Performance, Visualization & Fine Arts
MFA, University of Washington, 2001

Gaylord Harden, Noni, Professor
Psychological & Brain Sciences
PHD, The University of Memphis, 2003

Geelen, Rudy Jose Maurice, Assistant Professor
Aerospace Engineering
PHD, Duke University, 2020

Gegg, Gretchen, Instructional Associate Professor
Kinesiology & Sport Management
MED, Texas A&M University, 2009

Gehring, Kerri B, Professor
Animal Science
PHD, Texas A&M University, 1994

Geismar, H. Neil, Professor
Information & Operations Mgmt
PHD, The University of Texas at Dallas, 2003

Gelfuso, Andrea, Adjunct Professor of Law
School of Law
JD, Sturm College of Law, 1990

Genecov, Jeffrey S, Clinical Faculty
Orthodontics
DDS, Baylor College of Dentistry, 1985

Gentile, Philip David, Lecturer
International Affairs
MA1, John Hopkins University, 2020

Gentry, Christina Monika, Clinical Assistant Professor
Vet Small Animal Clinical Sc
DVM, Texas A&M College of Veterinary Medicine, 2012

Gentry, Terry J, Professor
Soil & Crop Sciences
PHD, University of Arizona, 2003

George, Clay, Adjunct Professor of Law
School of Law
JD, Yale University, 2012

George, James P, Professor
School of Law
JD, The University of Tulsa, 1978

George, Jason T, Assistant Professor
Biomedical Engineering
MD, Baylor College of Medicine, 2020
PHD, Rice University, 2019

George, Jordana, Assistant Professor
Information & Operations Mgmt
PHD, Baylor University, 2019

George, Theodore D, Professor
Philosophy
PHD, Villanova University, 2000

Georghiades, Costas N, Professor
Electrical & Computer Eng
PHD, Washington University in St. Louis, 1985

Gerde, Hope Kenarr, Professor
Teaching, Learning & Culture
PHD, Purdue University, 2008

Germaine, Ashley Nicole, Clinical Faculty
College of Nursing
BSN, Texas A&M University, 2017

Gessner, Thomas, Associate Professor of the Practice
Architecture
BEN, Texas A&M University, 1997

Geunes, Joseph Patrick, Professor
Industrial & Systems Engineering
PHD, Pennsylvania State University, 1999

Geyer, Becky B., Professor of the Practice
Kinesiology & Sport Management
MS, Illinois State University, 1988

Ghanbaripour, Rashid Ryan, Lecturer
Chemistry
PHD, Tarbiat Modares University, 2015

Gharaibeh, Nasir G, Professor
Civil & Environmental Engineering
PHD, University of Illinois, 1997

Gharib, Mohamed, Instructional Associate Professor
Eng Tech & Ind Distribution
PHD, Southern Methodist University, 2011

Ghose, Debarati, Instructional Assistant Professor
Biology
PHD, Northern Illinois University, 2018

Ghosh, Prasenjit, Instructional Assistant Professor
Statistics
PHD, Indian Statistical Institute, 2017

Giaretta, Paula Roberta, Clinical Assistant Professor
Vet Small Animal Clinical Sc
PHD, Texas A&M University, 2019

Giaretta, Paula Roberta, Clinical Assistant Professor
Veterinary Pathobiology
PHD, Texas A&M University, 2019

Gibbs, Brian C, Assistant Professor of the Practice
Architecture
MAR, Texas A&M University, 2006

Gibbs, Holly C, Research Assistant Professor
Biomedical Engineering
PHD, Texas A&M University, 2014

Gibbs, Shawn Glen, Professor
Environmental & Occptnl Hlth
PHD, University of Cincinnati, 2002

Gibson, Elijah, Assistant Professor
College of Performance, Visualization & Fine Arts
MFA, University of Wisconsin-Milwaukee, 2013

Gibson, Jeremy L, Instructional Professor
School of Engineering Medicine
MD, The University of Texas Medical Branch at Galveston, 1998

Gibson, Sydney Lawrence, Clinical Assistant Professor
Vet Large Animal Clinical Sc
DVM, Texas A&M University, 2016

Gibson, Vicki, Professor of the Practice
Teaching, Learning & Culture
PHD, Texas A&M University, 1995

Gildin, Eduardo, Professor
Petroleum Engineering
PHD, The University of Texas at Austin, 2006

Gill, Clare A, Professor
Animal Science
PHD, University of Adelaide, Australia, 2000

Gill, Jason J, Professor
Animal Science
PHD, University of Guelph, 2006

Gillespie, Patrick Joesph, Assistant Professor of the Practice
Maritime Transportation
BS, Ferris State University, 2009

Gillett-Kaufman, Jennifer Lynn, Instructional Associate Professor
Entomology
PHD, University of Florida Gainesville, 2003

Gilmore, Alicia, Clinical Associate Professor
Nutrition
MS, Oklahoma State University, 2002

Gilmour, Lindsey J, Clinical Associate Professor
Vet Large Animal Clinical Sc
DVM, Texas A&M University, 2009

Gilreath, Tamika D, Professor
Health Behavior
PHD, The Pennsylvania State University, 2007

Gip, Robert Huy, Assistant Professor
Hospitality Hotel Management & Tourism
PHD, Conrad N Hilton College of Global Hospitality, 2023

Girimaji, Sharath S, Professor
Aerospace Engineering
PHD, Cornell University, 1990

Girimaji, Sharath S, Professor
Ocean Engineering
PHD, Cornell University, 1990

Giusti, Cecilia Hundskopf, Associate Professor
Land Arch & Urban Planning
PHD, The University of Texas at Austin, 2001

Gladysz, John A, Distinguished Professor
Chemistry
PHD, Stanford University, 1974

Glanville, Jennifer, Professor
Sociology
PHD, University of North Carolina, Chapel Hill, 2001

Glaser, Shannon S, Professor
College of Medicine
PHD, Texas A&M University, 2006

Glasner, Margaret E, Associate Professor
Biochemistry & Biophysics
PHD, Massachusetts Institute of Technology, 2003

Glass, Amy J, Associate Professor
Economics
PHD, University of Pennsylvania, 1993

Glass, Kati P, Clinical Associate Professor
Vet Large Animal Clinical Sc
DVM, Texas A&M University, 2012

Glenn, Gayle, Clinical Associate Professor
Orthodontics
DDS, University of Texas Dental School, San Antonio, 1982

Glowacki, Kevin T, Associate Professor
Architecture
PHD, Bryn Mawr College, 1991

Godage, Isuru S, Assistant Professor
Eng Tech & Ind Distribution
PHD, University of Genova, 2013

Gohil, Vishal M, Professor
Biochemistry & Biophysics
PHD, Wayne State University, 2005

Goidel, Robert K, Professor
Political Science
PHD, University of Kentucky, 1993

Goktas, Unal, Instructional Associate Professor
Computer Science & Engineering
PHD, Colorado School of Mines, 1998

Golbabai, Justin, Associate Professor of the Practice
Land Arch & Urban Planning
BA, University of Notre Dame, 2004

Goldberg, Daniel W, Associate Professor
Geography
PHD, University of Southern California, 2010

Golding, Michael C, Professor
Vet Physiology & Pharmacology
PHD, Texas A&M University, 2003

Golla, Vijay, Associate Professor
Environmental & Occpntl Hlth
PHD, The University of Iowa, 2007

Golsan, Richard J, Distinguished Professor
International Affairs
PHD, University of North Carolina at Chapel Hill, 1981

Gomer, Richard H, Professor
Biology
PHD, California Institute of Technology, 1983

Gomes Verocai, Guilherme, Associate Professor
Veterinary Pathobiology
BVetMed, Rio de Janeiro Rural Federal University, 2005
PhD, University of Calgary, Canada, 2015

Gomez, Daniel, Instructional Professor
Kinesiology & Sport Management
MED, Texas A&M University, 2010

Gomez, Lorinda B, Instructional Professor
Kinesiology & Sport Management
MS, Texas A&M University, 2006

Gomillion, David L, Clinical Associate Professor
Information & Operations Mgmt
PHD, Florida State University, 2013

Goncharuk, Nataliya, Assistant Professor
Mathematics
PHD, Institute for Information Transmission Problems, 2016

Gonder, Mary Katherine, Professor
Ecology and Conservation Biology
PHD, The City University of New York, 2000

Gong, Jiarui, Assistant Professor
Electrical & Computer Eng
PHD, University of Wisconsin-Madison, 2022

Gong, Sherry, Associate Professor
Mathematics
PHD, Massachusetts Institute of Technology, 2018

Gong, Xuanjun, Assistant Professor
Communication & Journalism
PHD, University of California at Davis, 2024

Gonzalez Carranza, Marianela, Clinical Associate Professor
Oral & Maxillofacial Surgery
DDS, Universidad Central de Venezuela, 1991

Gonzalez, Angel, Clinical Assistant Professor
Comprehensive Dentistry
DDS, Baylor College of Dentistry, 1996

Gonzalez, Carlos F, Professor
Plant Pathology & Microbiology
PHD, University of Nebraska at Lincoln, 1978

Gonzalez, Elsa M, Associate Professor
Educ Admn & Human Resource Dev
PHD, Texas A&M University, 2004

Gonzalez, Michael, Visiting Lecturer
Communication & Journalism
MS, Texas Christian University, 2022

Goodey, Joanna R, Instructional Professor
Chemistry
PHD, University of Houston, 2001

Goodman, Frank, Clinical Associate Professor
College of Medicine
DO, William Carey University, 2018

Goodman, Jeanne M, Clinical Associate Professor
College of Performance, Visualization & Fine Arts
MLS, Simmons College, 2012

Goodman, Lisa, Executive Professor
School of Law
JD, Wayne State University, 2003

Goodrich, Marc, Associate Professor
Teaching, Learning & Culture
PHD, Florida State University, 2015

Gopalswamy, Swaminathan, Research Professor
Mechanical Engineering
PHD, University of California, 1991

Gordon, Randy D, Executive Professor
School of Law
JD, Washburn University, 1991
PHD, University of Edinburgh, 2009

Gordon, Sonya G, Professor
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DVM, University of Guelph, 1994

Gorman, Courtney T, Lecturer
Vet Integrative Biosciences
MS, Texas A&M University, 2020

Gorman, Dennis M, Professor
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PHD, University of Essex, 1988

Goulart, Ana E, Professor
Eng Tech & Ind Distribution
PHD, Georgia Institute of Technology, 2005

Gould, Doug, Clinical Professor
Biomedical Sciences
PHD, Wayne State University, 1997

Gould, Emily, Assistant Professor
Vet Small Animal Clinical Sc
DVM, University of California at Davis, 2012
PHD, Texas A&M University, 2021

Goydan, David J, Clinical Faculty
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Grace, Jacquelyn K, Assistant Professor
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PHD, Wake Forest University, 2014

Graham, Carlyn, Assistant Professor
Psychological & Brain Sciences
PHD, The Pennsylvania State University, 2023

Graham, Chelsi Gallina, Clinical Assistant Professor
Dental Hygiene
BS, Tyler Junior College, 2021

Granello, Maria, Clinical Assistant Professor
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Grant, William E, Professor
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PHD, Colorado State University, 1974

Grasley, Zachary C, Professor
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PHD, University of Illinois Urbana Champaign, 2006

Gratz, Paul V, Professor
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PHD, The University of Texas at Austin, 2008

Grau, James W, Professor
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PHD, University of Pennsylvania, 1985

Graul, Michael H, Professor of the Practice
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PHD, Texas A&M University, 1995

Grayson, Stephen Eric, Visiting Clinical Assistant Professor
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PHARM D, University of Texas, 2002

Green, Jeremiah, Professor
Accounting
PHD, University of North Carolina at Chapel Hill, 2010

Green, Micah, Professor
Chemical Engineering
PHD, Massachusetts Institute of Technology, 2007

Green, Michael Z, Professor
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JD, Loyola University, 1992

Greenwood, Lori, Clinical Professor
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Greenwood, Wendy, Clinical Assistant Professor
College of Nursing
DNP, Old Dominion University, 2022

Greer, Robert A, Associate Professor
Public Service and Administration
PHD, University of Kentucky, 2013

Gregory, Carl A, Associate Professor
College of Medicine
PHD, University of Manchester, 1999

Gremillion, Christine Lynn, Clinical Assistant Professor
Vet Large Animal Clinical Sc
DVM, Texas A&M University, 2016

Griffin, Cleet E, Clinical Professor
Vet Large Animal Clinical Sc
DVM, Texas A&M University, 1990

Griffin, Jay, Professor
Vet Large Animal Clinical Sc
DVM, Texas A&M University, 2004

Griffing, Lawrence R, Associate Professor
Biology
PHD, Stanford University, 1981

Griffith, Christine, Visiting Lecturer
Geology & Geophysics
PHD, Texas A&M University, 2023

Griffith, David Andrew, Professor
Marketing
PHD, Kent State University, 1997

Griffith, Jennifer M, Instructional Professor
Health Policy & Management
DrPH, University of North Carolina at Chapel Hill, 2004

Griffith, Karee, Lecturer
Teaching, Learning & Culture
PHD, University of Mary Hardin-Baylor, 1993

Griffitts, Joshua Todd, Assistant Professor of the Practice
Maritime Transportation
BS, Texas A&M University, 2017

Grigorchuk, Rostislav, Distinguished Professor
Mathematics
PHD, Moscow State University of Lomomosov, 1978

Grigsby, Sonya, Clinical Assistant Professor
College of Nursing
DNP, University of Texas at Tyler, 2020

Gronberg, Timothy J, Professor
Economics
PHD, Northwestern University, 1978

Grossman, Ethan L, Professor
Geology & Geophysics
PHD, University of Southern California, 1982

Grossman, Steven D, Associate Professor
Accounting
PHD, Tufts University, 1972

Groves, Ron, Clinical Faculty
Orthodontics
DDS, Texas A&M University, 1989

Grunlan, Jaime C, Professor
Mechanical Engineering
PHD, University of Minnesota, 2001

Grunlan, Melissa A, Professor
Biomedical Engineering
PHD, University of Southern California, 2004

Gu, Guofei, Professor
Computer Science & Engineering
PHD, Georgia Institute of Technology, 2008

Guajardo, Jonathan Robert, Associate Professor of the Practice
Communication & Journalism
MA, University of the Incarnate Word, 2014

Guermond, Jean-Luc, Professor
Mathematics
PHD, Sorbonne Universites, 1995

Guerra Santos, Hernan, Senior Lecturer
Construction Science
MS, Texas A&M University, 2003

Guerra, Merli V., Assistant Professor
College of Performance, Visualization & Fine Arts
MFA, Rutgers University, Mason Gross School of the Arts, 2021

Guha, Sharmistha, Assistant Professor
Statistics
PHD, University of California-Santa Cruz, 2019

Guhaniyogi, Rajarshi, Professor
Statistics
PHD, University of Minnesota - Twin Cities, 2012

Guhathakurta, Swagnik, Assistant Professor
Aerospace Engineering
PHD, University of Florida, 2021

Guinn, James R, Clinical Assistant Professor
Kinesiology & Sport Management
EDD, Abilene Christian University, 2017

Guiora, Amos, Adjunct Professor of Law
School of Law
JD, Case Western Reserve Law School, 1985

Guirguis, Amber, Clinical Faculty
Comprehensive Dentistry
DDS, The Ohio State University, 2010

Gunaseelan, Simi, Instructional Professor
Pharmaceutical Sciences
PHD, North-Eastern Hill University, 2002

Gunasekaran, Senthilmurugan, Visiting Senior Lecturer
Eng Tech & Ind Distribution
DEN, Texas A&M University, 2014

Guneralp, Burak, Associate Professor
Geography
PHD, University of Illinois at Urbana-Champaign, 2006

Guneralp, Inci, Professor
Geography
PHD, University of Illinois at Urbana-Champaign, 2007

Guo, Bing, Professor
Mechanical Engineering-Qatar Campus
PHD, Tsinghua University, China, 1998

Guo, Guodong, Instructional Assistant Professor
Multidisciplinary Engineering
PHD, North Carolina State University, 2019

Guo, Huiyi, Associate Professor
Economics
PHD, University of Iowa, 2018

Guo, Lei, Research Assistant Professor
College of Medicine
PHD, Xiamen University, China, 2014

Guo, Shaodong, Professor
Nutrition
PHD, Peking University, Beijing China, 1995

Gurganus, Charles F, Associate Professor
Construction Science
PHD, Texas A&M University, 2018

Gursky, Sharon, Professor
Anthropology
PHD, State University of New York at Stony Brook, 1997

Gurtu, Amulya, Professor
Maritime Business Administration
PHD, Toronto Metropolitan University, 2014

Guthrie, Shannon, Adjunct Professor of Law
School of Law
JD, Indiana University, 1993

Gutierrez-Osuna, Ricardo, Professor
Computer Science & Engineering
PHD, North Carolina State University, 1998

Gutman, David Huckleberry, Assistant Professor
Industrial & Systems Engineering
PHD, Carnegie Mellon University, 2019

Guyton, Sally C, Principal Lecturer
Finance
MBA, The University of Texas at Austin, 1982

Guzelian, Christopher, Adjunct Professor of Law
School of Law
JD, Stanford University, 2003

HAN, SUNGYUB, Instructional Assistant Professor
Chemistry
PHD, University of South Florida, 2015

Ha, Seungyeon, Instructional Assistant Professor
Statistics
PHD, Florida State University, 2013

Haase, Tom, Associate Professor
Public Service and Administration
JD, University of Pittsburgh (Law), 2001
PHD, University of Pittsburgh, 2009

Haberl, Jeff, Professor
Architecture
PHD, University of Colorado, 1986

Hackett, Anthony, Instructional Associate Professor
College of Medicine
DO, New York Institute of Technology, 2012

Hackney, Dennis, Adjunct Professor of Law
School of Law
PHD, Capella University, 2011

Haddad, Lisa, Clinical Professor
College of Nursing
PHD, University of Tennessee Knoxville, 2013

Haeder, Simon, Associate Professor
Health Policy & Management
PHD, University of Wisconsin-Madison, 2022

Haefeli, Evan P, Professor
History
PHD, Princeton University, 2000

Hagler, Lauren, Assistant Professor
Chemistry
PHD, University of Illinois at Urbana-Champaign, 2020

Haglund, John S, Instructional Associate Professor
Mechanical Engineering
PHD, Texas A&M University, 2003

Hagstrom Schmidt, Nicole E, Senior Lecturer
English
PHD, Texas A&M University, 2019

Hailey, Camille E, Clinical Associate Professor
Management
JD, South Texas College of Law, 1993

Hajovsky, Daniel Bernard, Associate Professor
Educational Psychology
PHD, University of Kansas, 2015

Hakim, Omar, Professor of the Practice
Sociology
MS, The University of Texas at Austin, 2004

Hala, David, Associate Professor
Marine Biology
PHD, Brunel University, 2007

Hale, Amanda, Adjunct Professor of Law
School of Law
JD, Texas Tech University, 2016

Hall, Charlie, Professor
Horticultural Sciences
PHD, Mississippi State University, 1988

Hall, Jessica R, Adjunct Professor of Law
School of Law
JD, Texas Wesleyan University, 2009

Hall, Michael B, Professor
Chemistry
PHD, University of Wisconsin, Madison, 1971

Hallermann, Detlef, Clinical Professor
Finance
PHD, Colorado School of Mines, 1999

Halligan, Jessi Jean, Associate Professor
Anthropology
PHD, Texas A&M University, 2012

Halliwell, Scott E, Assistant Professor of the Practice
Agricultural Economics
BS, Penn State University, 1990

Hamer, Gabriel L, Professor
Entomology
PHD, Michigan State University, 2008

Hamer, Sarah A, Professor
Vet Integrative Biosciences
DVM, Michigan State University, 2011
PHD, Michigan State University, 2010

Hamer, Sarah A, Professor
Veterinary Pathobiology
DVM, Michigan State University, 2011
PHD, Michigan State University, 2010

Hamie, Silva, Instructional Professor
International Affairs
PHD, University of York, 2007

Hamilton, John Andrew, Professor
Computer Science & Engineering
PHD, Texas A&M University, 1996

Hamilton, Victoria Ann, Lecturer
College of Nursing
MSN, Texas A&M University, 2020

Hammad, Eman M, Assistant Professor
Eng Tech & Ind Distribution
PHD, University of Toronto, 2018

Hammady Brho, Mazen, Assistant Professor
Maritime Business Administration
PHD, University of North Texas, 2018

Hammond, Tracy A, Professor
Computer Science & Engineering
PHD, Massachusetts Inst of Technology, 2007

Hammonds, Hollis, Associate Professor
College of Performance, Visualization & Fine Arts
MFA, University of Cincinnati, 2001

Hampton, Joshua, Research Assistant Professor
Chemistry
PHD, Texas A&M University, 2023

Han, Arum, Professor
Electrical & Computer Eng
PHD, Georgia Institute of Technology, 2005

Han, Daikwon, Associate Professor
Epidemiology & Biostatistics
PHD, University of Buffalo, 2003

Han, Gang, Professor
Epidemiology & Biostatistics
PHD, The Ohio State University, 2008

Han, Je C, Distinguished Professor
Mechanical Engineering
PHD, Massachusetts Inst of Technology, 1977

Han, Jeehee, Assistant Professor
Public Service and Administration
PHD, Syracuse University, 2021

Hanagriff, Roger D, Instructional Associate Professor
Animal Science
PHD, Texas A&M University, 2002

Hancock, J.P., Assistant Lecturer
Ag Leadership, Educ & Comm
MS, Texas A&M University, 1984

Handayan, Daniel, Clinical Assistant Professor
College of Medicine
MD, Autonomous University of Guadalajara, Faculty of Medicine, 2013

Handler, Nicholas, Assistant Professor
School of Law
JD, Yale University, 2015

Haney, Adam D, Instructional Associate Professor
Maritime Studies
MA, Texas A&M University Commerce, 2014

Hanik, Bruce W, Instructional Associate Professor
Health Behavior
PHD, Texas A&M University, 2011

Hanik, Kathleen, Instructional Assistant Professor
Kinesiology & Sport Management
MFA, Florida State University, 2008

Hanik, Michael G, Instructional Associate Professor
Kinesiology & Sport Management
MS, Northwestern State University of Louisiana, 1996

Hankins, Rebecca L, Professor
Global Languages & Cultures
MLS, Louisiana State University, 2000

Hanks, John Philip, Professor of the Practice
Biomedical Engineering
MS, University of Texas, Austin, 1989

Hanks, Michael, Visiting Lecturer
Construction Science
BS, Texas A&M University, 1979

Hannam, Jason S, Visiting Associate Professor of the Practice
Eng Tech & Ind Distribution
MEN, Texas A&M University, 2021

Hanson-Park, Jared, Visiting Assistant Professor
Philosophy
PHD, University of Miami, 2022

Harden, Troy, Professor of the Practice
Sociology
PHD, De Paul University, 2020

Hardin, Paul E, Distinguished Professor
Biology
PHD, Indiana University, 1987

Hardin, Robert G, Associate Professor
Biological & Agricultural Eng
PHD, Texas A&M University, 2009

Harding, Michael, Assistant Professor of the Practice
Accounting
BBA, Texas A&M University, 2019

Harding, Sorcha, Clinical Assistant Professor
Pediatric Dentistry
BDS, University College Cork, 2014

Hardy, Joanne, Clinical Professor
Vet Large Animal Clinical Sc
DVM, University of Montreal, 1982
PHD, The Ohio State University, 1996

Hargrove, Danielle Latrease, Adjunct Professor of Law
School of Law
JD, University of Texas, 1991

Haridas, Balakrishna, Professor of the Practice
Biomedical Engineering
PHD, University of Cincinnati, 2001

Hark, John F, Senior Lecturer
Maritime Business Administration
BS, Texas A&M University, 1989

Harlin, Julie F, Associate Professor
Ag Leadership, Educ & Comm
PHD, Oklahoma State University, 1999

Harmel, Robert, Professor
Political Science
PHD, Northwestern University, 1977

Harness, Nathan J, Instructional Professor
Agricultural Economics
PHD, Texas Tech University, 2007

Harper, R. Andrew, Clinical Professor
College of Medicine
MD, University Of Texas Houston Medical School, 1984

Harrel, Stephen K, Clinical Faculty
Periodontics
DDS, Baylor College of Dentistry, 1972

Harris, Harlan R, Associate Professor
Electrical & Computer Eng
PHD, Texas Tech University, 2003

Harris, Jason M, Instructional Professor
English
PHD, University of Washington, 2001

Harris, Stefanie, Professor
Global Languages & Cultures
PHD, Emory University, 1999

Harrison, Stephen D, Adjunct Professor of Law
School of Law
JD, University of Texas at Austin, 1982

Hartberg, Yasha M, Instructional Assistant Professor
Vet Integrative Biosciences
PHD, Binghamton University, 2016

Hartell, Julie Ann, Assistant Professor
Construction Science
PHD, McGill University, Montreal, Canada, 2014

Hartl, Darren J, Associate Professor
Aerospace Engineering
PHD, Texas A&M University, 2009

Hartmann, Mark, Visiting Professor
Information & Operations Mgmt
PHD, Cornell University, Ithaca, NY, 1989

Hasan, M M Faruque, Professor
Chemical Engineering
PHD, National University of Singapore, 2010

Hascakir, Berna, Professor
Petroleum Engineering
PHD, Middle East Technical University, 2008

Hasnain, Zohaib, Assistant Professor
Mechanical Engineering
PHD, University of Maryland, 2014

Hassan, Ibrahim, Professor
Mechanical Engineering-Qatar Campus
PHD, Manitoba University, 1995

Hassan, Yassin A, University Distinguished Professor; Regents Professor
Mechanical Engineering
PHD, University of Illinois, 1980

Hassan, Yassin A, Professor
Nuclear Engineering
PHD, University of Illinois, 1980

Hastings, Waylon James, Assistant Professor
Nutrition
PHD, Texas A&M University, 2020

Hatchell, Rusty E, Visiting Lecturer
College of Performance, Visualization & Fine Arts
MA, University of Texas at Austin, 2018

Hatfield, Keith, Senior Lecturer
Statistics
MBA, University of North Texas, 1980

Hatt, Nicholas, Instructional Assistant Professor
College of Performance, Visualization & Fine Arts
DMA, Florida State University, 2018

Havens, Jessica M, Senior Lecturer
Communication & Journalism
MA, Colgate University, 2012

Havern, Christopher Von, Visiting Senior Lecturer
Eng Tech & Ind Distribution
MBA, Texas A&M University, 2002

Hawk, Nathan, Clinical Assistant Professor
Teaching, Learning & Culture
PHD, The Ohio State University, 2021

Hawkins, Andrew G, Associate Professor of the Practice
Architecture
MAR, University of Oregon, 1999

Hawkins, Angela K, Instructional Associate Professor
Biology
PHD, Texas A&M University, 2018

Hawley, Douglas D, Instructional Associate Professor
Computer Science & Engineering
EDD, University of Missouri - Columbia, 2005

Hawthorne, Melanie C, Professor
Global Languages & Cultures
PHD, University of Michigan Ann Arbor, 1987

Hay, Heather N, Clinical Associate Professor
College of Pharmacy
PHARM D, The University of Texas, 2008

Haydon, Matthew R., Instructional Assistant Professor
Political Science
PHD, University of Utah, 2022

Hayrapetyan, Irina, Clinical Faculty
Comprehensive Dentistry
DDS, NY University College of Dentistry, 2009

Hays, Dirk B, Professor
Soil & Crop Sciences
PHD, University of Calgary, 1997

Hays, Rebecca, Associate Professor
College of Performance, Visualization & Fine Arts
MMU, University of North Texas, 2003
DMA, University of Illinois at Urbana-Champaign, 2008

He, Baoye, Assistant Professor
Plant Pathology & Microbiology
PHD, Chinese Academy of Sciences, 2015

He, Howard, Clinical Faculty
Comprehensive Dentistry
DDS, Texas A&M Health Science Center, 2016

He, Weiling, Associate Professor
Architecture
PHD, Georgia Institute of Technology, 2005

Head, Michael J, Assistant Professor of the Practice
Accounting
BS, University of Missouri at Columbia, 1980

Heaps, Cristine L, Professor
Vet Physiology & Pharmacology
PHD, University of Missouri at Columbia, 1999

Heath, Christopher Ryan, Adjunct Professor of Law
School of Law
JD, Texas A&M University, 2014

Hecker, Siegfried S, Professor of the Practice
Nuclear Engineering
PHD, Case Western Reserve University, 1968

Hedman, Annie, Instructional Assistant Professor
Biomedical Engineering
PHD, Texas A&M University-College Station, 2022

Heffer, Robert W, Clinical Professor
Psychological & Brain Sciences
PHD, Louisiana State University and A&M College, 1988

Hegde, Rashmi, Clinical Assistant Professor
Periodontics
BDS, Bangalore University, India, 1999

Hegde, Shraddha Gurupad, Assistant Professor
Rangeland, Wildlife and Fisheries Management
PHD, Mississippi State University, 2022

Heger, Emily, Adjunct Professor of Law
School of Law
JD, Southern Methodist University, 2019

Heidtke, Jonathan, Professor of the Practice
Kinesiology & Sport Management
BS, Texas A&M University, 1981

Heim, Gregory R, Professor
Information & Operations Mgmt
PHD, University of Minnesota, Twin Cities, 2000

Hein, Travis W, Professor
College of Medicine
PHD, Texas A&M University, 1997

Helge, Kristyn Swen, Adjunct Professor of Law
School of Law
JD, South Texas College of Law Houston, 2001
PHD, University of North Texas, 2016

Helge, Terri L, Professor
School of Law
JD, South Texas College of Law, 2001

Helmke, Lacey, Lecturer
College of Nursing
MSN, Texas A&M University, 2021

Helms, Anjel Marie, Associate Professor
Entomology
PHD, The Pennsylvania State University, 2015

Helms, Ben, Assistant Professor
International Affairs
PHD, University of Virginia, 2022

Hembree, Jackson P, Visiting Senior Lecturer
Eng Tech & Ind Distribution
MEN, Texas A&M University, 2022

Hemmer, Philip R, Professor
Electrical & Computer Eng
PHD, Massachusetts Inst of Technology, 1984

Hemmig, Christopher, Instructional Assistant Professor
Global Languages & Cultures
PHD, The Ohio State University, 2015

Henderson, Bryan N, Clinical Faculty
Oral & Maxillofacial Surgery
DDS, Baylor College of Dentistry, 1987

Henderson, Mark, Clinical Assistant Professor
Comprehensive Dentistry
DDS, Texas A&M (Baylor) College of Dentistry, 1983

Henderson, Michelle, Principal Lecturer
Biochemistry & Biophysics
PHD, Texas A&M University, 2010

Heneks, Grace L, Lecturer
English
PHD, Texas A&M University, 2021

Hening, Alexandru, Associate Professor
Mathematics
PHD, University of California - Berkeley, 2013

Hennessey-Niland, John, Professor of the Practice
International Affairs
MA, Tufts University, Fletcher School of Law & Diplomacy, 1987

Henning, William H, Executive Professor
School of Law
JD, University of Tennessee, Knoxville, 1976
LLM, University of Illinois Champaign-Urbana, 1982

Henrichs, Darren W, Instructional Assistant Professor
Oceanography
PHD, Texas A&M University, 2012

Henson, Bryce, Associate Professor
Communication & Journalism
PHD, University of Illinois, 2016

Henthorne, Mary B, Instructional Associate Professor
Kinesiology & Sport Management
MS, Texas A&M University, 2008

Hepfer, Bradford F, Associate Professor
Accounting
PHD, The University of Iowa, 2016

Hepfer, Katie L, Clinical Associate Professor
College of Nursing
DNP, The University of Iowa, 2016

Herbert, Bruce E, Professor
Ag Leadership, Educ & Comm
PHD, University of California at Riverside, 1992

Hercot, Philippe, Professor of the Practice
Finance
MBA, Harvard Graduate School of Business Administration, 1993

Herman, Benjamin, Professor
Biology
PHD, Iowa State University, 2010

Herman, Benjamin, Professor
Teaching, Learning & Culture
PHD, Iowa State University, 2010

Herman, James D, Clinical Professor
Vet Physiology & Pharmacology
DVM, Texas A&M University, 1989
PHD, Texas A&M University, 1995

Herman, Jennifer K, Associate Professor
Biochemistry & Biophysics
PHD, Indiana University, 2005

Hernandez Aviles, Camilo, Assistant Professor
Vet Large Animal Clinical Sc
DVM, Universidad Nacional de Colombia, 2018
PHD, Texas A&M University, 2022

Hernandez Magallanes, Irma Del Consue, Instructional Associate
Professor
Statistics
PHD, University California Berkley, 2010

Hernandez, Alexander A, Instructional Associate Professor
Sociology
PHD, Boston College, 2014

Hernandez, Claudia Patricia, Visiting Senior Lecturer
Eng Tech & Ind Distribution
MEN, Texas A&M University, 2023

Hernandez, Eddie, Lecturer
College of Nursing
MSN, Texas A&M University, 2022

Hernandez, Paul Richard, Professor
Teaching, Learning & Culture
PHD, University of Connecticut, 2011

Hernandez, Sonia, Professor
History
PHD, University of Houston, 2006

Herrera, Luz E, Professor
School of Law
JD, Harvard University, 1999

Herring, Andy D, Professor
Animal Science
PHD, Texas A&M University, 1994

Herzig, Belinda, Adjunct Professor of Law
School of Law
JD, University of Louisville, 1999

Herzogenrath, Jessica Ray, Instructional Associate Professor
History
PHD, Texas A&M University, 2014

Heseltine, Johanna C, Clinical Associate Professor
Vet Small Animal Clinical Sc
DVM, University of Saskatchewan, 1998

Hester, Yvette C, Instructional Associate Professor
Mathematics
PHD, Texas A&M University, 2000

Hettema, John Michael, Professor
College of Medicine
MD, Virginia Commonwealth University, 1997
PHD, Yale University, 1990

Hewitt, Mallory D, Visiting Lecturer
Ag Leadership, Educ & Comm
MS, Texas A&M University, 2023

Hibbitts, Toby J, Instructional Assistant Professor
Ecology and Conservation Biology
PHD, University of the Witwatersrand, 2006

Hicks, Joshua A, Professor
Psychological & Brain Sciences
PHD, University of Missouri at Columbia, 2009

Hilaly, Ahmad K, Professor of the Practice
Chemical Engineering
PHD, Colorado State University, 1992

Hill, Alfred D, Professor
Petroleum Engineering
PHD, The University of Texas at Austin, 1978

Hill, Sharon D, Clinical Assistant Professor
Pediatric Dentistry
DDS, University of North Carolina-Chapel Hill, 1986

Hill-Jackson, Valerie L, Assistant Professor
Educ Admn & Human Resource Dev
PHD, St. Joseph's University, 2003

Hillestad, Derek, Visiting Senior Lecturer
Construction Science
PHD, Arizona State University, 2022

Hilty, Christian B, Professor
Chemistry
PHD, Swiss Federal Institute of Technology Zurich, 2004

Hinds, Jason, Lecturer
Information & Operations Mgmt
BBA, Texas State University, 1999

Hiney, Jill K, Research Assistant Professor
Vet Integrative Biosciences
PHD, Texas A&M University, 1996

Hintzke, Denise, Adjunct Professor of Law
School of Law
JD, New York Law School, 1984

Hinze, Erin S, Clinical Faculty
Pediatric Dentistry
DDS, Texas A&M University Health Science Center, 2008

Hipwell, M Cynthia, Professor
Mechanical Engineering
PHD, University of California at Berkeley, 1996

Hlavacik, Mark, Assistant Professor
Communication & Journalism
PHD, The Pennsylvania State University, 2014

Hnatek, Joyce P, Clinical Assistant Professor
College of Medicine
MD, University of Texas Medical School at San Antonio, 1987

Hoang, Trang, Associate Professor
Public Service and Administration
PHD, University of Texas at Dallas, 2019

Hobbs, Kallie, Assistant Professor
Vet Large Animal Clinical Sc
DVM, University of Illinois, 2017

Hochman, Mona E, Senior Lecturer
Marine Biology
MS, University of Maryland, 2000

Hodge, Courtney, Visiting Lecturer
Kinesiology & Sport Management
PHD, Texas A&M University, 2015

Hoffman, Anton G, Clinical Professor
Vet Integrative Biosciences
DVM, Texas A&M University, 1986
PHD, Texas A&M University, 1992

Hoffman, Matt F, Clinical Associate Professor
College of Nursing
DNP, The University of Iowa, 2016

Hogan, Harry A, Professor
Mechanical Engineering
PHD, Texas A&M University, 1984

Hokamp, Jessica, Clinical Associate Professor
Veterinary Pathobiology
DVM, Texas A&M University, 2008
PHD, Texas A&M University, 2016

Holland, Hubert B, Executive Professor
School of Law
JD, American University Washington, 1998

Holliday, Ashton, Visiting Lecturer
Construction Science
MAR, Texas A&M University, 2016

Holliday, Ray W, Assistant Professor of the Practice
Architecture
MLA, Texas A&M University, 2000
MAR, Texas A&M University, 1992

Holliday, Shelley D, Associate Professor of the Practice
Architecture
MEN, Texas A&M University, 2001

Hollis McGruder, Patricia, Adjunct Professor of Law
School of Law
JD, Indiana University, 1999

Hollis, Tom E, Associate Professor of the Practice
Eng Tech & Ind Distribution
MBA, Our Lady of the Lake University, 1998

Holman, Anna, Instructional Assistant Professor
College of Performance, Visualization & Fine Arts
PHD, University of California, Santa Barbara, 2023

Holmes, Amy Kristine, Instructional Associate Professor
International Affairs
PHD, The John Hopkins University, 2009

Holsey, Ronal K, Senior Lecturer
Eng Tech & Ind Distribution
BS, Texas A&M University, 1988

Holstead, John Claude, Visiting Senior Lecturer
Construction Science
MS, Texas A&M University, 1986

Holt, Jeremy W, Associate Professor
Physics & Astronomy
PHD, Stony Brook University, 2008

Holt, Nathan, Lecturer
Physics & Astronomy
PHD, Texas A&M University, 2016

Holt, Ryan C, Visiting Associate Professor of the Practice
Eng Tech & Ind Distribution
MEN, Texas A&M University, 2020

Holton, Sara, Lecturer
College of Nursing
MSN, University of Mary Hardin-Baylor, 2022

Holtzapple, Mark T, Professor
Chemical Engineering
PHD, University of Pennsylvania, 1981

Holyfield, Lavern J, Clinical Faculty
Comprehensive Dentistry
DDS, Baylor College of Dentistry, 1977

Holzman, Brian, Assistant Professor
Educ Admn & Human Resource Dev
PHD, Stanford University, 2016

Homrighausen, Darren Warren, Instructional Professor
Statistics
PHD, Carnegie Mellon, 2012

Honeycutt, Amanda Jill, Instructional Associate Professor
College of Performance, Visualization & Fine Arts
MFA, Texas A&M University Commerce, 2020

Honeycutt, Wade, Visiting Lecturer
College of Performance, Visualization & Fine Arts
BS, Texas A&M University, 2018

Honeyman, Allen L, Instructional Associate Professor
Biomedical Sciences
PHD, University of Kansas, 1988

Hong, Liang, Professor
Public Health Sciences
DDS, University of Tennessee, 2015
PHD, University of Iowa, 2004

Hook, Michelle A, Associate Professor
College of Medicine
PHD, University of New England, 1998

Hooshyar, Mohsen, Lecturer
Biology
PHD, Carleton University, Canada, 2015

Hopkins, Allison, Associate Professor
Anthropology
PHD, University of Florida, 2009

Hopkins, Karl, Adjunct Professor of Law
School of Law
JD, Southwestern Law School, 1992

Horn, John D, Instructional Assistant Professor
Biomedical Engineering
PHD, Texas A&M University, 2018

Horn, Staci Jessen, Research Assistant Professor
Biomedical Engineering
PHD, Texas A&M University, 2016

Horseman, Michael A, Visiting Clinical Associate Professor
College of Pharmacy
PHARM.D, Medical University of South Carolina, 1983

Horsley, Leann, Professor
College of Nursing
PHD, University of Kansas, 2012

Hossain, Zubaer Md, Instructional Associate Professor
Mechanical Engineering
PHD, University of Illinois at Urbana-Champaign, 2011

Hou, I-Hong, Professor
Electrical & Computer Eng
PHD, University of Illinois Urbana Champaign, 2011

Houngninou, David Kebo, Instructional Associate Professor
Computer Science & Engineering
PHD, Southern Methodist University, 2017

House, Benjamin R, Visiting Lecturer
College of Performance, Visualization & Fine Arts
MS, Texas A&M University, 2019

House, Donald H, Senior Professor
College of Performance, Visualization & Fine Arts
PHD, University of Massachusetts Amherst, 1984

House, Felice L, Associate Professor
College of Performance, Visualization & Fine Arts
MFA, The University of Texas at Austin, 2011

Houston, Jonathan, Senior Lecturer
Construction Science
BEN, Texas A&M University, 2007

Howard, Daniel L, Professor
Psychological & Brain Sciences
PHD, Vanderbilt University, 1992

Howard, Peter B, Professor
Mathematics
PHD, Indiana University, 1998

Howe, Julie A, Professor
Soil & Crop Sciences
PHD, University of Wisconsin, Madison, 2004

Howell, James Ford, Instructional Associate Professor
Global Languages & Cultures
PHD, University of Arizona, 2017

Howell, Jessica M, Professor
English
PHD, University of California at Davis, 2008

Howell, Kenneth W, Visiting Lecturer
History
PHD, Texas A&M University, 2005

Howell, Kristen Elaine, Assistant Professor
Epidemiology & Biostatistics
PHD, University of Memphis School of Public Health, 2021

Howell, Michael W, Associate Professor of the Practice
International Affairs
MA, U.S. Naval War College, 2009

Hoyos, Sebastian, Professor
Electrical & Computer Eng
PHD, University of Delaware, 2004

Hoyt, Kenneth L, Professor
Biomedical Engineering
PHD, Drexel University, 2005

Hoyt, Kenneth L, Professor
Vet Small Animal Clinical Sc
PHD, Drexel University, 2005

Hsiao, Kai-Wen, Assistant Professor
Materials Science & Engr
PHD, University of Illinois at Urbana Champaign, 2017

Hsieh, Sheng-Jen, Professor
Eng Tech & Ind Distribution
PHD, Texas Tech University, 1995

Hu, Bai-Shan, Research Assistant Professor
Physics & Astronomy
PHD, Peking University, 2017

Hu, Chelsea, Assistant Professor
Chemical Engineering
PHD, Cornell University, 2018

Hu, Jiang, Professor
Electrical & Computer Eng
PHD, University of Minnesota, 2001

Hu, Mo, Assistant Professor
Construction Science
PHD, Virginia Tech, 2021

Hu, Runjie, Visiting Assistant Professor
Mathematics
MS, Peking University, 2018

Hu, Sarah, Assistant Professor
Oceanography
PHD, University of Southern California, 2018

Huang, Chang S, Associate Professor
Land Arch & Urban Planning
PHD, University of Pennsylvania, 1995

Huang, Hang, Assistant Professor
Mathematics
PHD, University of Wisconsin, 2019

Huang, Jing, Assistant Professor
Finance
PHD, Duke University, 2020

Huang, Kuan-Hao, Assistant Professor
Computer Science & Engineering
PHD, University of California, Los Angeles, 2023

Huang, Reyko, Associate Professor
International Affairs
PHD, Columbia University, 2012

Huang, Ruihong, Associate Professor
Computer Science & Engineering
PHD, University of Utah, 2014

Huang, Shaoming, Professor
Computer Science & Engineering
PHD, Hong Kong University of Science and Technology, 2012

Huang, Ya-Ching Amanda, Assistant Professor
College of Nursing
PHD, The University of Texas at Austin, 2018

Huang, Yun, Professor
College of Medicine
PHD, Georgia State University, 2009

Hubbard Jr, James E, University Distinguished Professor
Mechanical Engineering
PHD, Massachusetts Institute of Technology, 1982

Hubbard, John K, Instructional Professor
College of Medicine
PHD, Texas A&M University, 1996

Huber, John C, Visiting Lecturer
Health Policy & Management
PHD, University of Texas, HSC, 2004

Hudson, Angela P, Professor
History
PHD, Yale University, 2007

Hudson, David R, Instructional Professor
History
PHD, Texas A&M University, 1998

Hudson, James Robert, Adjunct Professor of Law
School of Law
JD, Texas Tech University, 1998

Hudson, Lee E, Visiting Associate Professor of the Practice
Eng Tech & Ind Distribution
PHD, Texas A&M University, 2003

Hudson, Shane L, Clinical Professor
Kinesiology & Sport Management
PHD, Texas A&M University, 2007

Hudson, Valerie M, Professor
International Affairs
PHD, The Ohio State University, 1983

Hudson-Gallogly, Kim, Clinical Associate Professor
College of Nursing
PHD, University of Georgia, 2011

Hueste, Mary Beth Deisz, Professor
Civil & Environmental Engineering
PHD, University of Michigan, 1997

Huffenberger, Kevin Michael, Professor
Physics & Astronomy
PHD, Princeton University, 2006

Hughes, Ian, Assistant Professor
Psychological & Brain Sciences
PHD, Bowling Green State University, 2023

Hughes, John J, Senior Lecturer
Eng Tech & Ind Distribution
MS, Iona College, 1982

Hughes, Rhome, Instructional Associate Professor
School of Engineering Medicine
MD, UT Southwestern Medical Center, 2006

Hui, Jason C, Clinical Faculty
Comprehensive Dentistry
DDS, Texas A&M University Baylor College of Dentistry, 2011

Hull, Rachel G, Senior Lecturer
Psychological & Brain Sciences
PHD, Texas A&M University, 2003

Humphrey, Daniel, Professor
College of Performance, Visualization & Fine Arts
PHD, University of Rochester, 2006

Hung, Wayne NP, Professor
Eng Tech & Ind Distribution
PHD, University of California at Berkeley, 1987

Hunsucker, Bob C, Clinical Faculty
Comprehensive Dentistry
DDS, Baylor College of Dentistry, 1989

Hunter, Christopher S, Associate Professor of the Practice
Architecture
PHD, Texas A&M University, 2018

Huntley, Jason Frederick, Professor
College of Medicine
PHD, Iowa State University, 2004

Hur, Byul, Associate Professor
Eng Tech & Ind Distribution
PHD, University of Florida, 2011

Hurdle, Julian G, Professor
College of Medicine
PHD, University of Leeds, 2005

Hurlebaus, Stefan, Professor
Civil & Environmental Engineering
PHD, University of Stuttgart, Germany, 2002

Hurst, Kenneth R, Assistant Professor of the Practice
Land Arch & Urban Planning
PHD, Texas A&M University, 2016

Hurta, Amy, Lecturer
Accounting
MS, Texas A&M University, 2008

Hurtado Clavijo, Luis A, Associate Professor
Ecology and Conservation Biology
PHD, Rutgers, 2002

Husain, Asfia, Clinical Faculty
Comprehensive Dentistry
DDS, University of Texas Health Science Center Houston, 2017

Hussein, Saud, Lecturer
Mathematics
PHD, University of Houston, 2016

Hussey, Mark Allen, Professor
Soil & Crop Sciences
PHD, Texas A&M University, 1983

Huston, David P, Professor
College of Medicine
MD, Wake Forest University, 1973

Hutchins, Nancy S, Clinical Associate Professor
Management
PHD, Texas A&M University, 2014

Hutchins, Shaun D, Clinical Associate Professor
Teaching, Learning & Culture
PHD, Colorado State University, 2015

Hutchinson, Richard N, Instructional Associate Professor
Civil & Environmental Engineering
PHD, Texas A&M University, 2015

Hutchison, Robert W, Clinical Professor
College of Pharmacy
PHARM, University of Arkansas for Medical Sciences, 1999

Hutson, Brent B, Clinical Associate Professor
Comprehensive Dentistry
DDS, Baylor College of Dentistry, 1993

Hwang, Jihee, Clinical Associate Professor
Educ Admn & Human Resource Dev
PHD, Pennsylvania State University, 2015

Hwang, Wonmuk, Professor
Biomedical Engineering
PHD, Boston University, 2001

Hyde, Jenny A., Associate Professor
College of Medicine
PHD, Texas A&M University, 2005

Iakovou, Eleftherios, Professor
Eng Tech & Ind Distribution
PHD, Cornell University, 1992

Ibrahim, Amir M, Professor
Soil & Crop Sciences
PHD, Colorado State University, 1998

Ida, Keila K, Clinical Associate Professor
Vet Small Animal Clinical Sc
BVetM, Universidade Estadual de Londrina, 2006
PHD, Universidade de Sao Paulo, Brazil, 2015

Idan, Lihi, Assistant Professor
Industrial & Systems Engineering
PHD, Yale University, 2022

Ifti, Hassan Saad, Assistant Professor
Aerospace Engineering
PHD, University of Oxford, 2022

Ighani, Elham E, Clinical Assistant Professor
Comprehensive Dentistry
DDS, Baylor College of Dentistry, 2008

Ighani, Fareed E, Clinical Faculty
Comprehensive Dentistry
DDS, Texas A&M University College of Dentistry, 2020

Igumenova, Tatyana I, Professor
Biochemistry & Biophysics
PHD, Columbia University, 2003

Ihle, Marc, Visiting Assistant Professor
Architecture
MAR, University of Innsbruck, 2012

Ijaz, Muhammad, Associate Professor of the Practice
College of Engineering
PHD, Texas A&M University, 2007

Illeditsch, Philipp Karl, Assistant Professor
Finance
PHD, Texas A&M University, 2007

Im, Gabi Victoria, Clinical Faculty
Comprehensive Dentistry
DMD, University of Pennsylvania School of Dental Medicine, 2020

Imhoff-Jones, Sarah, Instructional Associate Professor
College of Performance, Visualization & Fine Arts
MFA, Texas Women's University, 1999
PHD, Pacifica Graduate Institution, 2021

Infante, Alexander Frank, Clinical Assistant Professor
College of Pharmacy
PHARM, University of Illinois-Chicago, 2021

Infante, Alexander Frank, Clinical Assistant Professor
College of Medicine
PHARM, University of Illinois-Chicago, 2021

Ing, Nancy H, Professor
Animal Science
DVM, University of Florida, 1984
PHD, University of Florida, 1988

Ioerger, Thomas R, Professor
Computer Science & Engineering
PHD, University of Illinois at Urbana-Champaign, 1996

Irby, Beverly J, Professor
Educ Admn & Human Resource Dev
PHD, University of Mississippi, 1983

Isbell, Teresa Marie, Instructional Assistant Professor
College of Medicine
PHD, The University of North Texas, 2014

Ishdorj, Ariun, Associate Professor
Agricultural Economics
PHD, Iowa State University, 2008

Iskander, Marco, Instructional Assistant Professor
Electrical & Computer Eng
MBA, University of Waterloo, 2020

Islekel, Ege Selin, Assistant Professor
Philosophy
PHD, DuPaul University, 2018

Ismail, Nadia, Clinical Faculty
Comprehensive Dentistry
DDS, University of Texas Health Science Center at Houston, 2019

Issa, Mariam, Clinical Assistant Professor
Comprehensive Dentistry
BDS, Beirut Arab University, 2019

Ito, Daisuke, Associate Professor
Vet Small Animal Clinical Sc
BVMedSci, Nihon University, Japan, 2003
PHD, University of Tokyo, 2008

Ivanov, Ivan V, Clinical Professor
Vet Physiology & Pharmacology
PHD, University of South Florida, 1999

Ives, Maura C, Professor
English
PHD, University of Virginia, 1990

Ivy, Delaney R, Clinical Associate Professor
College of Pharmacy
PHARM D, The University of Texas, 2010

Iyer, Srividhya, Assistant Professor
Vet Physiology & Pharmacology
PHD, Jawaharlal Nehru University, 2011

Jackson, Aaron, Adjunct Professor of Law
School of Law
JD, University of Oklahoma, 2009

Jackson, Cheryl, Lecturer
Psychological & Brain Sciences
PHD, Kansas State University, 2007

Jackson, Kaylee, Clinical Assistant Professor
College of Medicine
PHD, Texas A&M University, 2023

Jackson, Matthew Keith, Adjunct Professor of Law
School of Law
JD, Texas A&M University, 2013

Jackson, Michael L, Visiting Lecturer
International Affairs
MS, National Defense University, 2012

Jackson, Sarah, Assistant Professor
Psychological & Brain Sciences
PHD, University of Texas Medical Branch, 2016

Jackson, Scott, Associate Professor
Aerospace Engineering
PHD, California Institute of Technology, 2005

Jacobs, Nina, Adjunct Professor of Law
School of Law
JD, University of Miami, 2001

Jacobs, Timothy J, Professor
Mechanical Engineering
PHD, University of Michigan, 2005

Jacobs, Timothy J, Professor
Multidisciplinary Engineering
PHD, University of Michigan, 2005

Jafari, Navid Hussein, Associate Professor
Civil & Environmental Engineering
PHD, University of Illinois at Urbana-Champaign, 2015

Jafari, Roxana, Assistant Professor
Architecture
PHD, Clemson University, 2021

Jaima, Amir R, Associate Professor
Philosophy
PHD, State University of New York at Stony Brook, 2014

Jain, Abhishek, Associate Professor
Biomedical Engineering
PHD, Boston University, 2012

Jain, Priya, Associate Professor
Architecture
MAR, The University of Arizona, 2007

Jalali, Poorya, Clinical Associate Professor
Endodontics
DDS, Kerman University of Medical Sciences/Iran, 2008

Jamar, Patrick, Visiting Lecturer
Ag Leadership, Educ & Comm
PHD, University of Texas at Austin, 2023

James, Jonathan Keith, Clinical Assistant Professor
Comprehensive Dentistry
DDS, Marquette University, 2000

James-Gallaway, ArCasia, Assistant Professor
Teaching, Learning & Culture
PHD, University of Illinois at Urbana Champaign, 2020

James-Gallaway, Chaddrick, Assistant Professor
Educ Admn & Human Resource Dev
PHD, University of Illinois Urbana Champaign, 2020

Jameson, Antony, Professor
Aerospace Engineering
PHD, University of Cambridge, 1963

Janes, Donna M, Instructional Associate Professor
Biology
PHD, University of Illinois, 2004

Jang, Wonhyeok, Lecturer
Electrical & Computer Eng
PHD, University of Illinois at Urbana-Champaign, 2017

Janini Gomes, Mariana, Assistant Professor
Kinesiology & Sport Management
PHD, Sao Paulo State University-Medical School, 2019

Janke, Jared, Clinical Associate Professor
Vet Large Animal Clinical Sc
DVM, Iowa State University, 2004

Jansen, Dennis W, Professor
Economics
PHD, University of North Carolina at Chapel Hill, 1983

Janssens, Sebastiaan Gerard, Instructor
Mathematics
MSC, Universiteit Utrecht, 2010

Jares, Jake, Assistant Professor
Political Science
PHD, Stanford University, 2024

Jarrahbashi, Dorrin, Associate Professor
Mechanical Engineering
PHD, University of California Irvine, 2014

Jasperson, 'Jon (Sean), Clinical Professor
Information & Operations Mgmt
PHD, Florida State University, 1999

Javed, Bushra, Clinical Assistant Professor
Diagnostic Sciences
BDS, Margalla Institute of Health Sciences, 2012

Jayaraman, Arul, Professor
Chemical Engineering
PHD, University of California at Irvine, 1998

Jazairy, Amer, Assistant Professor
Maritime Business Administration
PHD, KTH Royal Institute of Technology, 2020

Jean, Christy Roberts, Instructional Assistant Professor
Geography
PHD, Kansas State University, 2023

Jeffery, Nicholas D, Professor
Vet Small Animal Clinical Sc
PHD, The University of Cambridge, 1997

Jennings, Jason, Visiting Associate Professor of the Practice
Health Policy & Management
MBA, University of Texas at Tyler, 2003

Jensen, Jonathan A., Associate Professor
Kinesiology & Sport Management
PHD, The Ohio State University, 2015

Jeong, David, Professor
Construction Science
PHD, Purdue University, 2005

Jeong, Hae-Kwon, Professor
Chemical Engineering
PHD, University of Minnesota, 2004

Jeong, Jihoon, Assistant Professor
Industrial & Systems Engineering
PHD, University of Texas at Austin, 2020

Jepson, Wendy, Professor
Geography
PHD, University of California at Los Angeles, 2003

Jessup, Russell W, Professor
Soil & Crop Sciences
PHD, Texas A&M University, 2005

Ji, Jim, Professor
Electrical & Computer Eng-Qatar Campus
PHD, University of Illinois at Urbana-Champaign, 2003

Ji, Jim X, Professor
Electrical & Computer Eng
PHD, University of Illinois, 2003

Ji, Qian, Instructional Assistant Professor
Health Behavior
PHD, Texas A&M University, 2021

Ji, Shuiwang, Professor
Computer Science & Engineering
PHD, Arizona State University, 2010

Jiang, Anxiao, Professor
Computer Science & Engineering
PHD, California Institute of Technology, 2004

Jiang, Lai, Instructional Assistant Professor
College of Engineering
PHD, Texas A&M University, 2021

Jiang, Yuchao, Associate Professor
Statistics
PHD, University of Pennsylvania, Perelman School of Medicine, 2017

Jiao, Wenzhe, Assistant Professor
Ecology and Conservation Biology
PHD, Indiana University - IUPUI, 2022
PHD, University of Chinese Academy of Sciences, 2017

Jimenez Iniesta, David, Visiting Associate Professor of the Practice
Architecture
MAR, University de Alicante, 2014

Jimenez, Christopher, Visiting Senior Lecturer
Eng Tech & Ind Distribution
MEN, Texas A&M University, 2021

Jimenez, Daniel A, Professor
Computer Science & Engineering
PHD, The University of Texas at Austin, 2002

Jin, Congrui, Assistant Professor
Eng Tech & Ind Distribution
PHD, Cornell University, 2012

Jin, Hengda, Assistant Professor
Accounting
PHD, University of Utah, 2022

Jin, Wencheng, Assistant Professor
Petroleum Engineering
PHD, Georgia Institute of Technology, 2018

Jinadatha, Chetan, Clinical Professor
College of Medicine
MD, J.J.M. Medical College, 2001

Jing, Bob Xiang, Clinical Faculty
Comprehensive Dentistry
DDS, UT Health School of Dentistry, 1997

Jing, Yan, Assistant Professor
Orthodontics
PHD, Sichuan University, 2014

Jo, Hyeran, Associate Professor
Political Science
PHD, University of Michigan, 2008

Jo, Yoon, Assistant Professor
Economics
PHD, Columbia University, 2019

Jochen, Valerie Ann, Professor of the Practice
Petroleum Engineering
PHD, Texas A&M University, 1994

Johansen, Emily J, Professor
English
PHD, McMaster University, 2008

Johnson, Brian, Visiting Professor of the Practice
International Affairs
MA, King's College, London, 2007

Johnson, Dennis P, Professor of the Practice
Environmental & Occpnl Hlth
MPH, University of Oklahoma Health Science Center, 1979

Johnson, Donald, Lecturer
Kinesiology & Sport Management
BS, Texas A&M University, 1955

Johnson, Elaina, Clinical Instructor
College of Nursing
MSN, University of Texas at Arlington, 2021

Johnson, Gregory A, Professor
Vet Integrative Biosciences
PHD, University of Wyoming, 1997

Johnson, James S, Adjunct Professor of Law
School of Law
JD, Texas Wesleyan University, 2008

Johnson, Jay, Senior Lecturer
Eng Tech & Ind Distribution
MBA, Texas A&M University, 2001

Johnson, Joseph A, Instructor
Agricultural Economics
MS, Texas Tech University, 2020

Johnson, Marcus Wayne, Associate Professor
Teaching, Learning & Culture
PHD, University of Texas at Austin, 2017

Johnson, Mark C, Clinical Professor
Veterinary Pathobiology
DVM, Texas A&M University, 1988

Johnson, Mark H, Professor of the Practice
Eng Tech & Ind Distribution
MS, Central Michigan University, 1991

Johnson, Matthew Christopher, Instructional Assistant Professor
Electrical & Computer Eng
PHD, Texas A&M University, 2017

Johnson, Michael D, Professor
Eng Tech & Ind Distribution
PHD, Massachusetts Institute of Technology, 2004

Johnson, Natalie M, Associate Professor
Environmental & Occpnl Hlth
PHD, Texas A&M University, 2010

Johnson, Richard, Senior Lecturer
Management
MS, Texas A&M University, 2005

Johnson, Shane A, Professor
Finance
PHD, Louisiana State University, 1991

Johnson, Valen E, Professor
Statistics
PHD, University Of Chicago, 1989

Johnson, Violet M, Professor
History
PHD, Boston College, 1992

Johnston, Bradley C, Associate Professor
Nutrition
PHD, University of Alberta, 2009

Johnston, Jamey, Visiting Professor
Information & Operations Mgmt
MS, Texas A&M University, 2016

Jola-Sanchez, Andres F, Associate Professor
Information & Operations Mgmt
DBA, Indiana University, 2018

Jolley, Cameron, Clinical Faculty
Orthodontics
DMD, Nova Southeastern University, 2006

Jolly, Ashley Gabbard, Senior Lecturer
Teaching, Learning & Culture
MED, Sam Houston State University, 2007

Jones, Edward R, Visiting Professor
Statistics
PHD, Virginia Polytechnic State University, 1976

Jones, Eli, Professor
Marketing
PHD, Texas A&M University, 1997

Jones, Jeff, Assistant Professor
Biology
PHD, Vanderbilt University, 2015

Jones, Kaffia, Visiting Senior Lecturer
Eng Tech & Ind Distribution
PHD, Saybrook University, 2010

Jones, Kayla D, Instructional Assistant Professor
Kinesiology & Sport Management
MS, Texas A&M University, 2011

Jones, Spencer, Assistant Professor
Oceanography
PHD, University of California, San Diego, 2018

Jones-Hall, Yava, Associate Professor
Veterinary Pathobiology
DVM, Tuskegee University, 2003
PHD, Michigan State University, 2011

Jonkman, Sebastiaan, Research Professor
Marine and Coastal Environmental Science
PHD, Delft University of Technology, 2007

Jordan, Bethany L, Lecturer
College of Nursing
MSN, University of Texas at Arlington, 2021

Jordan, Soren, Associate Professor
Political Science
PHD, Texas A&M University, 2015

Joseph, Merlyn L, Clinical Associate Professor
College of Pharmacy
PHARM D, Texas Tech University Health Science Center, 2012

Joshi, Aditya, Associate Professor
Vet Physiology & Pharmacology
PHD, University of Texas Medical Branch, 2008

Joshi, R M, Professor
Teaching, Learning & Culture
PHD, University of South Carolina, 1976

Josvoll, Kristin K, Instructional Associate Professor
Maritime Studies
MA, Johns Hopkins University, 2015

Juarez, Jose, Research Assistant Professor
Vet Integrative Biosciences
PHD, Texas A&M University, 2021

Jung, Hyunyi, Associate Professor
Teaching, Learning & Culture
PHD, Purdue University, 2015

Jung, Yoonsung, Instructional Associate Professor
Statistics
PHD, Kansas State University, 2009

Junkins, John L, Distinguished Professor
Aerospace Engineering
PHD, University of California at Los Angeles, 1969

Kabir, Elnaz, Assistant Professor
Eng Tech & Ind Distribution
PHD, University of Michigan, 2021

Kacsmayk, Matthew, Adjunct Professor of Law
School of Law
JD, University of Texas at Austin, 2003

Kafle, Kashi Ram, Assistant Professor
Agricultural Economics
PHD, University of Illinois at Urbana-Champaign, 2017

Kagerer, Patricia, Visiting Senior Lecturer
Construction Science
MA, Southern Methodist University, 2008

Kahlig, Joe E, Instructional Associate Professor
Mathematics
MS, Texas A&M University, 1994

Kahn, David Andrew, Clinical Assistant Professor
Educational Psychology
PHD, Texas A&M University, 2011

Kaihatu, James M, Professor
Civil & Environmental Engineering
PHD, University of Delaware, 1994

Kainthla, Priyanka, Clinical Faculty
Pediatric Dentistry
DDS, University of Oklahoma, 2014

Kaiser, Karl, Professor
Marine and Coastal Environmental Science
PHD, University of South Carolina, 2009

Kalafatis, Stavros, Professor of the Practice
Electrical & Computer Eng
MS, University of Arizona, 1991

Kalantari, Nima, Associate Professor
Computer Science & Engineering
PHD, University of California, Santa Barbara, 2015

Kalbasi, Shaída, Instructional Associate Professor
Epidemiology & Biostatistics
PHD, Texas A&M University, 2015

Kamon, Teruki, Professor
Physics & Astronomy
PHD, University of Tsukuba, 1986

Kamphoefner, Walter D, Professor
History
PHD, University of Missouri, 1978

Kandidatov, Petr, Lecturer
Global Languages & Cultures
MED, Southern Arkansas University, 2013

Kang, Cong X, Associate Professor
Foundational Sciences
PHD, The University of Texas at Austin, 1999

Kang, Heonyong, Assistant Professor
Ocean Engineering
PHD, Texas A&M University, 2014

Kang, Minchul, Instructional Assistant Professor
Mathematics
PHD, University of Minnesota, 2005

Kanin, David, Lecturer
International Affairs
PHD, Fletcher School of Law and Diplomacy, Tufts University, 1976

Kaniyamattam, Karun, Assistant Professor
Animal Science
PHD, University of Florida, 2016

Kapita, Shelvean, Instructional Assistant Professor
Mathematics
PHD, University of Delaware, 2016

Kapoor, Rishika, Clinical Faculty
Periodontics
DDS, Texas A&M University, 2014

Kappiaruparampil, Justin, Assistant Professor
International Affairs
PHD, University of Texas at Dallas, 2016

Karaman, Ibrahim, Professor
Materials Science & Engr
PHD, University of Illinois at Urbana-Champaign, 2000

Karasipahi, Sena, Instructional Assistant Professor
International Affairs
PHD, Universiteit Leiden, 2006

Karathanasis, Constantine, Assistant Professor
Global Languages & Cultures
PHD, Washington University in St. Louis, 2022

Karim, Afroz, Instructional Assistant Professor
Chemistry
MS, University of Texas at El Paso, 2018

Karim, Muhammad Faeyz, Instructional Associate Professor
Eng Tech & Ind Distribution
PHD, Nanyang Technological University, 2008

Karn, Trevor, Visiting Assistant Professor
Mathematics
MS, University of Minnesota, 2022

Karns, Joel D, Clinical Assistant Professor
Comprehensive Dentistry
DDS, Baylor College of Dentistry, 2000

Karpac, Jason S, Associate Professor
Biology
PHD, The University of Oklahoma Health Sciences Center, 2007

Karpac, Jason S, Associate Professor
College of Medicine
PHD, The University of Oklahoma Health Sciences Center, 2007

Karpetis, Adonios N, Associate Professor
Aerospace Engineering
PHD, Yale University, 1998

Karsilayan, Aydin I, Associate Professor
Electrical & Computer Eng
PHD, Portland State University, 2000

Karson, Michael, Adjunct Professor of Law
School of Law
JD, University of Chicago Illinois, 2009

Kartapanis, Antonis, Associate Professor
Accounting
PHD, University of Texas, 2019

Karthein, Jamie, Research Assistant Professor
Physics & Astronomy
PHD, University of Houston, 2021

Karthein, Jonas, Assistant Professor
Physics & Astronomy
PHD, Ruprecht-Karls-Universität Heidelberg, 2020

Kaspar, Wendi A, Professor
International Affairs
MS, Texas A&M University, 2010

Kaspar-Coker, Lori J, Adjunct Professor of Law
School of Law
JD, Texas Wesleyan University, 2005

Katehi-Tseregounis, Linda P B, Professor
Electrical & Computer Eng
PHD, University of California, Los Angeles, 1984

Katehi-Tseregounis, Linda P B, Professor
Materials Science & Engr
PHD, University of California, 1984

Kates, Cindy, Lecturer
Maritime Studies
EDD, University of South Dakota, 2000
MMU, University of South Dakota, 1995

Kattari, Kimberly A, Associate Professor
College of Performance, Visualization & Fine Arts
PHD, The University of Texas at Austin, 2011

Katz, Claire E, Professor
Teaching, Learning & Culture
PHD, University of Memphis, 1999

Kaufman, Phillip Edward, Professor
Entomology
PHD, University of Wyoming, 1997

Kaunas, Roland R, Associate Professor
Biomedical Engineering
PHD, University of California at San Diego, 2003

Kaya, Ali, Instructional Assistant Professor
Physics & Astronomy
PHD, Texas A&M University, 2001

Kazemi, Sana, Instructional Assistant Professor
Mathematics
PHD, University of Memphis, 2022

Keating, Peter B, Associate Professor
Civil & Environmental Engineering
PHD, Lehigh University, 1987

Keene, Alex Carl, Professor
Biology
PHD, University of Massachusetts, 2006

Keiper, Paul, Clinical Associate Professor
Kinesiology & Sport Management
PHD, Texas A&M University, 2002

Keller, Lorena, Assistant Professor
Finance
PHD, Northwestern University, 2020

Kelling, Ronald Daniel, Visiting Associate Professor of the Practice
Civil & Environmental Engineering
MEN, Texas A&M University, 2007

Kellstedt, Paul M, Professor
Political Science
PHD, University of Minnesota, Twin Cities, 1996

Kelly, Kathryn, Lecturer
Communication & Journalism
MA, Texas A&M University, 2007

Kelly, Kevin, Assistant Professor
Physics & Astronomy
PHD, Northwestern University, 2018

Kelly, Michael James, Lecturer
International Affairs
MA, University of Arizona, 1996

Kelly, Robert, Professor of the Practice
Finance
PHD, Harvard University, 1981

Kennedy, Carolyn, Instructional Assistant Professor
Anthropology
PHD, Texas A&M University, 2019

Kennedy, Curry William, Assistant Professor
English
PHD, Penn State University, 2021

Kennedy, Deanna M, Associate Professor
Kinesiology & Sport Management
PHD, Texas A&M University, 2015

Kennicutt, Robert Charles, Professor
Physics & Astronomy
PHD, University of Washington, 1978

Kent, Charles Todd, Instructional Professor
Political Science
PHD, Texas A&M University, 2005

Kent, Thomas A, Professor
College of Medicine
MD, University of Kansas Medical Center, 1979

Kerins, Carolyn A, Associate Professor
Pediatric Dentistry
DDS, Baylor College of Dentistry, 2002
PHD, Baylor College of Dentistry, 2004

Kerth, Christopher R, Associate Professor
Animal Science
PHD, Texas Tech University, 1999

Kerwin, Sharon C, Professor
Vet Small Animal Clinical Sc
DVM, Texas A&M University, 1988

Kesterke, Matthew J, Assistant Professor
Orthodontics
PHD, University of Pittsburgh, 2016

Keszei, David, Professor of the Practice
Ag Leadership, Educ & Comm
PHD, Pepperdine University, 2021

Ketzenberg, Michael E, Professor
Information & Operations Mgmt
PHD, University of North Carolina at Chapel Hill, 2000

Key, Sora, Assistant Professor
Architecture
PHD, Carnegie Mellon University, 2012

Keyser, John C, Professor
Computer Science & Engineering
PHD, University of North Carolina at Chapel Hill, 2000

Keyvanshokooh, Esmaeil, Assistant Professor
Information & Operations Mgmt
DEN, University of Michigan, Ann Arbor, 2021

Kezunovic, Mladen, Professor
Electrical & Computer Eng
PHD, University of Kansas, 1980

Khan, Faisal Irshad, Professor
Chemical Engineering
PHD, Pondicherry University, 1998

Khan, Irfan, Assistant Professor
Marine Engineering Technology
PHD, Carnegie Mellon University, 2018

Khan, Koyel, Instructional Assistant Professor
Sociology
PHD, University of Connecticut, 2020

Khan, Mansoor A, Professor
Pharmaceutical Sciences
PHD, St. John's University, 1992

Khasawneh, Fadi, Professor
Pharmaceutical Sciences
PHD, The University of Illinois at Chicago, 2007
PHD, Soochow University, 1997

Khatri, Sunil P, Professor
Electrical & Computer Eng
PHD, University of California at Berkeley, 1999

Khmelenko, Vladimir V, Research Professor
Physics & Astronomy
PHD, Institute of Chemical Physics, 1984

Kibriya, Shahriar R, Research Assistant Professor
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PHD, Texas A & M University, 2011

Kicklighter, Caleb L, Instructional Assistant Professor
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MFA, Texas A&M University, 2018

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Maritime Transportation
BS, Texas A&M University at Galveston, 2012

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BS, Arizona State University, 1987

Kilmer, Kendra R, Instructional Associate Professor
Mathematics
MS, Texas A&M University, 2003

Kilmer, Nicholas G, Senior Lecturer
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MBA, University of Texas at Tyler, 2011

Kiltz, Linda, Visiting Lecturer
Public Service and Administration
PHD, Portland State University, 2008

Kim, Eun J, Professor
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PHD, The Pennsylvania State University, 2003

Kim, Eunhui, Lecturer
Communication & Journalism
MA, University of Louisiana, 2017

Kim, Eunjee, Assistant Professor
Accounting
PHD, Cornell University, 2021

Kim, Haejune, Instructional Associate Professor
Mechanical Engineering
PHD, University of Wisconsin at Milwaukee, 2014

Kim, Hoi-Eun, Associate Professor
History
PHD, Harvard University, 2006

Kim, Hwagyun, Associate Professor
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PHD, University of Chicago, 2003

Kim, Jay, Associate Professor
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PHD, University of Washington, 2012

Kim, Jeeun, Assistant Professor
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PHD, University of Colorado - Boulder, 2019

Kim, Jihoon, Associate Professor
Petroleum Engineering
PHD, Stanford University, 2010

Kim, Johyun, Associate Professor
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PHD, University of Illinois at Urbana-Champaign, 2006

Kim, Joung Dong, Instructional Associate Professor
Mathematics
PHD, State University of New York at Stony Brook, 2012

Kim, Junghwan, Associate Professor
Educ Admn & Human Resource Dev
PHD, The Pennsylvania State University, 2012

Kim, Jungkeun, Associate Professor
Hospitality Hotel Management & Tourism
PHD, Carlson School of Management, University of Minnesota, 2008

Kim, Junhyoung, Associate Professor
Health Behavior
PHD, The Pennsylvania State University, 2012

Kim, Kiseok, Assistant Professor
Petroleum Engineering
PHD, University of Illinois at Urbana Champaign, 2017

Kim, Min Jung, Assistant Professor
Kinesiology & Sport Management
PHD, Florida State University, 2015

Kim, Moohyun, Professor
Ocean Engineering
PHD, Massachusetts Institute of Technology, 1988

Kim, Nadia, Professor
Sociology
PHD, University of Michigan-Ann Arbor, 2003

Kim, Namgyun, Assistant Professor
Construction Science
PHD, Texas A&M University, 2022

Kim, Seung Beom, Associate Professor of the Practice
College of Performance, Visualization & Fine Arts
BFA, School of Visual Arts, 1993

Kim, Sijun, Assistant Professor
Management
PHD, University of Arizona, 2021

Kim, Thao Catherine, Clinical Faculty
Dental Hygiene
BS, Baylor University, 2022

Kim, Won-Jong, Associate Professor
Mechanical Engineering
PHD, Massachusetts Inst of Technology, 1997

Kim, Yong, Assistant Professor
Management
PHD, University of Michigan, 2017

Kim, Yong Joe, Associate Professor
Mechanical Engineering
PHD, Purdue University, 2003

Kim, Yong-Rak, Professor
Civil & Environmental Engineering
PHD, Texas A&M University, 2003

Kim, You-Jin, Assistant Professor
College of Performance, Visualization & Fine Arts
MFA, Duke University, 2016
PHD, University of California, Santa Barbara, 2024

Kim, Young Ho, Visiting Assistant Professor
Mathematics
BS, Seoul National University, 2019

Kimber, Mark L, Associate Professor
Nuclear Engineering
PHD, Purdue University, 2008

King, Brian, Professor
Hospitality Hotel Management & Tourism
PHD, Monash University, 1995

King, Maria D, Associate Professor
Biological & Agricultural Eng
PHD, Institute for Biotechnology, Berlin, Germany, 1986

King, Michael J, Professor
Petroleum Engineering
PHD, Syracuse University, 1980

King, Silvia R, Clinical Faculty
Pediatric Dentistry
DDS, Catholic University of Minas, Brazil, 1981

King, Tracy Michelle, Clinical Associate Professor
Dental Hygiene
MS, Texas A&M University, 2002

Kingman, Douglas M, Instructional Professor
Biological & Agricultural Eng
PHD, Purdue University, 2002

Kinirons, Kerry, Adjunct Professor of Law
School of Law
JD, The Catholic University of America, 2003

Kinskey, Melanie, Assistant Professor
Teaching, Learning & Culture
PHD, University of South Florida, 2020

Kipp, Andrew, Clinical Assistant Professor
Teaching, Learning & Culture
EDD, Kansas State University, 2022

Kirkendall, Andrew J, Professor
History
PHD, University of North Carolina at Chapel Hill, 1996

Kirkland, Karen V, Professor
Nuclear Engineering
PHD, The University of Tokyo, 1999

Kirkland, Stephanie, Instructional Assistant Professor
Health Policy & Management
PHD, University of Alabama at Birmingham, 2022

Kiser, James S, Adjunct Professor of Law
School of Law
JD, Texas Wesleyan University, 2009

Kish, Laszlo B, Professor
Electrical & Computer Eng
PHD, Uppsala University, Sweden, 1994

Kitajima, Hiroko, Associate Professor
Geology & Geophysics
PHD, Texas A&M University, 2010

Kitchen, Sheila, Assistant Professor
Marine Biology
PHD, Oregon State University, 2016

Klappenecker, Andreas, Professor
Computer Science & Engineering
PHD, Universitat Karlsruhe, 1998

Klarich, Jonathan, Clinical Assistant Professor
College of Medicine
MD, Ross University School of Medicine, 2021

Klein, Andrew G, Professor
Geography
PHD, Cornell University, 1997

Klein, Barbara, Instructional Associate Professor
College of Performance, Visualization & Fine Arts
MFA, Texas A&M University, 2019

Klein, Heather Lynette, Instructional Professor
Mathematics
MS, Texas A&M University, 2004

Klein, Nancy L, Associate Professor
Architecture
PHD, Bryn Mawr College, 1991

Klein, Patricia, Assistant Professor
Mathematics
PHD, University of Michigan, 2018

Klein, Patricia E, Professor
Horticultural Sciences
PHD, Texas A&M University, 1989

Kleinfeld, Denis, Adjunct Professor of Law
School of Law
JD, Loyola University, 1970

Kleinhenz, Michael, Clinical Associate Professor
Vet Large Animal Clinical Sc
DVM, Ohio State University, 2009
PHD, Kansas State University, 2018

Kleypas, Holly Ann, Lecturer
College of Nursing
MSN, The University of Texas at Arlington, 2018

Klima, Cassidy Lynn, Assistant Professor
Veterinary Pathobiology
PHD, University of Saskatchewan, 2015

Klopach, Benjamin, Assistant Professor
Economics
PHD, Stanford University, 2019

Kmidowski, Shelby, Assistant Professor of the Practice
Entomology
MS, Duquesne University, 2023

Knap, Anthony H, Research Professor
Oceanography
PHD, University of South Hampton, 1978

Knapp, Angela, Professor
Oceanography
DOC, Princeton University, 2006

Knapp, Ashlee, Clinical Faculty
College of Nursing
MSN, Texas Tech University Health Sciences Center, 2024

Knappett, Peter S, Associate Professor
Geology & Geophysics
PHD, University of Tennessee at Knoxville, 2010

Kneese, Dana A, Clinical Assistant Professor
Vet Integrative Biosciences
DVM, Texas A&M University, 2013
PHD, Texas A&M University, 2009

Kneese, Eric, Clinical Associate Professor
Vet Large Animal Clinical Sc
DVM, Texas A&M University, 2012

Knoop, Jacqueline D, Senior Lecturer
Accounting
MS, Texas A&M University, 1997

Ko, Che-Ming, Professor
Physics & Astronomy
PHD, State University of New York at Stony Brook, 1973

Ko, Gladys Y, Professor
Vet Integrative Biosciences
PHD, Kent State University, 1996

Koch, Matthias Daniel, Assistant Professor
Biology
PHD, University of Freiburg, Germany, 2015

Kocharovskaya, Olga A, Distinguished Professor
Physics & Astronomy
PHD, Institute of Applied Physics, Russian Academy of Sciences, 1986

Kocharovsky, Vitaly V, Professor
Physics & Astronomy
PHD, Institute of Applied Physics, Russian Academy of Sciences, 1986

Koehler, Michael, Adjunct Professor of Law
School of Law
JD, University of Wisconsin, 2000

Koepsell, David Richard, Instructional Associate Professor
Philosophy
JD, University at Buffalo, 1995
PHD, University at Buffalo, 1997

Koff, Melissa, Lecturer
Biochemistry & Biophysics
PHD, Texas A&M University, 2024

Kogut, Ashlynn W, Associate Professor
Teaching, Learning & Culture
PHD, Texas A&M University, 2021

Koilpillai, Joanna Nandita, Clinical Assistant Professor
Vet Small Animal Clinical Sc
BVSc, Madra Veterinary College, 2018

Koiwa, Hisashi, Professor
Horticultural Sciences
PHD, Kyoto University, 1996

Koka, Sai Sudha, Associate Professor
Pharmaceutical Sciences
BDS, Visakhapatnam, Andhra Pradesh, India, 530003, 2002
PHD, Eberhard Karls University of Tuebingen, 2008

Kolari, James, Professor
Finance
PHD, Arizona State University, 1980

Kolasinski, Adam C, Professor
Finance
PHD, Massachusetts Institute of Technology, 2006

Koliou, Maria, Associate Professor
Civil & Environmental Engineering
PHD, University of Buffalo - The State University of New York, 2014

Kolluru, Pavan V, Assistant Professor
Materials Science & Engr
PHD, University of Illinois at Urbana-Champaign, 2014

Kolodziej, Elizabeth Y, Instructional Assistant Professor
Statistics
PHD, Texas A&M University, 2010

Kolomenski, Alexandre, Research Professor
Physics & Astronomy
PHD, P N Lebedev Physics Institute of the Russian Academy of Sciences, 1980

Kolomiets, Mikhailo V, Professor
Plant Pathology & Microbiology
PHD, Iowa State University, 1998

Konrad, Christoph F, Professor
Global Languages & Cultures
PHD, University of North Carolina at Chapel Hill, 1985

Kontogiorgos, Dimitrios I, Clinical Professor
Comprehensive Dentistry
PHD, Texas A&M University, 2010
DMD, National and Capodistrian University of Athens, 2003

Koohi, Milad, Assistant Professor
Electrical & Computer Eng
PHD, University of Michigan, 2020

Koola, Paul M, Professor of the Practice
Ocean Engineering
PHD, Indian Institute of Technology, Madras, 1991

Koopman, Joel, Professor
Management
PHD, Michigan State University, 2014

Kordell, Michael, Lecturer
Physics & Astronomy
PHD, Wayne State Univ, 2017

Koro, Muna, Clinical Faculty
Comprehensive Dentistry
DDS, Loma Linda University, 2015

Korty, Robert L, Professor
Atmospheric Sciences
PHD, Massachusetts Institute of Technology, 2005

Korzow, Kristine Sofia, Assistant Professor
Anthropology
PHD, Pennsylvania State University, 2014

Kotikela, Srujan, Clinical Assistant Professor
Information & Operations Mgmt
PHD, University of North Texas, 2018

Koufteros, Xenophon, Professor
Information & Operations Mgmt
PHD, University of Toledo, 1995

Koustov, Dmitri V, Senior Lecturer
College of Performance, Visualization & Fine Arts
BFA, Ivanovo Art institute, 1987

Kovac, Michael, Adjunct Professor of Law
School of Law
JD, Duquesne University, 2005

Kovar, Scott J, Professor of the Practice
Entomology
MS, John Jay College of Criminal Justice, 2007

Kraft, Dianne M, Clinical Faculty
College of Medicine
PHD, Texas A&M University, 2002

Kramer, Phillip R, Professor
Biomedical Sciences
PHD, Texas A&M University, 1996

Kramm, Mathew, Research Assistant Professor
International Affairs
MS, Texas A&M University, 2020

Krampitz, Thomas, Adjunct Professor of Law
School of Law
JD, University of Texas at Austin, 1982

Krasteva, Silvana S, Associate Professor
Economics
PHD, Duke University, 2009

Krause-Castaneda, Julia Shae, Clinical Assistant Professor
College of Medicine
MD, Texas Tech University HSC-SOM, 2014

Kravaris, Costas, Professor
Chemical Engineering
PHD, California Institute of Technology, 1984

Kravitz, Richard HIRAM, Adjunct Professor of Law
School of Law
MBA, New York University Stern, 1974

Krayer, Joe William, Clinical Professor
Periodontics
DDS, University of Texas Health Science Center at San Antonio, 1983

Kreider, Richard, Professor
Kinesiology & Sport Management
PHD, University of Southern Mississippi, 1987

Kress, Lisa M, Lecturer
Maritime Studies
MFA, University of Houston, 2001

Krishnamoorthy, Aravind, Assistant Professor
Mechanical Engineering
PHD, Massachusetts Institute of Technology, 2016

Krishnamurthy, Vinayak Raman, Associate Professor
Mechanical Engineering
PHD, Purdue University, 2016

Krock, Kenneth, Adjunct Professor of Law
School of Law
JD, University of Houston, 1996

Kroll, Nicole L. Peters, Clinical Associate Professor
College of Nursing
PHD, University of Texas at Tyler, 2012

Kronenberg, Andreas K, Professor
Geology & Geophysics
PHD, Brown University, 1983

Krueger, Danielle H., Lecturer
Nutrition
MPH, Texas A&M University, 2014

Kruger, Clayton Thomas, Clinical Assistant Professor
College of Medicine
MD, Texas A&M Health Science Center College of Medicine, 2019

Ku, Charlotte, Professor
School of Law
PHD, Fletcher School of Law & Diplomacy, 1984

Ku, Seockmo, Assistant Professor
Food Science and Technology
PHD, Purdue University, 2015

Kuchment, Peter, Distinguished Professor
Mathematics
PHD, Kharkov State University, Russia, 1973

Kuhn, Deborah, Instructional Assistant Professor
Biology
PHD, The University of South Florida, 2004

Kuhnle, Alan D, Assistant Professor
Computer Science & Engineering
PHD, University of Florida, 2018

Kulatilaka, Waruna D, Professor
Mechanical Engineering
PHD, Purdue University, 2006

Kulhanek, Kristy, Instructional Assistant Professor
Communication & Journalism
EDD, Arizona State University, 2019

Kum, Hye Chung, Professor
Health Policy & Management
PHD, University of North Carolina at Chapel Hill, 2004

Kumar, Narendra, Associate Professor
Pharmaceutical Sciences
PHD, Indian Institute of Technology, Kharagpur, 2001

Kumar, P R, Professor
Electrical & Computer Eng
PHD, Washington University in St. Louis, 1977

Kumar, Sandeep, Associate Professor of the Practice
Computer Science & Engineering
PHD, Purdue University, 1995

Kumar, Shreyas, Professor of the Practice
Computer Science & Engineering
MS, Texas A&M University, 2005

Kumar, Suryansh, Assistant Professor
College of Performance, Visualization & Fine Arts
PHD, Australian National University, 2019

Kuo, Li-Jen, Associate Professor
Teaching, Learning & Culture
PHD, University of Illinois at Urbana-Champaign, 2006

Kuo, Lih, Professor
College of Medicine
PHD, Virginia Commonwealth University, 1987

Kuppersmith, Nicole, Instructional Assistant Professor
Kinesiology & Sport Management
MA, Houston Baptist University, 1996

Kurouski, Dzmitry L, Associate Professor
Biochemistry & Biophysics
PHD, State University of New York at Albany, 2012

Kurwitz, Richard C, Instructional Professor
Nuclear Engineering
PHD, Texas A&M University, 2009

Kurz, Terri L, Instructional Associate Professor
College of Medicine
PHD, Texas A&M University, 2001

Kuttolamadom, Mathew, Professor
Eng Tech & Ind Distribution
PHD, Clemson University, 2012

Kwok, Andrew, Associate Professor
Teaching, Learning & Culture
PHD, University of Michigan, 2016

Kwok, Michelle, Assistant Professor
Teaching, Learning & Culture
PHD, University of Michigan, 2016

Kwok, Oi-Man, Professor
Educational Psychology
PHD, Arizona State University, 2005

Kwon, Joseph, Associate Professor
Chemical Engineering
PHD, University of California at Los Angeles, 2015

Kyle, Gerard T, Professor
Rangeland, Wildlife and Fisheries Management
PHD, Pennsylvania State University, 2001

Kyle, Kelly T, Instructional Assistant Professor
Hospitality Hotel Management & Tourism
MS, Pennsylvania State University, 2000

Kyllonen, Casey L, Senior Lecturer
Accounting
MS, Texas A&M University, 2008

Kölzow, Arthur Edward, Lecturer
Global Languages & Cultures
PHD, University of California, Santa Barbara, 2011

La Pastina, Antonio C, Associate Professor
Communication & Journalism
PHD, The University of Texas at Austin, 1999

LaFevers, Cory James, Senior Lecturer
College of Performance, Visualization & Fine Arts
PHD, University of Texas at Austin, 2018

LaPaglia, Brandy, Clinical Faculty
College of Nursing
MSN, Lamar University, 2021

LaSota, Mark, Clinical Assistant Professor
Kinesiology & Sport Management
PHD, The University of New Mexico, 2020

Labonté, Jessica, Associate Professor
Marine Biology
PHD, University of British Columbia, 2013

Lacini, Justin, Assistant Professor
Mathematics
PHD, University of California, San Diego, 2020

Lacy, Ernestine S, Professor
Comprehensive Dentistry
DDS, Baylor College of Dentistry, 1994

Lacy, Thomas E., Professor
Mechanical Engineering
PHD, Georgia Institute of Technology, 1998

Ladhani, Sharmeen, Adjunct Professor of Law
School of Law
JD, Vanderbilt University, 2016

Lafon, Charles W, Professor
Geography
PHD, University of Tennessee, Knoxville, 2000

Laganowsky, Arthur D, Professor
Chemistry
PHD, University of California Los Angeles, 2011

Lagoudas, Dimitris C, Professor
Aerospace Engineering
PHD, Lehigh University, 1986

Lagoudas, Dimitris C, Professor
Materials Science & Engr
PHD, Lehigh University, 1986

Lagoudas, Magdalini Z, Instructional Associate Professor
College of Engineering
MS, Lehigh University, 1986

Laha, Nilanjana, Assistant Professor
Statistics
PHD, University of Washington, Seattle, 2019

Lahey, Joanna N, Professor
Public Service and Administration
PHD, Massachusetts Inst of Technology, 2005

Laine, Glen A, Professor
Vet Physiology & Pharmacology
PHD, Texas A&M University, 1980

Lake, Justin, Associate Professor
Global Languages & Cultures
PHD, Harvard University, 2008

Lakkimsetti, Chaitanya, Associate Professor
Sociology
PHD, University of Wisconsin, 2010

Lamb, Erik, Adjunct Professor of Law
School of Law
JD, University of Chicago-Illinois, 2008

Lamb, Graham C, Professor
Animal Science
PHD, Kansas State University, 1998

Lamb, Will M, Professor
Geology & Geophysics
PHD, University of Wisconsin, Madison, 1987

Lamphere, Jenna A, Assistant Professor
Maritime Studies
PHD, University of Tennessee Knoxville, 2016

Lampo, Sandra S, Clinical Professor
Marketing
PHD, Texas A&M University, 2001

Lan, Shoufeng, Assistant Professor
Mechanical Engineering
PHD, Georgia Institute of Technology, 2017

Landsberg, Joseph M, Professor
Mathematics
PHD, Duke University, 1990

Lane, Katy E, Clinical Assistant Professor
Management
PHD, Texas A&M University, 2022

Langari, Reza, Regents Professor
Mechanical Engineering
PHD, University of California at Berkeley, 1991

Lange, Kristina Paradowski, Clinical Assistant Professor
Vet Small Animal Clinical Sc
VetMB, Texas A&M College of Veterinary Medicine, 2015
DVM, Texas A&M University, 2015

Langsten, Kendall, Clinical Assistant Professor
Veterinary Pathobiology
DVM, University of Missouri, Columbia, 2017
PHD, Wake Forest University, 2024

Laporte, Catharina M, Instructional Professor
Anthropology
PHD, Texas A&M University, 2013

Laprea Bigott, Marcelo, Professor of the Practice
Petroleum Engineering
PHD, Texas A&M University, 1979

Lara Ruiz, Jorge Horacio J, Instructional Associate Professor
College of Engineering
PHD, Texas A&M University, 2005

Lara, Jose, Clinical Faculty
College of Nursing
DNP, University of Texas at Arlington, 2022

Lara-Alecio, Rafael, Professor
Educational Psychology
PHD, University of Utah, 1991

Lariscy, Joseph, Associate Professor
Sociology
PHD, University of Texas Austin, 2013

Larkin, Ryan E, Principal Lecturer
Accounting
MAC, University of Utah, 2002

Larson, David R, Professor
Mathematics
PHD, University of California at Berkeley, 1976

Larson, Ruth E, Associate Professor
Global Languages & Cultures
PHD, Yale University, 1991

Lassila, Dennis R, Professor
Accounting
PHD, University of Minnesota, 1981

Latimer, Steven Brannon, Adjunct Professor of Law
School of Law
JD, Southern Methodist University, 2007

Laurienti, Jerry, Lecturer
International Affairs
PHD, University of Denver, 2006

Lavender, Jordan, Assistant Professor
Philosophy
PHD, University of Notre Dame, 2022

Lavernia, Enrique J, Professor
Mechanical Engineering
PHD, Massachusetts Institute of Technology, 1986

Lavernia, Enrique J, Professor
Materials Science & Engr
PHD, Massachusetts Institute of Technology, 1986

Lavy, Sarel, Professor
Construction Science
PHD, Technion - Israel Institute of Technology, Israel, 2006

Law, Christopher, Assistant Professor
Management
MBA, Brigham Young University, 2016

Law, Wendy N, Instructional Associate Professor
School of Law
JD, Texas Wesleyan University, 2003

Lawhon, Sara D, Professor
Veterinary Pathobiology
DVM, Texas A&M University, 1997
PHD, North Carolina State University, 2003

Lawing, Michelle, Associate Professor
Ecology and Conservation Biology
PHD, Indiana University, 2012

Lawler, John, Professor
Kinesiology & Sport Management
PHD, University of Florida, 1991

Lawley, Mark A, Professor
Industrial & Systems Engineering
PHD, University of Illinois at Urbana-Champaign, 1995

Lawo-Sukam, Alain, Professor
Global Languages & Cultures
PHD, University of Illinois at Urbana-Champaign, 2005

Lawrence, Timothy I, Assistant Professor
Educational Psychology
PHD, Prairie View A&M University, 2022

Lawson, Keely Nichole, Clinical Faculty
Comprehensive Dentistry
DDS, University of Texas Dental Branch, 1990

Laya, Juan Carlos, Associate Professor
Geology & Geophysics
PHD, Durham University, United Kingdom, 2012

Layne, Christopher, Professor
International Affairs
PHD, University of California at Berkeley, 1981

Layton, Astrid C, Associate Professor
Mechanical Engineering
PHD, Georgia Institute of Technology, 2014

Layton, James S, Clinical Assistant Professor
Pediatric Dentistry
DDS, Baylor College of Dentistry, 1977

Lazaro, Alberto, Clinical Faculty
Comprehensive Dentistry
BDS, University of Barcelona, 2019

Le Graverend, Jean-Briac B, Associate Professor
Aerospace Engineering
PHD, Ecole Nationale de Mécanique et d'Aérotechnique, France, 2013

Le, Aurora, Associate Professor
Health Behavior
PHD, Indiana University School of Public Health-Bloomington, 2020

Le, Carson, Adjunct Professor of Law
School of Law
JD, The George Washington University, 2013
LLM, NYU School of Law, 2014

LeClair, Cassandra, Clinical Associate Professor
Management
PHD, University of Nebraska Lincoln, 2008

LeMire, Sarah, Professor
English
MLS, University of Michigan, 2012

Lea, Jemila, Lecturer
School of Law
JD, Atlanta's John Marshall Law School, 2013

Leatham, David J, Professor
Agricultural Economics
PHD, Perdue University, 1983

Leboeuf, Brigitte L, Instructional Associate Professor
Biology
PHD, Texas A&M University, 2009

Lechuga, Vicente M, Associate Professor
Educ Admn & Human Resource Dev
PHD, University of Southern California, 2005

Ledbetter, William Ronald, Professor of the Practice
Multidisciplinary Engineering
BS, Texas A&M University, 1975

Ledford, Chris, Instructional Associate Professor
Maritime Studies
MS, Texas A&M University at Corpus Christi, 2003

Lee, Cha Bum, Associate Professor
Mechanical Engineering
PHD, Gwangju Institute of Science and Technology, 2012

Lee, Chanam, Professor
Land Arch & Urban Planning
PHD, University of Washington, 2004

Lee, Christopher P, Instructional Associate Professor
Biology
PHD, Texas A&M University, 2014

Lee, David M, Professor
Physics & Astronomy
PHD, Yale University, 1959

Lee, Dong Joon, Associate Professor
Information & Operations Mgmt
PHD, Florida State University, 2015

Lee, Edward J, Instructional Associate Professor
Chemistry
PHD, University of Virginia at Charlottesville, 2011

Lee, Eric Young, Assistant Professor
Management
DBA, University of Georgia, 2021

Lee, Grace, Assistant Professor
Nutrition
PHD, Texas Tech University, 2022

Lee, H Stephen, Instructional Professor
College of Pharmacy
PHARM D, University of Florida, 2004

Lee, Hannah Malcomb, Instructional Assistant Professor
Kinesiology & Sport Management
MS, Texas A&M University, 2016

Lee, Hwang, Instructional Assistant Professor
Geography
MS, University of Western Ontario, 2020

Lee, Hyun-Woo, Associate Professor
Kinesiology & Sport Management
PHD, Florida State University, 2014

Lee, Hyunyoung, Senior Lecturer
Computer Science & Engineering
PHD, Texas A&M University, 2001

Lee, Jaesung, Assistant Professor
Industrial & Systems Engineering
PHD, University of Wisconsin - Madison, 2022

Lee, Jong Jun, Instructional Assistant Professor
Mathematics
PHD, University of Maryland, 2014

Lee, Jong-in, Assistant Professor
College of Performance, Visualization & Fine Arts
PHD, Simon Fraser University, 2024

Lee, Jungjoo, Assistant Professor
Epidemiology & Biostatistics
PHD, University of Texas Health Science Center at Houston, 2025

Lee, Jungjoo, Assistant Professor
Environmental & Occptnl Hlth
PHD, Indiana University at Bloomington, 2023

Lee, Kelly, Clinical Associate Professor
Educational Psychology
PHD, University of Houston, 2016

Lee, Kiju, Associate Professor
Eng Tech & Ind Distribution
PHD, Johns Hopkins University, 2009

Lee, Kiju, Associate Professor
Mechanical Engineering
PHD, Johns Hopkins University, 2009

Lee, Miok, Senior Lecturer
Biochemistry & Biophysics
PHD, Seoul National University, Korea, 2008

Lee, Rebecca Wei, Instructional Assistant Professor
School of Engineering Medicine
MD, University of Texas Medical School at Houston, 2012

Lee, Ryang-Hwa, Associate Professor
College of Medicine
PHD, Pusan National University, South Korea, 2003

Lee, Sang Rae, Instructional Associate Professor
Mathematics
PHD, University of Oklahoma, 2012

Lee, Sumin, Assistant Professor
International Affairs
PHD, Rutgers University, 2022

Lee, Sungmin, Associate Professor
Land Arch & Urban Planning
PHD, Texas A&M University, 2018

Lee, Taeyoon, Instructional Assistant Professor
Ecology and Conservation Biology
PHD, University of Georgia, 2022

Lee, W. John, Professor
Petroleum Engineering
PHD, Georgia Institute of Technology, 1963

Lee, Yonghoon, Associate Professor
Management
PHD, INSEAD, 2015

Legako, Jerrad, Associate Professor
Animal Science
PHD, Texas Tech University, 2011

Legere, Rebecca Maria, Assistant Professor
Vet Large Animal Clinical Sc
DVM, Kansas State University, 2015

Legg, Matthew, Visiting Professor of the Practice
Management
MS, University of Southern California, 2022

Leggette, Holli R, Associate Professor
Ag Leadership, Educ & Comm
PHD, Texas A&M University, 2013

Lei, Jun, Associate Professor
Global Languages & Cultures
PHD, University of California at San Diego, 2015

Lei, Yuming, Associate Professor
Kinesiology & Sport Management
PHD, University of Wisconsin at Milwaukee, 2015

Leibert, Bruce, Clinical Associate Professor
College of Medicine
MD, Wayne State University School of Medicine, 1984

Leibowitz, Julian L, Professor
College of Medicine
MD, Albert Einstein College of Medicine, 1975
PHD, Albert Einstein College of Medicine, 1974

Leiderman, Daniil M, Instructional Associate Professor
College of Performance, Visualization & Fine Arts
PHD, Princeton University, 2016

Lele, Pushkar P, Professor
Chemical Engineering
PHD, University of Delaware, Newark, 2010

Lele, Tanmay P, Professor
Biomedical Engineering
PHD, Purdue University, 2002

Lemmons, Larry, Assistant Professor of the Practice
Communication & Journalism
PHD, Texas Tech University, 2021

Lemon, Edward, Research Assistant Professor
International Affairs
PHD, University of Exeter, 2016

Lemus, Sergio, Assistant Professor
Anthropology
PHD, University of Illinois at Urbana-Champaign, 2016

Lench, Heather C, Professor
Psychological & Brain Sciences
PHD, University of California Irvine, 2007

Lenfest, Scott E, Lecturer
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PHD, Texas A&M University, 2020

Lenz, Brandi, Instructional Assistant Professor
Geology & Geophysics
PHD, Ohio State University, 2021

Leonard, Mary Ellen, Lecturer
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BBA, Texas A&M University, 1986

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Leonard, Raymond, Assistant Professor
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PHD, Texas A&M University, 2023

Lepper, Marissa, Assistant Professor
Agricultural Economics
PHD, University of Pittsburgh, 2023

Leszczynska, Monika, Associate Professor
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JD, University of Bonn, 2016

Leunes, Arnold D, Senior Professor
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PHD, North Texas State College, 1969

Levent, Gizem, Assistant Professor
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PHD, Texas A&M University, 2019

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Civil & Environmental Engineering
MS, Texas A&M University, 2013

Lewis, Don, Professor of the Practice
Marketing
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Lewis, Heather Smolensky, Lecturer
Mechanical Engineering
MEN, North Carolina State University, 2000

Lewis, Phil, Professor
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PHD, North Carolina State University, 2009

Lewis, Rodney, Clinical Assistant Professor
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MD, The University of Texas Southwestern Medical Center, 1984

Lewis, Shirley, Clinical Associate Professor
Comprehensive Dentistry
MSD, Boston University, 2002

Leyk, Teresa S, Instructional Professor
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PHD, Australian National University, 1998

Leyk, Zbigniew, Professor of the Practice
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PHD, University of Warsaw, 1988

Leyva, Ivett A, Professor
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PHD, California Institute of Technology, 1999

Li, Dongying, Associate Professor
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PHD, University of Illinois - Champaign, 2016

Li, Fulin, Assistant Professor
Finance
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Li, Jianrong, Professor
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PHD, University of Hawaii at Manoa, 1997

Li, Liqing, Assistant Professor
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PHD, University of Illinois at Urbana - Champaign, 2020

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PHD, Nanjing University, 2022

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PHD, Peking University, 1996

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PHD, Texas A&M University, 1991

Li, Quan, Professor
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PHD, Florida State University, 1998

Li, Toby Xianyu, Assistant Professor
Management
PHD, Rice University, 2019

Li, Wanhe, Assistant Professor
Biology
PHD, Stony Brook University, 2011

Li, Wei, Professor
Land Arch & Urban Planning
PHD, University of California at Irvine, 2011

Li, Xin, Professor
College of Performance, Visualization & Fine Arts
PHD, Stony Brook University, 2008

Li, Yan, Assistant Professor
Industrial & Systems Engineering
PHD, Georgia Institute of Technology, 2024

Li, Yeping, Professor
Teaching, Learning & Culture
PHD, University of Pittsburgh, 1999

Li, Ying, Professor
Mechanical Engineering
PHD, University of Florida, 2007

Li, Zhenyu, Professor
Pharmaceutical Sciences
MD, Nantong University, 1989
PHD, Soochow University, 1997

Lian, Huiwen, Professor
Management
PHD, University of Waterloo, Canada, 2011

Liang, Hong, Professor
Mechanical Engineering
PHD, Stevens Institute of Technology, 1992

Liang, Hui, Professor
Diagnostic Sciences
DDS, Beijing Medical University, 1988
PHD, Beijing Medical University, 1992

Liang, Xiao, Assistant Professor
Civil & Environmental Engineering
PHD, University of California, Berkeley, 2016

Liberzon, Israel, Professor
College of Medicine
MD, Sackler Medical School, Tel Aviv University, Tel Aviv, Israel, 1987

Lichorad, Anna, Clinical Associate Professor
College of Medicine
MD, University of Texas Health Science Center at Houston, 1994

Lidbury, Jonathan A, Associate Professor
Vet Small Animal Clinical Sc
BVetM, University of Glasgow, 2002

Liew, Jeffrey C, Professor
Educational Psychology
PHD, Arizona State University, 2005

Lighfoot, Dawson, Adjunct Professor of Law
School of Law
JD, University of Houston, 2003

Light, Jessica, Professor
Ecology and Conservation Biology
PHD, Louisiana State University, 2005

Light, Katie Jo, Clinical Assistant Professor
College of Medicine
MD, Texas Tech University Health Sciences Center School of Medicine,
2020

Lightfoot, Robert H, Associate Professor of the Practice
Computer Science & Engineering
PHD, Texas A&M University, 2024

Lightweis-Goff, Jennifer Dorothy, Lecturer
English
PHD, University of Rochester, 2010

Ligler, Frances S, Professor
Biomedical Engineering
DSC, Oxford University, Oxford, UK, 2000
PHD, Oxford University, Oxford, UK, 1977

Ligler, George Todd, Professor
Multidisciplinary Engineering
PHD, University of Oxford, 1975

Lillard, Michael J, Clinical Assistant Professor
Comprehensive Dentistry
DDS, Baylor College of Dentistry, 1979

Lillvis, Joshua, Assistant Professor
Biology
PHD, Georgia State University, 2012

Lim, Phaik S, Senior Lecturer
Political Science
PHD, University of Houston, 2003

Lim, Soon Mi, Instructional Professor
Chemistry
PHD, Texas A&M University, 2006

Lim, Sue Yee, Assistant Professor
Vet Small Animal Clinical Sc
DVM, Universiti Putra Malaysia, 2009
PHD, Hokkaido University, 2014

Lim, Yi Sheng, Visiting Assistant Professor
Mathematics
PHD, University of Bath, 2023

Lima-Filho, Paulo, Professor
Mathematics
PHD, State University of New York at Stony Brook, 1989

Lin, Ju Ying, Clinical Assistant Professor
Periodontics
DDS, National Yang-Ming University, 2005

Lin, Ko-Yu W, Clinical Assistant Professor
Pediatric Dentistry
DDS, Kaohsiung Medical College, Taiwan, 1985

Lin, Paotai, Associate Professor
Electrical & Computer Eng
PHD, Northwestern University, 2009

Lin, Paotai, Associate Professor
Materials Science & Engr
PHD, Northwestern University, 2009

Lin, Sherry, Instructional Associate Professor
Health Policy & Management
PHD, Texas A&M University, 2015

Lin, Yuxuan Cosmi, Assistant Professor
Materials Science & Engr
PHD, Massachusetts Institute of Technology, 2019

Lindahl, Paul A, Professor
Chemistry
PHD, Massachusetts Institute of Technology, 1985

Linde, Sebastian, Associate Professor
Health Policy & Management
PHD, Purdue University, 2017

Lindquist, Isaac Alan, Visiting Assistant Professor
Psychological & Brain Sciences
PHD, University of Nebraska at Omaha, 2023

Line, Stephen, Clinical Assistant Professor
College of Medicine
DO, Western University of Health Sciences - College of Osteopathic
Medicine, 2018

Linhares Boakari, Yatta, Assistant Professor
Vet Large Animal Clinical Sc
DVM, Universidade Federal do Piaui, 2012
PHD, University of Kentucky, 2019

Linke, Patrick, Professor
Chemical Engineering
PHD, University of Manchester Institute of Science and Technology, 2001

Linke, Patrick, Professor
Chemical Engineering-Qatar Campus
PHD, University of Manchester Institute of Science and Technology, 2001

Linne, Paige K, Senior Lecturer
Animal Science
MS, Texas A&M University, 2017

Lintz, Leah E, Instructional Assistant Professor
Kinesiology & Sport Management
MS, Texas A&M University, 2003

Lipkin, Don M, Professor
Materials Science & Engr
PHD, University of California, Santa Barbara, 1996

Lipsmeyer, Christine S, Professor
Political Science
PHD, Vanderbilt University, 1999

Little, Charles D, Visiting Lecturer
Public Service and Administration
PHD, University of North Texas, 1985

Little, Dallas N, Professor
Civil & Environmental Engineering
PHD, Texas A&M University, 1979

Litzinger, John, Visiting Senior Lecturer
Construction Science
MBA, Santa Clara University, 1994

Liu, Bo, Lecturer
Global Languages & Cultures
PHD, University of Oklahoma, 2023

Liu, Chun-Hung, Associate Professor
Mathematics
PHD, Georgia Institute of Technology, 2014

Liu, Fei, Associate Professor
College of Medicine
PHD, Fourth Military Medical University, China, 2002

Liu, Hui, Associate Professor
Marine Biology
PHD, University of Alaska Fairbanks, 2006

Liu, Jiling, Clinical Associate Professor
Kinesiology & Sport Management
PHD, Texas A&M University, 2016

Liu, Philip L-F., Professor
Civil & Environmental Engineering
PHD, Massachusetts Institute of Technology, 1974

Liu, Shuyu, Professor
Soil & Crop Sciences
PHD, University of Missouri-Columbia, 2003

Liu, Sufang, Research Assistant Professor
Biomedical Sciences
MD, Henan Medical University, 2000
PHD, Zhengzhou University, China, 2014

Liu, Summer, Assistant Professor
Accounting
PHD, Arizona State University, 2023

Liu, Tie, Professor
Electrical & Computer Eng
PHD, University of Illinois, 2006

Liu, Wencai, Professor
Mathematics
PHD, Fudan University, 2015

Liu, Wenshe, Professor
Chemistry
PHD, University of California at Davis, 2005

Liu, Xiaoding, Associate Professor
Finance
PHD, University of Florida, 2012

Liu, Xiaohong, Professor
Atmospheric Sciences
PHD, Nanjing University, China, 1992

Liu, Xin, Assistant Professor
Mathematics
PHD, The Chinese University of Hong Kong, 2017

Liu, Yan, Professor
Marketing
PHD, Purdue University, 2010

Liu, Yang, Assistant Professor
Nuclear Engineering
PHD, North Carolina State University, 2018

Liu, Yina, Assistant Professor
Oceanography
PHD, Texas A&M University, 2013

Liu, Yong, Assistant Professor
Agricultural Economics
PHD, University of Guelph, 2019

Liu, Yuexin, Instructional Assistant Professor
Eng Tech & Ind Distribution
PHD, New Jersey Institute of Technology, 2022

Lo, Albert C, Clinical Assistant Professor
College of Medicine
MD, Tulane University School of Medicine, 1990

Lo, Hui-Wen, Professor
College of Medicine
PHD, University of Texas Health Science Center at Houston, 2002

Lockett, Landry L, Senior Lecturer
Ag Leadership, Educ & Comm
PHD, Texas A&M University, 2007

Lockhart, Bret James, Lecturer
Mathematics
MS, Texas A&M University, 2010

Lockhart, Mary E, Instructional Assistant Professor
Statistics
PHD, Texas A&M University, 2021

Locklear, Alyssa D, Instructional Professor
Kinesiology & Sport Management
MPH, Texas A&M University, 2003

Lockman, Alee, Assistant Professor
Health Policy & Management
PHD, Harvard University, 2023

Lofton, Waymon, Visiting Senior Lecturer
Construction Science
MAG, Texas A&M University, 1985

Logan, Linda L, Professor
Veterinary Pathobiology
DVM, Texas A&M University, 1976
PHD, University of California at Davis, 1987

Logan, Shaun M, Instructional Associate Professor
Biomedical Sciences
PHD, University of North Texas Health Science Center, 2009

Logan, Timothy S, Associate Professor
Atmospheric Sciences
PHD, University of North Dakota, 2014

Loguinov, Dmitri, Professor
Computer Science & Engineering
PHD, City University of New York, 2002

Lohrasbi, Hooman, Clinical Faculty
Comprehensive Dentistry
DDS, University of Tennessee HSC, 2008

London, Mara R, Instructional Professor
Civil & Environmental Engineering
PHD, The University of Texas at Austin, 2009

Long, Ashley M, Associate Professor
Rangeland, Wildlife and Fisheries Management
PHD, Texas A&M University, 2014

Long, Charles R, Professor
Animal Science
PHD, Texas A&M University, 1972

Long, Charles R, Professor
Vet Physiology & Pharmacology
PHD, University of Massachusetts, 1996

Loopstra, Carol A, Associate Professor
Ecology and Conservation Biology
PHD, North Carolina State University, 1992

Lopez Barrera, Emiliano, Assistant Professor
Agricultural Economics
PHD, Purdue University, 2021

Lopez, Ann, Adjunct Professor of Law
School of Law
JD, Texas Wesleyan University, 2010

Lopez, Christopher, Adjunct Professor of Law
School of Law
JD, Texas Southern University, 2014

Lopez, Jose Luis, Assistant Professor
Information & Operations Mgmt
MBA, Instituto Centroamericano de Administracion de Empresas, 2016

Lopez, Joseph, Associate Professor of the Practice
Communication & Journalism
PHD, The University of Texas at Austin, 2010

Lopez, Oscar, Professor of the Practice
Multidisciplinary Engineering
MS, University of California at Berkeley, 1988

Lopez, Roel R, Professor
Rangeland, Wildlife and Fisheries Management
PHD, Texas A&M University, 2001

Lopez-Dinardi, Marcelo, Associate Professor
Architecture
MS, Columbia University, New York, 2013

Loranger, Leigha M, Senior Lecturer
Eng Tech & Ind Distribution
MEN, Texas A&M University, 2020

Lord, Dominique, Professor
Civil & Environmental Engineering
PHD, University of Toronto, 2000

Lorenz, Sandra G, Clinical Associate Professor
Nutrition
MS, Texas A&M University, 2002

Loria Lepiz, Mauricio A, Clinical Associate Professor
Vet Small Animal Clinical Sc
DVM, Universidad Nacional de Costa Rica, 2000

Loring, Andrew J, Clinical Associate Professor
Marketing
PHD, Texas A&M University, 2021

Loureiro, Livia, Lecturer
Architecture
PHD, Texas A&M University, 2020

Love, Charles C, Professor
Vet Large Animal Clinical Sc
DVM, University of Missouri at Columbia, 1984
PHD, University of Pennsylvania, 1995

Lovelady, April, Instructional Associate Professor
School of Engineering Medicine
PHD, Texas A&M University, 2012

Lu, Dai, Associate Professor
Pharmaceutical Sciences
PHD, University of Connecticut, 2005

Lu, Mark Zhi, Associate Professor
Kinesiology & Sport Management
PHD, The Pennsylvania State University, 2016
PHD, East China Normal University, 2000

Lu, Mi, Professor
Electrical & Computer Eng
PHD, Rice University, 1987

Lu, Yongbo, Professor
Biomedical Sciences
MD, Qingdao University Medical College, 1994
PHD, University of Missouri at Kansas City, 2007

Lu, Zhipeng, Assistant Professor
Architecture
PHD, Texas A&M University, 2009

Lucas, Gary M, Professor
School of Law
JD, Tulane University, 2004

Lucas, Jim, Clinical Professor
College of Medicine
MD, Texas A&M University, 1997

Lucero, Jacob Elias, Assistant Professor
Rangeland, Wildlife and Fisheries Management
PHD, University of Montana, 2017

Lucero, Rodrick, Professor of the Practice
Teaching, Learning & Culture
PHD, Colorado State University, 2005

Lucio, Erick, Visiting Senior Lecturer
Construction Science
JD, Texas Tech University School of Law, 2005

Luco Echeverria, Fernando A, Associate Professor
Economics
PHD, Northwestern University, 2014

Luense, Lacey, Assistant Professor
Animal Science
PHD, University of Kansas Medical Center, 2012

Lugo, Catherine Serrano, Instructional Associate Professor
Chemistry
PHD, University of Utah, 2015

Luhan, Gregory Anthony, Professor
Architecture
PHD, Texas A&M University, 2016

Luhmann, Jonas, Associate Professor
Mathematics
PHD, Eidgenössische Technische Hochschule Zürich, 2016

Lum, Jason K, Visiting Lecturer
Public Service and Administration
JD, University of California at Berkeley, 2000

Lund, Randy S, Instructional Assistant Professor
Ag Leadership, Educ & Comm
PHD, Texas A&M University, 2022

Lunn, Lisa, Clinical Associate Professor
Vet Large Animal Clinical Sc
DVM, Kansas State University, 1999

Lunney, Joseph G, Professor
School of Law
JD, Stanford University, 1990
PHD, Tulane University, 2006

Luo, Weijia, Research Assistant Professor
College of Medicine
PHD, Texas A&M Health Sciences, 2012

Luo, Wen, Professor
Educational Psychology
PHD, Texas A&M University, 2007

Lupiani, Blanca M, Professor
Veterinary Pathobiology
PHD, University of Maryland-College Park, 1994

Lupoli, Shawn V, Instructional Assistant Professor
Computer Science & Engineering
MS, Towson University, 2004

Lusher, John David, Professor of the Practice
Electrical & Computer Eng
PHD, Texas A&M University, 2018

Lutkenhaus, Jodie L, Professor
Chemical Engineering
PHD, Massachusetts Institute of Technology, 2007

Luxemburg, Leon A, Associate Professor
Foundational Sciences
PHD, Texas A&M University, 1987

Lyle, Stacey D, Professor of the Practice
Civil & Environmental Engineering
PHD, University of Georgia, 2003

Lynch, Christian, Lecturer
Nutrition
MS, Texas A&M University, 2019

Lynch, Darrell W, Lecturer
Anthropology
PHD, University of Tennessee, 2014

Lyons, Luke C, Clinical Assistant Professor
Vet Physiology & Pharmacology
PHD, Texas A&M University, 2018

MATICH, PHILIP, Instructional Associate Professor
Marine Biology
PHD, Florida International University, 2014

Ma, Ping, Associate Professor
Health Behavior
PHD, Tulane University School of Public Health and Tropical Medicine, 2013

Ma, Qiaochu, Visiting Assistant Professor
Mathematics
PHD, UFR de Mathematiques, Universite de Paris, 2022

Ma, Xingmao, Professor
Civil & Environmental Engineering
PHD, Missouri University of Science and Technology, 2004

Mabbott, Samuel Bernard, Associate Professor
Biomedical Engineering
PHD, University of Manchester, Manchester Interdisciplinary Biocentre, 2012

MacDonald, David, Clinical Professor
Vet Large Animal Clinical Sc
DVM, University of Guelph, 1989

MacNamara, Annmarie E, Associate Professor
Psychological & Brain Sciences
PHD, Stony Brook University, 2013

MacNamara, Lawrence Trent, Associate Professor
History
PHD, Columbia University, 2015

Mackin, Robert S, Instructional Professor
Sociology
PHD, University of Wisconsin, Madison, 1998

Macon, Erica, Assistant Professor
Animal Science
PHD, University of Kentucky, 2021

Maddock, Jay E, Professor
Environmental & Occpnl Hlth
PHD, University of Rhode Island, 1999

Madrahimov, Sherzod T, Associate Professor
Division of Arts and Sciences-Qatar Campus
PHD, University of Illinois, 2012

Madsen, Christi K, Professor
Electrical & Computer Eng
PHD, Rutgers State University of New Jersey, 1996

Madsen, Jean A, Professor
Educ Admn & Human Resource Dev
PHD, The University of Kansas, 1986

Magalhaes, Tereza, Assistant Professor
Entomology
PHD, University of Miami, 2005

Maggard, Bryan, Senior Lecturer
Petroleum Engineering
PHD, Texas A&M University, 2000

Magill, Clint W, Professor
Plant Pathology & Microbiology
PHD, Cornell University, 1969

Magnuson, William J, Professor
School of Law
JD, Harvard University, 2009

Maguire, Christopher J, Lecturer
Eng Tech & Ind Distribution
MEN, Texas A&M University, 2020

Maguire, Jennifer, Clinical Assistant Professor
Pediatric Dentistry
BDS, Queen's University Belfast, 2013

Mahajan, Arvind, Professor
Finance
PHD, Georgia State University, 1980

Mahajan, Vanita, Principal Lecturer
Management
MBA, Texas A&M University, 1986

Mahal, Navreet Kaur, Instructional Assistant Professor
Horticultural Sciences
DAG, Iowa State University, 2018

Mahapatra, Rabi N, Professor
Computer Science & Engineering
PHD, Indian Institute of Technology, Kharagpur, 1992

Mahapatra, Rupak K, Professor
Physics & Astronomy
PHD, University of Minnesota, 2000

Maher, Brendan, Professor
School of Law
JD, Harvard University, 2000

Mahmood, Suleman, Instructional Assistant Professor
Computer Science & Engineering
PHD, University of Illinois at Urbana-Champaign, 2023

Mahmoud, Ahmed Mohamed, Senior Lecturer
Eng Tech & Ind Distribution
MS, Texas A&M University, 1990

Mahnke, Amanda H, Assistant Professor
College of Medicine
PHD, Tulane University, 2014

Mai, Bin, Assistant Professor
Eng Tech & Ind Distribution
PHD, The University of Texas at Dallas, 2006

Maich, Katherine Eva, Assistant Professor
Sociology
PHD, University of California, Berkeley, 2017

Maier, Matthias, Associate Professor
Mathematics
PHD, Ruprecht-Karls Universitat Heidelberg, Germany, 2015

Maitland, Duncan J, Senior Professor
Biomedical Engineering
PHD, Northwestern University, 1995

Majji, Manoranjan, Professor
Aerospace Engineering
PHD, Texas A&M University, 2009

Major, Dustin S, Clinical Assistant Professor
Vet Large Animal Clinical Sc
DVM, University of Georgia, 2013

Makens, Adrienne, Adjunct Professor of Law
School of Law
JD, University of Kansas, 2003

Malak, Richard J, Professor
Mechanical Engineering
PHD, Georgia Institute of Technology, 2008

Malala, Dina, Clinical Assistant Professor
Educational Psychology
PHD, University of Denver, 2022

Malave, Ceasar, Professor
Industrial & Systems Engineering
PHD, University of South Florida, 1987

Malcolm, Elizabeth, Clinical Assistant Professor
Vet Small Animal Clinical Sc
DVM, University of California, Davis, 2018

Malecha, Matthew L, Instructional Assistant Professor
Land Arch & Urban Planning
PHD, Texas A&M University, 2019

Malis, Matt, Assistant Professor
Political Science
PHD, New York University, 2022

Mallick, Bani K, Distinguished Professor
Statistics
PHD, University of Connecticut, 1994

Mallonee, Lisa F, Professor
Dental Hygiene
MPH, University of North Carolina at Chapel Hill, 2000

Mallory, Jason, Instructional Associate Professor
College of Performance, Visualization & Fine Arts
DMA, University of Iowa, 2014

Mandal, Arkajit, Assistant Professor
Chemistry
PHD, University of Rochester, 2021

Mandell, Laura C, Professor
English
PHD, Cornell University, 1992

Mander, John B, Professor
Civil & Environmental Engineering
PHD, University of Canterbury, 1984

Mandziuk, Tomasz, Visiting Assistant Professor
Mathematics
PHD, University of Warsaw, 2022

Manes, Christopher, Lecturer
English
PHD, University of Texas, Dallas, 2011

Mani, Kathiresh, Research Assistant Professor
College of Medicine
PHD, University of Madras, India, 2015

Manigrasso, Paul L, Adjunct Professor of Law
School of Law
JD, Texas A&M University, 2018

Manisseri Kalathil, Dileep, Associate Professor
Electrical & Computer Eng
PHD, University of Southern California, Los Angeles, 2014

Manjiyani, Shaila, Adjunct Professor of Law
School of Law
JD, Emory University, 2017

Mankin, Joseph M, Clinical Professor
Vet Small Animal Clinical Sc
DVM, University of Tennessee at Knoxville, 2007

Mann, Bryan, Clinical Associate Professor
Kinesiology & Sport Management
PHD, University of Missouri, 2003

Manuel, David J, Instructional Professor
Mathematics
MS, Texas A&M University, 1994

Maples, Katie, Clinical Assistant Professor
Vet Large Animal Clinical Sc
DVM, Texas A&M University, 2013

Marcantonio, Franco, Professor
Geology & Geophysics
PHD, Columbia University, 1994

March, Scott, Visiting Associate Professor of the Practice
College of Performance, Visualization & Fine Arts
BA, Baylor University, 1994

Marchesini, Manuela, Associate Professor
Global Languages & Cultures
PHD, Stanford University, 2000

Marcoulides, George A., Research Professor
Information & Operations Mgmt
EDD, University of California, 1987

Marek, Kristen Willingham, Instructional Associate Professor
Kinesiology & Sport Management
MS, Texas A&M University, 2014

Marianno, Craig M, Associate Professor
Nuclear Engineering
PHD, Oregon State University, 2000

Marin Thornton, Gabriela, Instructional Associate Professor
International Affairs
PHD, University of Miami, 2006

Marini, Francesca, Associate Professor
College of Performance, Visualization & Fine Arts
PHD, University of California at Los Angeles, 2005

Mark, Samuel E, Professor
Maritime Studies
PHD, Texas A&M University, 2000

Marklund, Leroy, Clinical Assistant Professor
College of Nursing
DNP, University of Alabama, 2015

Markovic, Milan, Professor
School of Law
JD, Georgetown University, 2006

Markson, Drew, Adjunct Professor of Law
School of Law
BS, New York University, 1996

Marlett, David, Adjunct Professor of Law
School of Law
JD, University of Texas, 1991

Marlow, Thomas, Assistant Professor
Sociology
PHD, Brown University, 2020

Maros, Marie, Assistant Professor
Industrial & Systems Engineering
PHD, KTH Royal Institute of Technology, 2019

Marouf, Fatma E, Professor
School of Law
JD, Harvard University, 2002

Marques, Tiago, Instructional Assistant Professor
Kinesiology & Sport Management
MA1, Faculty of Sports of University of Porto, 2016

Marraro, Anthony R, Principal Lecturer
Construction Science
MS, Texas A&M University, 1997

Marsh, Laura Elizabeth, Clinical Assistant Professor
College of Medicine
MD, Texas A&M Health Science Center College of Medicine, 2010

Marshall, Christopher, Professor
Marine Biology
PHD, University of Florida, 1997

Marshall, Jennifer L, Associate Professor
Physics & Astronomy
PHD, Ohio State University, 2006

Marthey, Daniel, Assistant Professor
Health Policy & Management
PHD, University of Maryland, 2022

Martin, Amy E, Professor
Civil & Environmental Engineering
PHD, University of California at Berkeley, 1997

Martin, June C, Instructional Associate Professor
Land Arch & Urban Planning
MS, University of Georgia, 2002
MPA, University of Georgia, 1991

Martin, Michael T, Senior Professor
Vet Large Animal Clinical Sc
DVM, Texas A&M University, 1968

Martin, Steven E, Clinical Associate Professor
Kinesiology & Sport Management
PHD, Texas A&M University, 2008

Martinez, Joanne Joanne, Clinical Faculty
Dental Hygiene
BS, Texas A&M University, 2003

Martinez, Michael, Adjunct Professor of Law
School of Law
JD, Texas Tech University, 2011

Martinez, Zachary M, Instructional Assistant Professor
Chemistry
PHD, Texas A&M University, 2022

Marvin, Ed, Adjunct Professor of Law
School of Law
JD, St. Mary's University, 2006

Mashburn, Jacob W, Instructional Assistant Professor
Mathematics
PHD, Texas A&M University, 2022

Mashoof, Sara, Lecturer
Biology
PHD, Texas A&M University, 2014

Mashuga, Chad V, Associate Professor of the Practice
Chemical Engineering
PHD, Michigan Technological University, 1999

Masri, Mohamad R, Professor
Mathematics
PHD, The University of Texas at Austin, 2005

Masters, Gilbert Alan, Professor of the Practice
Horticultural Sciences
CERT, American Institute of Floral Designers, 2024

Matarrita Cascante, David, Associate Professor
Rangeland, Wildlife and Fisheries Management
PHD, Pennsylvania State University, 2008

Mateos, Mariana, Associate Professor
Ecology and Conservation Biology
PHD, Rutgers, 2002

Mathew, Sanjay, Professor
College of Medicine
MD, Baylor College of Medicine, 1997

Mathieu, Olivier E, Research Associate Professor
Mechanical Engineering
PHD, University of Orleans, 2006

Mathis, Clay P, Professor
Animal Science
PHD, Kansas State University, 1998

Mathur, Vani A, Associate Professor
Psychological & Brain Sciences
PHD, Northwestern University, 2012

Matthews, Sharon D, Clinical Professor
Teaching, Learning & Culture
PHD, New Mexico State University, 2007

Mattis, Peter, Visiting Professor of the Practice
International Affairs
BDS, University of Washington, 2005

Matusevich, Laura F, Professor
Mathematics
PHD, University of California at Berkeley, 2002

Mauldin, Betsy L, Clinical Assistant Professor
College of Nursing
PHD, The University of Texas at Tyler, 2021

Mawk, Elmo J, Instructional Associate Professor
Chemistry
PHD, Texas A&M University, 1999

Maxa, Tara Nicole, Lecturer
College of Nursing
MSN, Texas A&M University, 2021

Maxwell, Steven A, Instructional Professor
College of Medicine
PHD, University of Texas Health Science Center at Houston, 1985

May, Larry W, Instructional Assistant Professor
Physics & Astronomy
PHD, Texas A&M University, 2015

Mayer, Richard John, Professor of the Practice
Industrial & Systems Engineering
PHD, Texas A&M University, 1988

Mays, Glennon B, Clinical Professor
Vet Large Animal Clinical Sc
DVM, Texas A&M University, 1976

McAdams, Daniel A, Professor
Mechanical Engineering
PHD, The University of Texas at Austin, 1999

McBride, Matthew D, Clinical Faculty
Orthodontics
DDS, Baylor College of Dentistry, 2008

McCall, Christopher, Associate Professor of the Practice
Construction Science
BS, Texas A&M University, 1982

McCarl, Bruce A, Senior Professor
Agricultural Economics
PHD, The Pennsylvania State University, 1973

McCarroll, David R, Associate Professor of the Practice
College of Engineering
BS, Texas A&M University, 1984

McCloskey, Aarika, Visiting Lecturer
Construction Science
JD, Southern Methodist University, 2014

McConnell, George D, Associate Professor
College of Performance, Visualization & Fine Arts
PHD, University of Minnesota, 2011

McCord, Carly E, Clinical Associate Professor
Educational Psychology
PHD, Texas A&M University, 2013

McCord, Carly E, Clinical Associate Professor
College of Medicine
PHD, Texas A&M University, 2013

McCord, Gary C, Clinical Professor
College of Medicine
MD, University of Texas Medical Branch, 1983

McCoul, Melissa D, Lecturer
English
PHD, University of Notre Dame, 2017

McCoy, John Robert, Adjunct Professor of Law
School of Law
JD, University of Houston, 1981

McCreedy, Dylan A, Assistant Professor
Biology
PHD, Washington University, St. Louis, 2013

McDaniel, Stephen W, Senior Professor
Marketing
PHD, University of Arkansas, 1979

McDonald, Stephen H, Clinical Associate Professor
Comprehensive Dentistry
DDS, Baylor College of Dentistry, 1980

McDonald, Thomas J, Professor
Environmental & Occpnl Hlth
PHD, Texas A&M University, 1988

McDougall, Mary P, Professor
Biomedical Engineering
PHD, Texas A&M University, 2004

McElroy, Audrey P, Professor
Poultry Science
PHD, Texas A&M University, 1998

McFarland, Jacob A, Associate Professor
Mechanical Engineering
PHD, Texas A&M University, 2013

McFarland, Ken P, Clinical Associate Professor
Management
PHD, Pepperdine University, 2018

McGee, Russell O, Instructional Associate Professor
Biological & Agricultural Eng
MEN, Texas A&M University, 1997

McGlone, Kevin Joseph, Senior Lecturer
History
PHD, Texas A&M University, 2016

McGowan, Anne B, Instructional Professor
Construction Science
MS, Texas A&M University, 1976

McGowan, Annie L, Associate Professor
Accounting
PHD, University of North Texas, 1994

McGrath, Paul A, Assistant Lecturer
Ag Leadership, Educ & Comm
MA, Marist College, 2012

McGreal, Paul Eugene, Visiting Professor
Management
JD, Dedman School of Law, Southern Methodist University, 1992
LLM, Yale Law School, 1994

McGregor, Alistair, Professor
College of Medicine
PHD, University of Glasgow, 1994

McGuire, Sean, Professor
Accounting
PHD, University of Georgia, 2008

McInnes, Kevin J, Professor
Soil & Crop Sciences
PHD, Kansas State University, 1985

McInnis, Verity G, Instructional Associate Professor
History
PHD, Texas A&M University, 2012

McKay, Garrett, Associate Professor
Civil & Environmental Engineering
PHD, University of Colorado Boulder, 2017

McKee, Susan J, Clinical Assistant Professor
College of Nursing
DNP, The University of Texas at Tyler, 2019

McKenzie, Johnathan T, Instructional Assistant Professor
College of Engineering
PHD, Texas A&M University, 2022

McKeown, Debra, Professor
Teaching, Learning & Culture
PHD, Vanderbilt University, 2012

McKinney, Matt, Instructional Associate Professor
English
PHD, University of Nevada at Reno, 2017

McKinnon, Sean, Assistant Professor
Global Languages & Cultures
PHD, Indiana University, Bloomington, 2020

McKnight, Catherine Marie, Adjunct Professor of Law
School of Law
JD, Washington University, 1995

McKnight, Jason R, Clinical Associate Professor
College of Medicine
MD, University of Texas Health Science Center - Houston, 2014

McKnight, Thomas D, Professor
Biology
PHD, University of Georgia, 1983

McLaughlin, Darlene Warrick, Clinical Associate Professor
College of Medicine
MD, University of Texas Southwestern Medical School, 1980

McLaughlin, Timothy D, Professor
College of Performance, Visualization & Fine Arts
MS, Texas A&M University, 1994

McLaughlin, William Preston, Lecturer
International Affairs
MA1, United States Army War College, 2003

McMillan, Margaret R, Clinical Assistant Professor
Comprehensive Dentistry
DDS, Northwestern University Dental School, 1987

McMillan, Thomas Bruce, Professor of the Practice
Marketing
MBA, Texas A&M University, 2004

McNair, Michael, Assistant Professor
Land Arch & Urban Planning
PHD, Kansas State University, 2023

McNamara, Ann M, Professor
College of Performance, Visualization & Fine Arts
PHD, University of Bristol, UK, 2000

McNamara, Sarah J, Associate Professor
History
PHD, University of North Carolina at Chapel Hill, 2016

McNeill, Elisa H, Instructional Professor
Health Behavior
PHD, Texas A&M University, 2010

McNiel, Amanda Danielle, Clinical Faculty
Dental Hygiene
MS, Texas A&M College of Dentistry, 2009

McQueen, Vanicha, Associate Professor of the Practice
Marine Engineering Technology
BS, US Merchant Marine Academy, 1988

McShane, Mike, Professor
Biomedical Engineering
PHD, Texas A&M University, 1999

McVay, Duane A, Professor
Petroleum Engineering
PHD, Texas A&M University, 1994

McVay, Matilda W, Instructional Professor
Mechanical Engineering
PHD, Texas A&M University, 1996

McWhorter, Alton G, Clinical Professor
Pediatric Dentistry
DDS, University of Tennessee, 1979

Medina Cetina, Zenon, Associate Professor
Civil & Environmental Engineering
PHD, John Hopkins University, 2007

Medina, Mario A, Professor
Multidisciplinary Engineering
PHD, Texas A&M University, 1992

Medina, Raul F, Professor
Entomology
PHD, University of Maryland, College Park, 2005

Meehan, D. Nathan, Professor
Petroleum Engineering
PHD, Stanford University, 1989

Meek, Thomas D, Professor
Biochemistry & Biophysics
PHD, Pennsylvania State University, 1981

Meer, Jonathan, Professor
Economics
PHD, Stanford University, 2009

Mehlhoff, Isaac Douglas, Assistant Professor
Political Science
PHD, University of North Carolina at Chapel Hill, 2023

Mehra, Kaajal, Clinical Assistant Professor
Comprehensive Dentistry
DDS, University of Tennessee Health Science Center, 2009

Mehrotra, Neelu, Adjunct Professor of Law
School of Law
MPS, University of Hartford, 2020

Mehta, Shivam Yogesh, Clinical Assistant Professor
Orthodontics
BDS, College of Dental Sciences and Research Centre, 2011
MSD, University of Connecticut, 2021

Meier, Magnus F, Senior Lecturer
Eng Tech & Ind Distribution
MA, University of Duisburg-Essen, 1998

Meisinger, Brett, Lecturer
Poultry Science
MS, Texas A&M University, College Station, 2022

Melconian, Dan, Professor
Physics & Astronomy
PHD, Simon Fraser University, 2006

Melo Guerrero, Grace, Assistant Professor
Agricultural Economics
PHD, University of Georgia, 2017

Mendelson, Shahar, Professor
Mathematics
PHD, Technion, Israel Institute of Technology, 1998

Mendoza Diaz, Noemi V, Assistant Professor
Eng Tech & Ind Distribution
PHD, Texas A&M University, 2006

Mendoza, Itza, Assistant Professor
Civil & Environmental Engineering
PHD, Texas A&M University, 2007

Menet, Jerome, Associate Professor
Biology
PHD, Louis Pasteur University, 2003

Menon, Arya, Assistant Professor
Electrical & Computer Eng
PHD, Oregon State University, 2021

Menon, Jyothi U., Associate Professor
Biomedical Engineering
PHD, University of Texas, Southwestern Medical Center, 2014

Mentz, George Sherwood, Adjunct Professor of Law
School of Law
JD, Loyola University, 1996

Menzel, Christopher P, Professor
Philosophy
PHD, University of Notre Dame, 1984

Menzies, Max D, Instructional Associate Professor
Agricultural Economics
PHD, Texas A&M University, 2017

Merchant, Amit Ashok, Professor of the Practice
Computer Science & Engineering
MS, Carnegie Mellon University, 1989

Mercieca, Jennifer R, Professor
Communication & Journalism
PHD, University of Illinois at Urbana-Champaign, 2003

Mercier, Richard S, Professor
Civil & Environmental Engineering
PHD, Massachusetts Inst of Technology, 1985

Merhi, Camille, Clinical Assistant Professor
College of Medicine
MD, University of Balamand, 2016

Merlin, Christine, Professor
Biology
PHD, University Pierre and Marie Curie, 2006

Messina, Vincent, Adjunct Professor of Law
School of Law
JD, Baylor University, 1985

Mestrovic, Stjepan G, Professor
Sociology
PHD, Syracuse University, 1982

Metters, Richard D, Professor
Information & Operations Mgmt
PHD, University of North Carolina at Chapel Hill, 1993

Meyer, Geoffrey, Visiting Instructional Professor
School of Engineering Medicine
PHD, The University of Western Australia, 1982

Meyer, Michelle Annette, Associate Professor
Land Arch & Urban Planning
PHD, Colorado State University, 2013

Mhoon, Kendra, Visiting Professor
Information & Operations Mgmt
PHD, University of Texas, Houston, 2008

Michael, Meg, Clinical Instructor
College of Nursing
MSN, Texas A&M University, 2023

Michalski, Krzysztof A, Associate Professor
Electrical & Computer Eng
PHD, University of Kentucky, 1981

Michaudel, Justine N., Instructional Associate Professor
Chemistry
PHD, Scripps Research, 2019

Michaudel, Quentin, Associate Professor
Chemistry
PHD, The Scripps Research Institute, 2015

Midgette, Allegra Joie, Assistant Professor
Psychological & Brain Sciences
PHD, University of California at Berkeley, 2019

Miglietta, Maria P, Associate Professor
Marine Biology
PHD, Duke University, 2005

Milby-Blackledge, Ally, Instructional Assistant Professor
Poultry Science
PHD, Texas A&M University, 2024

Miles, Audrey, Clinical Faculty
Comprehensive Dentistry
DDS, UMKC School of Dentistry, Kansas City, MO, 2016

Miles, Bryant W, Principal Lecturer
Biochemistry & Biophysics
PHD, Texas A&M University, 1998

Miles, Richard B, Professor
Aerospace Engineering
PHD, Stanford University, 1972

Miller, Amp W, Professor
Comprehensive Dentistry
DDS, Baylor College of Dentistry, 1973

Miller, Barbara H, Clinical Faculty
Comprehensive Dentistry
DDS, Baylor College of Dentistry, 1983

Miller, Brent V, Professor
Geology & Geophysics
PHD, Dalhousie University, Canada, 1997

Miller, Glen, Instructional Professor
Philosophy
PHD, University of North Texas, 2015

Miller, Renee, Clinical Assistant Professor
College of Nursing
DNP, Murray State University, 2017

Miller, Robert, Clinical Professor
Information & Operations Mgmt
PHD, University of Arkansas at Fayetteville, 2006

Miller, Scott L, Professor
Electrical & Computer Eng
PHD, University of California at San Diego, 1988

Miller, Scott S, Lecturer
Industrial & Systems Engineering
MBA, University of Houston, 1996

Miller, Stephen J, Professor
Global Languages & Cultures
PHD, The University of Chicago, 1976

Miller, Thomas Ray, Adjunct Assistant Professor
Health Policy & Management
PHD, The University of Iowa, 2007

Miller, Warren Fletcher, Professor of the Practice
Nuclear Engineering
PHD, Northwestern University, 1973

Mills, Regina, Associate Professor
English
PHD, The University of Texas at Austin, 2018

Milman, Robert M, Clinical Associate Professor
College of Medicine
MD, Texas A&M University, 1986

Minjarez, Solem, Instructional Assistant Professor
Global Languages & Cultures
PHD, Arizona State University, 2018

Mioduszewski, Saskia, Professor
Physics & Astronomy
PHD, University of Tennessee, 1999

Mir, Nordine, Professor
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PHD, University of Rouen, France, 1998

Mirabolfathi, Nader, Research Associate Professor
Physics & Astronomy
PHD, University of Paris XI, 2002

Miranda, Rajesh C, Professor
College of Medicine
PHD, University of Rochester, 1989

Mirhosseini, Negin, Instructional Assistant Professor
Veterinary Pathobiology
BVetM, Shahid Bahonar University, 2004
PHD, Texas A&M University College of Veterinary Medicine, 2011

Misemer, Sarah M, Professor
College of Performance, Visualization & Fine Arts
PHD, University of Kansas, 2001

Mishra, Ashok K, Professor
Civil & Environmental Engineering
PHD, Indian Institute of Technology-Kharagpur, 2007

Mishra, Jayshree, Research Associate Professor
Pharmaceutical Sciences
PHD, Indian Institute of Technology, Kharagpur, 2005

Mishra, Srikanta, Research Professor
Petroleum Engineering
PHD, Stanford University, 1987

Misra, Siddharth, Professor
Petroleum Engineering
PHD, The University of Texas at Austin, 2015

Mitchell, Angela M, Associate Professor
Biology
PHD, University of North Carolina at Chapel Hill, 2013

Mitchell, Brett M, Professor
College of Medicine
PHD, Georgia Health Sciences University, 2003

Mitchell, Stacey A, Clinical Professor
College of Nursing
DNP, University of Tennessee Health Science Center, 2006

Mittal, Jeetain, Professor
Chemical Engineering
PHD, The University of Texas at Austin, 2007

Miyamoto, Tetsuya, Research Assistant Professor
College of Medicine
PHD, Nagoya University, 2004

Mize, Britt A, Professor
English
PHD, The University of North Carolina at Chapel Hill, 2003

Mjelde, James W, Professor
Agricultural Economics
PHD, University of Illinois at Urbana-Champaign, 1985

Moats, Jason B, Professor of the Practice
Health Policy & Management
PHD, Texas A&M University, 2013

Mochinushi, Yumiko, Instructional Associate Professor
Psychological & Brain Sciences
PHD, Florida Institute of Technology, 2019

Moczygemba, Margie M, Research Associate Professor
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PHD, State University of New York at Stony Brook, 1997

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Modgil, Mehronissa, Adjunct Professor of Law
School of Law
JD, University of Oklahoma, 2014

Mody, Rustom K, Senior Lecturer
Eng Tech & Ind Distribution
MBA, University of Houston, 1986

Moffitt, Cassie, Clinical Assistant Professor
College of Nursing
MSN, University of Texas-Tyler, 2017

Mohamed, Mohamed Adel Ahmed, Clinical Assistant Professor
Orthodontics
BDS, Suez Canal University, 2005
PHD, Suez Canal University, 2018

Mohamedali, Khalid, Research Assistant Professor
College of Medicine
PHD, Rice University, 1994

Mohammed, Haitham Hussien, Assistant Professor
Rangeland, Wildlife and Fisheries Management
DVM, Assiut University, Assiut, Egypt, 2003
PHD, Auburn University, 2015

Mohanty, Binayak P, Professor
Biological & Agricultural Eng
PHD, Iowa State University, 1992

Mohiuddin, Waqar, Instructional Associate Professor
Mechanical Engineering
PHD, Texas A&M University, 2008

Mohtar, Rabi H, Professor
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PHD, Michigan State University, 1994

Momcilovic, Petar, Associate Professor
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PHD, Columbia University, 2003

Monagas-Valentin, Pedro, Lecturer
Biochemistry & Biophysics
BS, University of Puerto Rico-Mayagüez, 2020

Monks, Samantha, Clinical Faculty
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BSN, Texas A&M University, 2019

Monocello, Lawrence, Assistant Professor
Anthropology
PHD, The University of Alabama, 2022

Monroe, Mary B, Associate Professor
Biomedical Engineering
PHD, Texas A&M University, 2013

Montague, Marcia L, Clinical Associate Professor
Educational Psychology
PHD, Texas A&M University, 2009

Montemayor, Benjamin Neil, Assistant Professor
Health Behavior
PHD, University of Kentucky, 2020

Montgomery, William D, Visiting Associate Professor of the Practice
Biomedical Engineering
MS, US Army War College, 2016

Moodie, Andrew, Assistant Professor
Geography
PHD, Rice University, 2020

Moore, Andrew L, Assistant Professor of the Practice
Marine Engineering Technology
MS, Texas Tech University, 2018

Moore, Janie M, Associate Professor
Biological & Agricultural Eng
PHD, Purdue University, 2015

Moore, Lori L, Associate Professor
Ag Leadership, Educ & Comm
PHD, University of Florida, 2003

Moore, Michael, Instructional Associate Professor
Computer Science & Engineering
PHD, Texas A&M University, 2007

Moorman, Chelsea Gayle, Clinical Faculty
Dental Hygiene
BS, Texas A&M College of Dentistry, 2016

Mora, Andrea Leigh, Clinical Associate Professor
College of Pharmacy
PHARM D, University of Houston College of Pharmacy, 2007

Morakinyo, Tobi, Assistant Professor
Geography
PHD, City University of Hong Kong, HKSAR, 2016

Moran, Rachel, Assistant Professor
Biology
PHD, University of Illinois at Urbana-Champaign, 2019

Moran, Rachel, Professor
History
PHD, The Pennsylvania State University, 2013

Moran, Rachel Fay, Professor
School of Law
JD, Yale University, 1981

Moreira Trindade, Maria Alice, Clinical Assistant Professor
Information & Operations Mgmt
PHD, Faculty of Economics, University of Porto, 2021

Moreira, Rosana G, Professor
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PHD, Michigan State University, 1989

Moreira-Tamayo, Oscar, Professor of the Practice
Electrical & Computer Eng
PHD, Texas A&M University, 1996

Moreiras, Alberto, Professor
Global Languages & Cultures
PHD, University of Georgia, 1987

Morel, Jim E, Professor
Nuclear Engineering
PHD, The University of New Mexico, 1979

Moreno, Kara L, Clinical Assistant Professor
Vet Small Animal Clinical Sc
DVM, University of Minnesota, 2005

Moreno, Michael R, Associate Professor
School of Engineering Medicine
PHD, Texas A&M University, 2009

Moreno, Michael R, Associate Professor
Mechanical Engineering
PHD, Texas A&M University, 2009

Moreno-Centeno, Erick, Associate Professor
Industrial & Systems Engineering
PHD, University of California at Berkeley, 2010

Morgan, Timothy J, Clinical Assistant Professor
Management
PHD, Texas A&M University, 2019

Morgan, Trey, Lecturer
Construction Science
MBA, American Military University, 2017

Morganti, Dianna E. B., Instructional Associate Professor
Multidisciplinary Engineering
MLS, University of North Texas, 2003

Moridis, George J, Professor
Petroleum Engineering
PHD, Texas A&M University, 1987

Morley, Kristine E, Senior Lecturer
Management
MS, Texas A&M University, 2008

Morley, Paul, Professor
Vet Large Animal Clinical Sc
DVM, Washington State University, 1989
PHD, Western College of Veterinary Medicine, University of Saskatchewan, 1995

Mormann, Felix, Professor
School of Law
JD, University of Passau, 2010
LLM, University of California Berkeley, 2008

Morris, Elissa, Senior Lecturer
College of Engineering
PHD, Texas A&M University, 2019

Morris, Jeffrey M, Professor
College of Performance, Visualization & Fine Arts
PHD, University of North Texas, 2007

Morris, Theresa M, Professor
Sociology
PHD, Texas A&M University, 2000

Morrison, Angela D, Professor
School of Law
JD, University of Nevada Las Vegas, 2005

Morrison, Jenny K, Visiting Lecturer
Public Service and Administration
PHD, New York University, 2008

Morrison, Robert Dean, Professor of the Practice
Maritime Business Administration
PHD, University of Texas Rio Grande Valley, 2015
PHD, Indiana State University, 2008

Morriss, Andrew P, Professor
Bush School of Government and Public Service
JD, University of Texas at Austin, 1984
PHD, Massachusetts Institute of Technology, 1994

Mortari, Daniele, Professor
Aerospace Engineering
PHD, University La Sapienza of Rome, 1980

Mortazavi, Bobak Jack, Associate Professor
Computer Science & Engineering
PHD, University of California, Los Angeles, 2014

Morte, Matthew Kyle, Lecturer
College of Engineering
PHD, Texas A&M University, 2019

Morton, Aaron, Assistant Professor
Kinesiology & Sport Management
PHD, University of Florida, 2018

Morvant, Angelique E, Lecturer
Mathematics
PHD, Texas A&M University, 2024

Moscarello, Justin M, Associate Professor
Psychological & Brain Sciences
PHD, University of California, Santa Barbara, 2010

Moser, Melanie J, Instructional Professor
Marine and Coastal Environmental Science
PHD, University of Houston, 1977

Mosley, Buffy, Assistant Professor
Marketing
PHD, Emory University, 2020

Mostafavidarani, Ali, Professor
Civil & Environmental Engineering
PHD, Purdue University, 2013

Motta, Erick, Assistant Professor
Entomology
PHD, University of Texas, 2019

Motte, Kristy, Instructional Assistant Professor
College of Medicine
EDD, Liberty University, Lynchburg, VA, 2019

Moulton, Matt, Assistant Professor
Biology
PHD, University of Utah, 2017

Moyna, Maria I, Professor
Global Languages & Cultures
PHD, University of Florida, 2000

Mu, Ren, Professor
International Affairs
PHD, Michigan State University, 2004

Mudd, Dennis R, Visiting Associate Professor of the Practice
Civil & Environmental Engineering
MEN, Texas A&M University, 1987

Muehlmann, Brigitte Wudernitz, Adjunct Professor of Law
School of Law
PHD, Vienna University of Economics, 1995

Muhammad, Melissa, Adjunct Professor of Law
School of Law
JD, University of Miami, 1996
LLM, University of Miami, 2000

Muhl, Rika M, Lecturer
Rangeland, Wildlife and Fisheries Management
PHD, Texas A&M University, 2018

Mukherjee, Rajiv, Assistant Professor
Information & Operations Mgmt
PHD, The University of Texas at Austin, 2013

Mukherji, Suresh Kumar, Clinical Faculty
Diagnostic Sciences
MD, Georgetown University School of Medicine, 1987

Mulcahy-Spence, Angela M, Clinical Associate Professor
College of Nursing
PHD, University of Texas at Tyler, 2018

Mulenga, Albert, Professor
Veterinary Pathobiology
PHD, Hokkaido University, 1999

Muliana, Anastasia Hanifah, Professor
Mechanical Engineering
PHD, Georgia Institute of Technology, 2004

Mulkerrins, Martin, Instructional Assistant Professor
Kinesiology & Sport Management
MAR, University College Dublin, 2018

Mullet, John E, Professor
Biochemistry & Biophysics
PHD, University of Illinois at Urbana-Champaign, 1981

Mulva, Stephen Patrick, Research Professor
Construction Science
PHD, Georgia Institute of Technology, 2004

Mulvaney, Timothy M, Professor
School of Law
JD, Villanova University, 2004

Muneoka, Ken, Professor
Vet Physiology & Pharmacology
PHD, University of California at Irvine, 1983

Munevar, Kimberlyn K, Assistant Professor
Accounting
PHD, University of California Berkeley, 2024

Mungan, Murat, Professor
School of Law
JD, George Mason University, 2011

Munns, Thomas G., Lecturer
Eng Tech & Ind Distribution
MEN, Texas A&M University, 1982

Munoz Vazquez, Aldo Jonathan, Instructional Associate Professor
Multidisciplinary Engineering
PHD, Centro de Investigacion y de Estudios Avanzados, 2017

Munoz, Eva, Visiting Lecturer
Educ Admn & Human Resource Dev
PHD, Northcentral University, 2017

Munro, Robert, Adjunct Professor of Law
School of Law
JD, University of Iowa, 1973
PHD, University of Florida, 1981

Munster, Clyde L, Senior Professor
Biological & Agricultural Eng
PHD, North Carolina State University, 1992

Murano, Elsa A, Professor
Food Science and Technology
PHD, Virginia Tech, 1990

Murchison, David F, Clinical Faculty
Comprehensive Dentistry
DDS, Baylor College of Dentistry, 1980

Murchison, David F, Clinical Faculty
Orthodontics
DDS, Baylor College of Dentistry, 1980

Murphrey, Theresa P, Professor
Ag Leadership, Educ & Comm
PHD, Texas A&M University, 1997

Murphy, John F, Instructional Professor
School of Law
JD, University of Texas, 1993

Murphy, Niall P, Associate Professor
Biomedical Sciences
PhD, University of Cambridge, 1995

Murphy, Timothy H, Senior Professor
Ag Leadership, Educ & Comm
PHD, Texas A&M University, 1995

Murphy, William J, Professor
Vet Integrative Biosciences
PHD, The University of Tulsa, 1997

Murray, Ny'Eshia N, Assistant Professor of the Practice
Maritime Transportation
BS, Texas A&M University at Galveston, 2012

Murray, Seth C, Professor
Soil & Crop Sciences
PHD, Cornell University, 2008

Murzi, Homero, Associate Professor
Multidisciplinary Engineering
PHD, Virginia Tech, 2016

Musgrove, Liz, Instructional Assistant Professor
Maritime Studies
MA, University of North Texas, 2005

Musoba, Glenda D, Associate Professor
Educ Admn & Human Resource Dev
PHD, Indiana University, 2004

Musser, Jeffrey M, Visiting Research Professor
Veterinary Pathobiology
DVM, Virginia Tech, 1989
PHD, North Carolina State University, 2000

Musser, Siegfried M, Professor
College of Medicine
PHD, California Institute of Technology, 1996

Muthuchamy, Mariappan, Professor
College of Medicine
PHD, Mudarai Kamaraj University, India, 1991

Muthupillai, Raja, Research Professor
School of Engineering Medicine
PHD, Mayo Graduate School, 1997

Muzahid, Abdullah Al, Associate Professor
Computer Science & Engineering
PHD, University of Illinois at Urbana-Champaign, 2012

Myers, Taylor, Clinical Assistant Professor
Vet Large Animal Clinical Sc
DVM, The Ohio State University, 2020

Mykoniatis, Nikolaos, Instructional Associate Professor
Maritime Business Administration
PHD, The Pennsylvania State University, 2013

Myles, Kevin M, Professor
Entomology
PHD, Colorado State University, 2003

Myser, Scott A, Clinical Faculty
Orthodontics
DDS, Texas A&M University, 2008

Naas, Haitem, Clinical Faculty
Comprehensive Dentistry
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DOC, Boston University School of Dental Medicine, 2016

Nabity, Mary B, Professor
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DVM, Cornell University, 2002
PHD, Texas A&M University, 2010

Nag, Jayson, Adjunct Professor of Law
School of Law
JD, Texas Wesleyan University, 2011

Nag, Melinda, Adjunct Professor of Law
School of Law
JD, Texas Wesleyan University, 2006

Nagarathnam, Bharani B, Instructional Associate Professor
Eng Tech & Ind Distribution
PHD, Texas A&M University, 2016

Nagashima, Lucy, Clinical Faculty
Comprehensive Dentistry
BDS, Faculdade de Odontologia da Universidade de Sao Paulo (Brazil), 2002
MSD, Texas A&M College of Dentistry, 2008

Nagro, Sarah A., Associate Professor
Educational Psychology
EDD, Johns Hopkins University, 2015

Nagy, Dusty Weaver, Clinical Professor
Vet Large Animal Clinical Sc
DVM, Cornell University, 1995
PHD, University of Missouri-Columbia, 2006

Nair, Dimple, Senior Lecturer
English
MA, University of Mysore (India), 1997

Nair, Madhu K, Professor
Diagnostic Sciences
PHD, University of Gothenburg, Sweden, 2003
DMD, University of Pittsburgh, 2000

Nair, Radhika P, Instructional Associate Professor
Foundational Sciences
PHD, University of Nevada, 2009

Najafi, Amirali, Assistant Professor
Civil & Environmental Engineering
PHD, University of Illinois Urbana-Champaign, 2021

Nakamura, Brian, Associate Professor of the Practice
Public Service and Administration
PHD, University of Southern California, 2002

Nam, Ji Won, Instructional Assistant Professor
Land Arch & Urban Planning
PHD, Texas A&M University, 2023

Nan, Beiyan, Associate Professor
Biology
PHD, Peking University, 2007

Nana Yobo, Lucien, Assistant Professor
Geology & Geophysics
PHD, University of Houston, 2021

Naqvi, Farheen, Research Assistant Professor
Nuclear Engineering
PHD, Institut fur Kemphysik, 2011

Naraghi, Mohammad, Professor
Aerospace Engineering
PHD, University of Illinois at Urbana Champaign, 2009

Narayanan, Krishna R, Professor
Electrical & Computer Eng
PHD, Georgia Institute of Technology, 1998

Narcowich, Francis J, Professor
Mathematics
PHD, Princeton University, 1972

Nascentes Alves, Ibere, Professor of the Practice
Petroleum Engineering
PHD, University of Tulsa, 1991

Nash, Lynne, Adjunct Professor of Law
School of Law
JD, Texas A&M University, 2016

Nasrabadi, Hadi, Associate Professor
Petroleum Engineering
PHD, Imperial College London, United Kingdom, 2006

Nassar, Yara, Lecturer
Construction Science
MS, University of Florida, 2023

Nastasi, Michael A, Professor
Nuclear Engineering
PHD, Cornell University, 1986

Natarajarathinam, Malini, Professor
Eng Tech & Ind Distribution
PHD, University of Alabama, 2007

Natsios, Andrew S, Executive Professor
International Affairs
MPA, Harvard University, 1979

Navjeevan, Manu, Assistant Professor
Economics
MA, University of California - Los Angeles, 2019

Nayga, Rodolfo, Professor
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PHD, Texas A&M University, 1991

Ndeffo Mbah, Martial Loth, Assistant Professor
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PHD, University of Cambridge, UK, 2010

Neal, Adrienne, Visiting Lecturer
Kinesiology & Sport Management
MA, Sam Houston State University, 2009

Neal, Colleen R, Clinical Assistant Professor
College of Medicine
MNU, The University of Oklahoma Health Science Center, 2011

Neal, Gabriel A, Clinical Professor
College of Medicine
MD, The University of Oklahoma, 2001

Nealon, Bill H, Lecturer
Maritime Studies
MED, Lamar University, 2018

Nederman, Cary J, Professor
Political Science
PHD, York University, 1983

Needleman, Alan, University Distinguished Professor
Mechanical Engineering
PHD, Harvard University, 1971

Neff, Brandon, Visiting Lecturer
International Affairs
MA1, Harvard University, 2006

Neff, Patrick, Visiting Assistant Professor
Kinesiology & Sport Management
PHD, Texas A&M University, 2024

Nekrashevych, Volodymyr, Professor
Mathematics
PHD, Taras Shevchenko National University, Russia, 1998

Nelick, Timothy F, Senior Professor
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BS, Texas A&M University at Galveston, 1987

Nelson, Chad E, Instructional Associate Professor
Ag Leadership, Educ & Comm
PHD, Texas A&M University, 2019

Nelson, Garrett S, Clinical Faculty
Oral & Maxillofacial Surgery
DDS, University of California at Los Angeles, 1999

Nepal, Bimal P, Professor
Eng Tech & Ind Distribution
PHD, Wayne State University, 2005

Netherland, Beth M, Instructional Associate Professor
Kinesiology & Sport Management
MS, Miami University, 2000

Neubert, John Kim, Professor
Biomedical Sciences
DDS, UC Los Angeles, 1994
PHD, UC Los Angeles, 2000

Neuman, Benjamin W, Professor
Biology
PHD, University of Reading, UK, 2001

Nevels, Robert D, Professor
Electrical & Computer Eng
PHD, University of Mississippi, 1979

Newcomb, Deanna, Visiting Lecturer
Agricultural Economics
BBA, Stephen F Austin State University, 1992

Newell Rogers, Martha K, Research Professor
College of Medicine
PHD, University of Colorado, 1987

Newell-Fugate, Anne E, Assistant Professor
Vet Physiology & Pharmacology
DVM, North Carolina State University, 2004
PHD, University of Illinois at Urbana-Champaign, 2012

Newman, Galen D, Professor
Land Arch & Urban Planning
PHD, Clemson University, 2010

Newman, Joseph T, Visiting Associate Professor
Biomedical Sciences
PHD, University of Texas Medical School at San Antonio, 1973

Newman, Julie, Professor
Geology & Geophysics
PHD, University of Rochester, 1993

Newman, Neal F, Professor
School of Law
JD, Howard University, 1998

Newton, Karah F, Lecturer
Land Arch & Urban Planning
BA, University of Buffalo - The State University of New York, 2000
MPA, New York University Wagner, 2014

Ng, Desmond W, Associate Professor
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PHD, University of Illinois at Urbana-Champaign, 2001

Nghiem, Peter P, Associate Professor
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DVM, Texas A&M University, 2008
PHD, George Washington University, 2014

Nguyen Reeves, Oanh, Lecturer
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MSN, University of Texas Arlington, 2021

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Comprehensive Dentistry
DDS, University of Southern California, 2007

Nguyen, Elizabeth Tien, Clinical Assistant Professor
College of Medicine
MD, Texas A&M Health Science Center College of Medicine, 2017

Nguyen, Khanh, Assistant Professor
Computer Science & Engineering
PHD, University of California, Los Angeles, 2019

Nguyen, Mario H., Adjunct Professor of Law
School of Law
JD, Harvard University, 2017

Nguyen, Nguyen P., Assistant Professor
Educational Psychology
MA, Texas Tech University, 2020

Nguyen, Tung, Instructional Associate Professor
Computer Science & Engineering
PHD, Iowa State University, 2013

Nha, Hyon Cheol, Professor
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PHD, Seoul National University, 2002

Ni, Yang, Associate Professor
Statistics
PHD, Rice University, 2015

Nichols, Jeff, Visiting Lecturer
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MS, Texas A&M University, 2020

Nickelsen, Tetiana, Research Assistant Professor
College of Medicine
PHD, Mykhailo Kotsyubynskiy Vinnytsia Pedagogical University, Ukraine, 2015

Nie, Lina, Assistant Professor
History
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Nie, Xiaofeng, Associate Professor
Eng Tech & Ind Distribution
PHD, University of Buffalo - The State University of New York, 2008

Nielsen, Erik Russell, Instructional Associate Professor
Atmospheric Sciences
PHD, Colorado State University, 2019

Nielsen-Gammon, John W, Professor
Atmospheric Sciences
PHD, Massachusetts Institute of Technology, 1990

Nikolov, Zivko L, Professor
Biological & Agricultural Eng
PHD, Iowa State University, 1986

Ning, Ning, Assistant Professor
Statistics
PHD, University of California, Santa Barbara, 2018

Nippe, Michael, Associate Professor
Chemistry
PHD, University of Wisconsin, Madison, 2011

Nnaji, Chuma, Associate Professor
Construction Science
PHD, Oregon State University, 2018

Nobre, Lionel Pimentel, Adjunct Professor of Law
School of Law
JD, Pontifical Catholic University of Sao Paulo, 2003
LLM, University of Miami, 2004

Nock, Adam, Assistant Professor
College of Medicine
PHD, University of Vermont, 2018

Nodurft, Dawson T, Instructional Associate Professor
Physics & Astronomy
PHD, Texas A&M University, 2019

Noh, Youngre, Assistant Professor
Land Arch & Urban Planning
PHD, Texas A&M University, 2015

Nohe, Elizabeth B, Visiting Senior Lecturer
Eng Tech & Ind Distribution
PHD, Walden University, 2020

Noormets, Asko, Professor
Ecology and Conservation Biology
PHD, Michigan Technological University, 2001

Norman, Keri N, Associate Professor
Vet Integrative Biosciences
PHD, Texas A&M University, 2010

Norris, William J, Associate Professor
International Affairs
PHD, Massachusetts Institute of Technology, 2010

Norris-Parish, Shannon, Assistant Professor
Ag Leadership, Educ & Comm
PHD, Texas A&M University, 2020

North, Frank, Instructional Assistant Professor
College of Pharmacy
PHARM D, Texas Southern University, 2011

North, Simon W, Professor
Chemistry
PHD, University of California at Berkeley, 1995

Nosbisch, Michael, Visiting Senior Lecturer
Construction Science
MS, The George Washington University, 2001

Noshadravan, Arash, Associate Professor
Civil & Environmental Engineering
PHD, University of Southern California, 2011

Noureldin, Amal Ahmed K, Professor
Public Health Sciences
BDS, Cairo University, Egypt, 1993
PHD, Cairo University, Egypt, 2007

Nowka, Kevin J., Professor of the Practice
Electrical & Computer Eng
PHD, Stanford University, 1995

Nowotarski, Christopher J, Associate Professor
Atmospheric Sciences
PHD, Pennsylvania State University, 2013

Noynaert, Samuel F, Associate Professor of the Practice
Petroleum Engineering
PHD, Texas A&M University, 2013

Ntaimo, Lewis, Professor
Industrial & Systems Engineering
PHD, University of Arizona, 2004

Nunez Ocasio, Kelly, Assistant Professor
Atmospheric Sciences
PHD, Pennsylvania State University, 2021

Nunn, Alex, Associate Professor
School of Law
JD, Vanderbilt University, 2016
PHD, Yale University, 2021

Nurick, Leigh Ann, Clinical Associate Professor
Dental Hygiene
MS, Texas A&M University, 2014

Nutan, Mohammad T, Associate Professor
Pharmaceutical Sciences
PHD, Texas Tech University, 2004

Nutor, Benjamin Kofi, Assistant Professor
Anthropology
PHD, University of Texas at Austin, 2021

Nwabueze, Uchenna M, Instructional Professor
Maritime Business Administration
PHD, Sheffield Hallam University, City Campus, 1995

Nyakiti, Luke, Instructional Associate Professor
Marine Engineering Technology
PHD, Texas Tech University, 2008

Nyman, Elizabeth A, Associate Professor
Maritime Studies
PHD, Florida State University, 2010

O'Brien, Douglas M., Lecturer
Geography
MAG, Texas State University, 1994

O'Donnell, Paul, Professor of the Practice
Communication & Journalism
BS, Bowling Green State University, 1981

O'Farrell, Mary Ann, Associate Professor
English
PHD, University of California at Berkeley, 1991

O'Hara, Todd, Professor
Vet Integrative Biosciences
DVM, University of Wisconsin, 1992
PHD, Virginia Commonwealth University, 1988

O'Kane, Jason M, Professor
Computer Science & Engineering
PHD, University of Illinois at Urbana-Champaign, 2007

O'Neill, Zheng, Professor
Mechanical Engineering
PHD, Oklahoma State University, 2004

O'Reilly, Kathleen M, Professor
Geography
PHD, University of Iowa, 2002

O'Sullivan, Kevin M, Associate Professor
English
MLS, The University of Texas at Austin, 2009

OBriant, Deborah L, Clinical Associate Professor
College of Nursing
DNP, Vanderbilt University, 2020

Obeidat, Raghad, Clinical Assistant Professor
Public Health Sciences
BDS, Jordan University of Science and Technology Faculty of Dentistry, 2008

Oberhelman, Steven M, Professor
Bush School of Government and Public Service
PHD, University of Minnesota, 1981

Obrien, Michael J, Professor
Architecture
MAR, Virginia Tech, 1982

Odinet, Christopher, Professor
School of Law
JD, Louisiana State University, 2010

Odom, Summer Felton, Associate Professor
Ag Leadership, Educ & Comm
PHD, Texas A&M University, 2011

Ofil, Theresa U, Instructional Assistant Professor
College of Pharmacy
PHARMD, University of Houston, 2004

Ogilvie, Andrea M, Instructional Associate Professor
College of Engineering
PHD, Virginia Tech, 2017

Ogletree, Quinita D, Clinical Assistant Professor
Teaching, Learning & Culture
PHD, Texas A&M University, 2012

Ohsfeldt, Robert L, Professor
Health Policy & Management
PHD, University of Houston, 1983

Ojeda, Lizette, Associate Professor
Educational Psychology
PHD, University of Missouri at Columbia, 2009

Okoroafor, Rita, Assistant Professor
Petroleum Engineering
PHD, Stanford University, 2021

Okumoto, Sakiko, Associate Professor
Soil & Crop Sciences
PHD, Tubingen University, 2003

Oladokun, Samson, Assistant Professor
Poultry Science
DAG, Dalhousie University, Canada, 2022

Olarte, Walter E, Professor of the Practice
Multidisciplinary Engineering
PHD, Texas A&M University, 2021
MEN, Texas A&M University, 2005

Olenick, Maria, Associate Professor
College of Nursing
PHD, Widener University, 2012

Oliva, Rogelio, Professor
Information & Operations Mgmt
PHD, Massachusetts Institute of Technology, 1996

Olivera, Francisco, Associate Professor
Civil & Environmental Engineering
PHD, The University of Texas at Austin, 1996

Olmos, Brenda, Clinical Faculty
College of Nursing
PHD, University of Oklahoma Health Science Center, 2023

Olvera, Hugo, Lecturer
Mathematics
MS, The University of Texas Pan American, 2014

Omoumi, Farid H, Instructional Assistant Professor
School of Engineering Medicine
MD, Tabriz University of Medical Science, 2003
PHD, The University of Oklahoma, 2022

Onder, Harun, Associate Professor
Agricultural Economics
PHD, Florida International University, 2010

Onder, Ilayda, Assistant Professor
Political Science
PHD, Pennsylvania State University, 2024

Onder, Stefanie, Assistant Professor
International Affairs
PHD, London School of Economics and Political Science, 2011

Ong, Madeline, Assistant Professor
Management
PHD, University of Michigan, 2017

Onica, Constantin, Instructional Associate Professor
Mathematics
PHD, Texas A&M University, 2005

Opat, Kelsi, Instructional Assistant Professor
Ag Leadership, Educ & Comm
PHD, Texas Tech University, 2020
LLM, Friends University, 2015

Oran, Elaine, University Distinguished Professor
Aerospace Engineering
PHD, Yale University, 1972

Orozco, Elizabeth, Lecturer
Educational Psychology
MED, Texas A&M University, 2012

Orr, Joseph M, Associate Professor
Psychological & Brain Sciences
PHD, University of Michigan, 2011

Ortega, Bertin, Instructional Associate Professor
Global Languages & Cultures
PHD, Stanford University, 1986

Ory, Marcia G, Professor
Environmental & Occpnl Hlth
PHD, Purdue University, 1976

Osborn, Jo, Assistant Professor
Anthropology
PHD, University of Michigan, 2022

Osborne, Lisa Anne, Associate Professor of the Practice
Multidisciplinary Engineering
BS, University of Texas at Austin, 1984

Osburn, Wendy Lynn, Assistant Professor of the Practice
Horticultural Sciences
BFA, University of North Texas, 1992

Osburn, Wesley N, Associate Professor
Animal Science
PHD, University of Nebraska at Lincoln, 1996

Ostrovskaya, Natela G, Instructional Associate Professor
College of Engineering
PHD, Texas A&M University, 2005

Oswald, John D, Professor
Entomology
PHD, Cornell University, 1991

Ottman, Rebecca D, Assistant Professor
Maritime Studies
PHD, Indiana University Bloomington, 2021

Ou, Paul, Clinical Associate Professor
College of Medicine
MD, University of Texas Health Science Center, 1994

Ouyang, Hongjiao, Associate Professor
Endodontics
DMD, University of Pittsburgh, 2008
PHD, University of Michigan, 2000

Over, Defne, Assistant Professor
Sociology
PHD, Cornell University, 2017

Overbye, Thomas J, Professor
Electrical & Computer Eng
PHD, University of Wisconsin-Madison, 1991

Ovissipour, Reza, Assistant Professor
Food Science and Technology
PHD, Washington State University, 2017
PHD, Tarbiat Modares University, 2010

Owens, Christopher R, Assistant Professor
Health Behavior
PHD, Indiana University-Bloomington, 2020

Owusu, Portia, Assistant Professor
English
PHD, University of London, 2016

Ozcan, Hande, Visiting Assistant Professor
Materials Science & Engr
PHD, Texas A&M University, 2020

Ozerov, Oleg V, Professor
Chemistry
PHD, University of Kentucky, 2000

Ozkul, Altay, Lecturer
English
PHD, Iowa State University, 2024

Paal, Stephanie G, Associate Professor
Civil & Environmental Engineering
PHD, Georgia Institute of Technology, 2013

Pacek, Alexander C, Professor
Political Science
PHD, University of Illinois at Urbana-Champaign, 1991

Padron, Yolanda, Professor
Educational Psychology
PHD, University of Houston, 1985

Paetzold, Ramona L, Professor
Management
JD, Indiana University, 1990
PHD, Indiana University, 1979

Paez de Quintero, Diana L, Instructional Professor
Civil & Environmental Engineering
PHD, University of Michigan, 1997

Page, Robin L, Associate Professor
College of Nursing
PHD, The University of Texas, 2006

Pagilla, Prabhakar R, Professor
Mechanical Engineering
PHD, University of California at Berkeley, 1996

Paine, Fiona, Assistant Professor
Finance
PHD, Massachusetts Institute of Technology, 2025

Pakhotina, Natalia, Instructional Associate Professor
Economics
PHD, University of Florida, 2010

Pal, Raj Kumar, Assistant Professor
Mechanical Engineering
PHD, University of Illinois at Urbana-Champaign, 2015

Palakurthi, Srinath, Professor
Pharmaceutical Sciences
PHD, Indian Institute of Chemical Technology, 2000

Palazzolo, Alan B, Professor
Mechanical Engineering
PHD, University of Virginia, 1981

Palermo, Samuel M, Professor
Electrical & Computer Eng
PHD, Stanford University, 2007

Palma, Jose, Assistant Professor
Teaching, Learning & Culture
PHD, University of Minnesota, 2021

Palma, Marco A, Professor
Agricultural Economics
PHD, University of Florida, 2005

Palmer, Clare A, Professor
Philosophy
PHD, University of Oxford, 1993

Palmer, Richard C, Senior Lecturer
Construction Science
BS, Texas A&M University, 1988

Palos, Edward A, Clinical Assistant Professor
Comprehensive Dentistry
DDS, Texas A&M University, 2012

Pals, Heili, Associate Professor
Sociology
PHD, Stanford University, 2006

Pan, Heng, Associate Professor
Mechanical Engineering
PHD, University of California-Berkeley, 2009

Panahi, Ladan M, Clinical Associate Professor
College of Pharmacy
PHARM D, University of Houston College of Pharmacy, 2008

Panchang, Vijaykumar G, Professor
Ocean Engineering
PHD, University of Maine, 1985

Pandey, Gaurav, Associate Professor
Eng Tech & Ind Distribution
PHD, The University of Michigan, 2014

Pandita, Tej K, Research Professor
College of Medicine
PHD, Panjab University, Chandigarh, India, 1980

Panin, Vladislav M, Professor
Biochemistry & Biophysics
PHD, Moscow State University, 1990

Panina, Daria, Clinical Professor
Management
PHD, Rutgers University, 2002

Pantuso, Terri B, Instructional Associate Professor
English
PHD, The University of Texas at San Antonio, 2009

Paolini, Michael Adam, Instructional Assistant Professor
School of Engineering Medicine
MD, Baylor College of Medicine, 2014

Paouris, Grigorios, Professor
Mathematics
PHD, University of Crete, 2004

Papanikolas, Matthew A, Professor
Mathematics
PHD, Brown University, 1998

Papovich, Casey J, Professor
Physics & Astronomy
PHD, Johns Hopkins University, 2002

Pappu, Madhav, Clinical Associate Professor
Information & Operations Mgmt
PHD, University of Tennessee, 1999

Pardo, Michelle Ciszak, Adjunct Professor of Law
School of Law
JD, Catholic University, 1997

Paredes Tobar, Lenin Marcelo, Associate Professor
Ocean Engineering
PHD, University of Sao Paulo, Sao Paulo, Brazil, 2012

Paredes-Sabja, Daniel, Associate Professor
Biology
PHD, Oregon State University, 2009

Parel, Stephen M, Clinical Faculty
Comprehensive Dentistry
DDS, Medical College of Virginia, 1969

Parihar, Arun, Lecturer
Ocean Engineering
MEN, University of Houston, 2008

Parish, Janet T, Clinical Professor
Marketing
PHD, University of Alabama, 2002

Parish, Nancy B, Instructional Assistant Professor
Communication & Journalism
PHD, University of Florida, 2013

Park, Doyoung, Assistant Professor
Agricultural Economics
PHD, University of Colorado Boulder, 2019

Park, Jangho, Assistant Professor
Industrial & Systems Engineering
PHD, Virginia Tech, Blacksburg, 2021

Park, John, Professor
Agricultural Economics
PHD, Texas A&M University, 1996

Park, Kyeong, Professor
Marine and Coastal Environmental Science
PHD, College of William and Mary, 1993

Park, William D, Professor
Biochemistry & Biophysics
PHD, University of Florida, 1977

Park, Yong Jong, Clinical Faculty
Orthodontics
DDS, Seoul National University, 2000

Parker Allen, Sarah, Clinical Associate Professor
Comprehensive Dentistry
DDS, Baylor College of Dentistry, 2010

Parker, Dawn R, Clinical Professor
Teaching, Learning & Culture
PHD, Texas A&M University, 1997

Parker, Jason C, Professor
History
PHD, University of Florida, 2002

Parmar, Simrit, Associate Professor
College of Medicine
MS, Northwestern University, 2004

Parra Carrasquer, Carlos, Clinical Associate Professor
Periodontics
DDS, Universitat Internacional de Catalunya, 2009

Parrish, David, Associate Professor of the Practice
College of Performance, Visualization & Fine Arts
MS, Texas A&M University, 1995

Parry, Melanie, Lecturer
Global Languages & Cultures
MA, University of Arizona, 2005

Parsaei, Hamid R, Professor
Industrial & Systems Engineering
PHD, University of Texas Arlington, 1984

Paruchuri, Srikanth, Professor
Management
PHD, Columbia University, 2004

Pashmforoosh, Roya, Assistant Professor
Educational Psychology
PHD, Texas A&M University, 2021

Passmore, Ashley A, Instructional Assistant Professor
Global Languages & Cultures
PHD, University of Chicago, 2007

Pate, Michael B, Professor
Mechanical Engineering
PHD, Purdue University, 1982

Patel, Rupande, Clinical Faculty
Pediatric Dentistry
DDS, Baylor College of Dentistry, 1991

Patel, Simmi, Clinical Associate Professor
Public Health Sciences
DDS, University of Texas Health Science Center at San Antonio, 2001

Pathakis, Kristy, Assistant Professor
Political Science
PHD, University of California, San Diego, 2020

Patil, Bhimanagouda S, Professor
Horticultural Sciences
PHD, Texas A&M University, 1994

Patillo, Dawn, Adjunct Professor of Law
School of Law
MS, Catholic University of America, 2016

Patin, David, Adjunct Professor of Law
School of Law
JD, Texas Wesleyan University, 2010

Patino, Isabella, Instructional Assistant Professor
Health Behavior
MPH, Texas A&M University, 2020

Patrick, Charles W, Professor of the Practice
Biomedical Engineering
PHD, Rice University, 1994

Patron-Vargas, Jasmin, Assistant Professor
Teaching, Learning & Culture
PHD, Michigan State University, 2022

Patterson, Adam P, Clinical Professor
Vet Small Animal Clinical Sc
DVM, Mississippi State University, 2001

Patterson, Albert E, Assistant Professor
Eng Tech & Ind Distribution
PHD, University of Illinois at Urbana-Champaign, 2021

Patterson, Carly A, Clinical Associate Professor
Vet Physiology & Pharmacology
DVM, University of Illinois, 2011

Patterson, Meg Stiefel, Associate Professor
Health Behavior
PHD, Texas A&M University, 2016

Patterson, William Travis, Adjunct Professor of Law
School of Law
JD, University of Texas at Austin, 2012

Pattison, Kalani K, Instructional Associate Professor
English
PHD, Baylor University, 2016

Paudyal, Sushil, Assistant Professor
Animal Science
PHD, Colorado State University, 2018

Payne, Michael B, Clinical Assistant Professor
Diagnostic Sciences
DDS, Baylor College of Dentistry, 1981

Payne, Stephanie C, Professor
Psychological & Brain Sciences
PHD, George Mason University, 2000

Peacock, Walter Gillis, Professor
Land Arch & Urban Planning
PHD, University of Georgia, 1986

Pearlstein, Rosanna, Lecturer
Mathematics
PHD, University of Massachusetts Amherst, 1998

Pearson, Mariah, Clinical Assistant Professor
Vet Large Animal Clinical Sc
DVM, Lincoln Memorial University, 2018

Peddicord, Kenneth L, Senior Professor
Nuclear Engineering
PHD, University of Illinois, 1972

Pedraza, Ricardo, Visiting Senior Lecturer
Construction Science
MS, Texas A&M University - Kingsville, 2013

Peeples, Joshua K, Assistant Professor
Electrical & Computer Eng
PHD, University of Florida, 2022

Peery, Lori, Visiting Senior Lecturer
Construction Science
BA, University of Arizona Global Campus formerly Ashford University, 2012

Peguero, Felipe E. E., Assistant Professor
Agricultural Economics
PHD, Louisiana State University, 2018

Pegues, Michael, Adjunct Professor of Law
School of Law
JD, Tulane University, 1991

Pehlivan, Hatice, Senior Lecturer
Chemical Engineering
MS, Izmir Institute of Technology, 2013

Pei, ZJ, Professor
Industrial & Systems Engineering
PHD, University of Illinois, 1995

Pellois, Jean-Philippe, Professor
Biochemistry & Biophysics
PHD, University of Houston, 2002

Penalver, Maria, Visiting Associate Professor of the Practice
Architecture
MAR, Universidad de Alicante, 2014

Peng, Jingxi, Lecturer
Land Arch & Urban Planning
MLA, Texas A&M University, 2022

Peng, Xiyu, Assistant Professor
Statistics
PHD, Iowa State University, 2021

Peng, Xu, Associate Professor
College of Medicine
MD, The Medical College of Tongji University, 2015
PHD, Pekng University, China, 2000

Pennington, James D, Instructional Associate Professor
Chemistry
PHD, University of Michigan, 1998

Penrose, Mary M, Professor
School of Law
JD, Pepperdine University, 1993

Penry, Jason, Professor of the Practice
Kinesiology & Sport Management
PHD, Texas A&M University, 2008

Pentecost, Ray, Professor of the Practice
Architecture
DrPH, University of Texas, School of Public Health, 1982

Pentzer, Emily B, Professor
Chemistry
PHD, Northwestern University, 2010

Penzes, Judit, Assistant Professor
Entomology
DVM, University of Veterinary Medicine Budapest, 2015
BVSc, University of Veterinary Medicine, 2009

Pepper, Alan E, Professor
Biology
PHD, University of California at Davis, 1990

Pepper, Catherine A, Senior Associate Professor
College of Medicine
MPH, University of North Texas Health Science Center, 2006

Perales, Daniel, Visiting Assistant Professor
Mathematics
PHD, University of Waterloo, 2022

Perez, Cayla, Clinical Assistant Professor
College of Nursing
MSN, Texas A&M University at Corpus Christi, 2017

Perez, Evelyn, Clinical Assistant Professor
College of Medicine
PHD, University of Houston, 2015

Perez, Francisco, Instructional Associate Professor
College of Performance, Visualization & Fine Arts
PHD, University of Kentucky, 2018

Perez, Gustavo, Clinical Assistant Professor
Teaching, Learning & Culture
MED, University of Texas Pan American, 2010

Perez, Nicholas D, Associate Professor
Geology & Geophysics
PHD, The University of Texas at Austin, 2015

Perez, Nicholas T, Visiting Associate Professor of the Practice
Construction Science
BS, University of Texas - San Antonio, 2006

Perez, Stephanie A, Senior Lecturer
Biochemistry & Biophysics
PHD, Texas A&M University, 2012

Perkin, Joshua S, Associate Professor
Ecology and Conservation Biology
PHD, Kansas State University, 2012

Perotto, Humberto L, Associate Professor
Rangeland, Wildlife and Fisheries Management
PHD, Texas A&M University, 2005

Perret, Meg, Assistant Professor
Global Languages & Cultures
PHD, Harvard University, 2022

Perrott, Lisa J, Associate Professor
Educational Psychology
PHD, University of Virginia, 2001

Perry-Johnson, Everett, Instructional Assistant Professor
College of Performance, Visualization & Fine Arts
MFA, New York University, 2014

Peterlin, John G, Associate Professor of the Practice
Maritime Transportation
BS, United States Merchant Marine Academy, 1976

Peterlin, Margaret Judith Ann, Lecturer
International Affairs
JD, Univ of Chicago The Law School, 2000

Petersen, Eric L, Regents Professor
Mechanical Engineering
PHD, Stanford University, 1998

Petersen, Lene H, Instructional Associate Professor
Marine Biology
PHD, Memorial University of New Foundland, 2010

Peterson, John R, Clinical Associate Professor
Finance
PHD, Texas A&M University, 2002

Peterson, Martin B, Professor
Philosophy
PHD, Kungliga Tekniska högskolan Royal Institute of Technology, 2003

Peterson, Noah G, Senior Lecturer
English
PHD, Texas A&M University, 2017

Peterson, Thomas Vincent, Instructional Professor
School of Engineering Medicine
PHD, The University of Oklahoma, 1977

Petrack, James F, Professor
Hospitality Hotel Management & Tourism
PHD, Clemson University, 1999

Petrie, Ragan, Professor
Economics
PHD, University of Wisconsin, Madison, 2002

Petrova, Guergana P, Professor
Mathematics
PHD, University of Southern Carolina, 1999

Pettigrew, Roderic, Professor
School of Engineering Medicine
PHD, Massachusetts Institute of Technology, 1977

Peycke, Laura E, Clinical Professor
Vet Small Animal Clinical Sc
DVM, Louisiana State University, 1998

Pham, Huyen T, Professor
School of Law
JD, Harvard University, 1996

Pharr, George M, Professor
Materials Science & Engr
PHD, Stanford University, 1979

Pharr, Matt, Associate Professor
Mechanical Engineering
PHD, Harvard University, 2014

Phelps, Jean Ricciardello, Professor of the Practice
Management
JD, South Texas College of Law, 1993

Phillips, Susan T, Professor
School of Law
JD, The Catholic University of America, 1990

Phillips, Timothy D, Professor
Vet Physiology & Pharmacology
PHD, University of Southern Mississippi, 1975

Phinney, Theresa M, Principal Lecturer
Information & Operations Mgmt
MCS, Texas A&M University, 1984

Pho, Victoria B, Clinical Assistant Professor
College of Pharmacy
PHARM D, Texas Southern University, 2008

Pickens, Adam W, Instructional Associate Professor
Environmental & Occpnl Hlth
PHD, Texas Tech University, 2008

Pierce, Tanya J, Professor
School of Law
JD, University of Texas, 1996

Pietrantonio, Patricia, Professor
Entomology
PHD, University of California at Riverside, 1995

Pigg, Elizabeth, Clinical Instructor
College of Nursing
MSN, Texas A&M University, 2023

Pikus, Arianna, Assistant Professor
Teaching, Learning & Culture
PHD, Michigan State University, 2023

Pillai, Suresh D, Professor
Food Science and Technology
PHD, University of Arizona, 1989

Pilling, Darrell, Research Assistant Professor
Biology
PHD, University of Birmingham, 1995

Pilsch, Andrew T, Associate Professor
English
PHD, The Pennsylvania State University, 2011

Pine, Michelle D, Clinical Professor
Vet Integrative Biosciences
DVM, University of Missouri-Columbia, 1991
PHD, Texas A&M University, 2002

Pinnell, Lee, Research Assistant Professor
Vet Large Animal Clinical Sc
PHD, Texas A&M University-Corpus Christi, 2019

Pino, Alan, Lecturer
International Affairs
MA, University of Virginia, 1981

Pintacuda, Jesse C, Lecturer
Maritime Studies
BS, Texas A&M University at Galveston, 2008

Pique, Ricardo, Visiting Assistant Professor
Finance
PHD, Northwestern University, 2016

Pires, Layla, Assistant Professor
Biomedical Engineering
PHD, University of Sao Paulo, 2017

Pishko, E. Jane, Senior Lecturer
Biochemistry & Biophysics
PHD, University of Texas, 1993

Pistikopoulos, Efstratios, Professor
Chemical Engineering
PHD, Carnegie Mellon University, 1988

Pisu, Davide, Assistant Professor
College of Medicine
PHD, University of Padua, 2015

Pittman, Alison F, Clinical Associate Professor
College of Nursing
PHD, University of Texas - Tyler, 2017

Pittman, Mark, Adjunct Professor of Law
School of Law
JD, University of Texas at Austin, 1999

Pittman, Ramona T, Associate Professor
Teaching, Learning & Culture
PHD, Texas A&M University, 2007

Plankey-Videla, Nancy, Associate Professor
Sociology
PHD, University of Wisconsin, Madison, 1998

Plemons, Jacqueline M, Clinical Professor
Periodontics
DDS, Baylor College of Dentistry, 1986

Pleus, Scott, Visiting Professor of the Practice
Finance
BS, University of Missouri-Columbia, 1988

Plumbley, Adam, Adjunct Professor of Law
School of Law
JD, Texas Wesleyan University, 2006

Plunk, Michael D, Clinical Faculty
Orthodontics
DDS, Baylor College of Dentistry, 1974

Plunk, Michael D, Clinical Faculty
Pediatric Dentistry
DDS, Baylor College of Dentistry, 1974

Poblete, Michael, Instructional Assistant Professor
College of Performance, Visualization & Fine Arts
PHD, University of Hawaii at Manoa, 2022

Poe, Kip, Adjunct Professor of Law
School of Law
JD, University of Texas, 1987

Pohler, Ky Garrett, Associate Professor
Animal Science
PHD, University of Missouri, 2015

Poirot, Kristan A, Associate Professor
Communication & Journalism
PHD, University of Georgia, 2004

Pokam, Punam, Assistant Professor
College of Medicine
PHD, University of Otago, 2010

Pokrovsky, Valery, Distinguished Professor
Physics & Astronomy
PHD, Tomsk State University, 1957

Pollalis, William George, Instructional Assistant Professor
Civil & Environmental Engineering
PHD, Purdue University, 2021

Pollock, Jordan L, Adjunct Professor of Law
School of Law
JD, University of Texas, 2012

Polson, James R, Clinical Faculty
Orthodontics
DDS, University of Texas Health Science Center at San Antonio, 1986

Polymenis, Michael S, Professor
Biochemistry & Biophysics
PHD, Tufts University, 1994

Polyzoi, Maria, Associate Professor of the Practice
College of Engineering
MBA, University of Macedonia, 2009

Ponder, Christopher, Adjunct Professor of Law
School of Law
JD, Texas Wesleyan University, 2003

Ponjuan, Luis, Associate Professor
Educ Admn & Human Resource Dev
PHD, University of Michigan, 2005

Ponnamperuma, Krishan, Senior Lecturer
Chemistry
PHD, University of Cambridge, UK, 1992

Poole, Rebecca, Assistant Professor
Animal Science
PHD, North Carolina State University, 2019

Pope, Christopher N, Distinguished Professor
Physics & Astronomy
PHD, University of Cambridge, 1980

Pope, Jeffrey D, Clinical Faculty
Comprehensive Dentistry
DDS, Texas A&M University, 2009

Pope, Robert A, Clinical Assistant Professor
College of Medicine
MD, University of Texas Southwestern Medical School, 1992

Popescu, Sorin C, Professor
Ecology and Conservation Biology
PHD, Virginia Tech, 2002

Popov, Bojan D, Professor
Mathematics
PHD, University of Southern Carolina, 1999

Porter, Brian F, Clinical Professor
Veterinary Pathobiology
DVM, Texas A&M University, 1992

Porter, Jay R, Professor
Eng Tech & Ind Distribution
PHD, Texas A&M University, 1993

Porter, Jay R, Professor
Multidisciplinary Engineering
PHD, Texas A&M University, 1993

Porter, Logan Lynn, Instructional Assistant Professor
Eng Tech & Ind Distribution
DEN, Lamar University, 2014

Porter, Weston W, Professor
Vet Physiology & Pharmacology
PHD, Texas A&M University, 1997

Posey, Richard D, Clinical Professor
Vet Large Animal Clinical Sc
DVM, Texas A&M University, 1982

Potier, Paul A, Professor of the Practice
Marine Engineering Technology
PHD, Prairie View A&M University, 2012

Potter, Henry, Associate Professor
Oceanography
PHD, University of Miami, 2014

Potvin, Sarah E, Associate Professor
English
MLS, The University of Texas at Austin, 2009

Pouland, Kendall, Visiting Lecturer
Construction Science
BS, Texas A&M University, 2003

Pourahmadi, Mohsen, Professor
Statistics
PHD, Michigan State University, 1980

Powell Palm, Matthew John, Assistant Professor
Mechanical Engineering
PHD, University of California, Berkeley, 2020

Powell, Joseph Edward, Adjunct Professor of Law
School of Law
JD, University of Alabama, 1997
LLM, Texas A&M University, 2019

Powell, Reid T, Research Assistant Professor
College of Medicine
PHD, Texas A&M Health Science Center, 2018

Powell-Pierce, Alexandra, Lecturer
Vet Integrative Biosciences
PhD, Texas A&M University, 2023

Powers, David C, Professor
Chemistry
PHD, Harvard University, 2012

Powers, Tamara M, Instructional Associate Professor
Chemistry
PHD, Harvard University, 2013

Prabhu, Kaushik Keshav, Instructional Assistant Professor
Aerospace Engineering
PHD, Texas A&M University, 2023

Pratt, Megan, Clinical Assistant Professor
Vet Large Animal Clinical Sc
DVM, Mississippi Stat University, 2018

Prechel, Harland N, Professor
Sociology
PHD, University of Kansas, 1986

Prendergast, Elis, Adjunct Professor of Law
School of Law
JD, Seton Hall University, 1986

Presswood, Phillip H, Instructional Assistant Professor
Maritime Studies
MA, University of Houston at Clear Lake, 2011

Preston, Tammie M, Instructional Associate Professor
Ag Leadership, Educ & Comm
PHD, Texas A&M University, 2014

Preusser, Denise Ann, Senior Lecturer
Eng Tech & Ind Distribution
PHD, Saybrook University, 2010

Price, Angie H, Associate Professor
Eng Tech & Ind Distribution
PHD, Texas A&M University, 1999

Price, Justin, Adjunct Professor of Law
School of Law
MS, Holy Family University, 2013

Pricer, Sarah, Adjunct Professor of Law
School of Law
JD, Texas A&M University, 2019

Priya, Prachi, Instructional Assistant Professor
School of Engineering Medicine
MD, Maharaja Krishnakumarsinhji Bhavnagar University, 2016

Probasco, Bob, Senior Lecturer
School of Law
JD, University of Virginia, 2000

Prochnow, Tyler, Assistant Professor
Health Behavior
PHD, Baylor University, 2021

Prout, Erik, Instructional Associate Professor
Geography
PHD, Louisiana State University, 2001

Prunte, John, Adjunct Professor of Law
School of Law
JD, Capital University, 2016

Puccia, Jenn, Assistant Professor
Accounting
PHD, Michigan State University, 2024

Pugel, Jim, Visiting Lecturer
International Affairs
PHD, George Mason University, 2016

Pugh, Daniel J, Professor of the Practice
Educ Admn & Human Resource Dev
PHD, University of Georgia, 2000

Pugh, Rebecca, Instructional Assistant Professor
College of Performance, Visualization & Fine Arts
MFA, University of Nevada, Las Vegas, 2015

Pulak, Cemalettin M, Professor
Anthropology
PHD, Texas A&M University, 1996

Pullanchery, Saranya, Assistant Professor
Chemistry
PHD, The Pennsylvania State University, 2019

Puller, Steven L, Professor
Economics
PHD, University of California at Berkeley, 2001

Pullium, Cherrie L, Visiting Clinical Assistant Professor
College of Nursing
DNP, The University of Alabama, 2018

Puppala, Anand Jagadeesh, Professor
Civil & Environmental Engineering
PHD, Louisiana State University, 1993

Pylant, George D, Clinical Faculty
Periodontics
DDS, Baylor College of Dentistry, 1988

Qian, Xiaofeng, Associate Professor
Materials Science & Engr
PHD, Massachusetts Institute of Technology, 2008

Qian, Xiaoning, Professor
Electrical & Computer Eng
PHD, Yale University, 2005

Qin, Chunlin, Professor
Biomedical Sciences
DDS, Harbin Medical University, China, 1983
PHD, Okayama University, Japan, 1998

Qin, Hongmin, Professor
Biology
PHD, Institute of Microbiology, Chinese Academy of Sciences, 1999

Qiu, Jingjing, Associate Professor
Mechanical Engineering
PHD, Florida State University, 2008

Qiu, Lin, Instructional Associate Professor
Foundational Sciences
PHD, University of Alabama, 2006

Qu, Heng, Associate Professor
Public Service and Administration
PHD, Indiana University Purdue University Indianapolis, 2016

Quackenbush, Anne, Assistant Professor of the Practice
College of Performance, Visualization & Fine Arts
BA, Scripps College, 1986

Quadrifoglio, Luca, Associate Professor
Civil & Environmental Engineering
PHD, University of Southern California, 2005

Quick, Christopher M, Professor
Vet Physiology & Pharmacology
PHD, Rutgers University, 1999

Quigg, Antonietta S, Professor
Marine Biology
PHD, Monash University, 2000

Quijada Landaverde, Rafael Antonio, Assistant Professor
Ag Leadership, Educ & Comm
PHD, The Ohio State University, 2022

Quinn, Margaret, Associate Professor
Teaching, Learning & Culture
PHD, Georgia State University, 2017

Quinn, Michael D, Associate Professor of the Practice
Computer Science & Engineering
MS, University of Southern California, 1978

Quintana, Maria E, Associate Professor
Global Languages & Cultures
PHD, University of California at Berkeley, 1998

Quintero Febres, Carlos G, Instructional Professor
Civil & Environmental Engineering
PHD, University of Michigan, 1997

Rabbers, Carolyn Marie, Instructional Assistant Professor
College of Performance, Visualization & Fine Arts
MFA, University of the Arts, Philadelphia, 2020

Racine, Elizabeth, Professor
Nutrition
DrPH, Johns Hopkins University, 2003

Rackley, Robin A, Clinical Professor
Teaching, Learning & Culture
PHD, Texas A&M University, 2004

Radcliff, Tiffany A, Professor
Health Policy & Management
PHD, School of Public Health University of Minnesota, 2000

Rademaker, Kurt, Associate Professor
Anthropology
PHD, University of Maine, 2012

Radovic, Miladin, Professor
Materials Science & Engr
PHD, Drexel University, 2001

Radzik, Linda C, Professor
Philosophy
PHD, The University of Arizona, 1997

Ragavan, Srividhya, Professor
School of Law
DJS, George Washington University, 2008
LLM, King's College, University of London, 1995

Raghavan, Shreya Artha, Associate Professor
Biomedical Engineering
PHD, Virginia Tech-Wake Forest University School of Biomedical Engineering and Sciences, 2014

Ragusa, Jean C, Professor
Nuclear Engineering
PHD, Institut National Polytechnique de Grenoble, France, 2002

Rahbar, Elaheh, Associate Professor
Biomedical Engineering
PHD, Texas A&M University, 2011

Rahbar, Ellie, Associate Professor
Vet Physiology & Pharmacology
PHD, Texas A&M University, 2011

Rahm, Robert S, Instructional Associate Professor
Mathematics
PHD, Washington University in St. Louis, 2017

Rahman, Ziyaur, Professor
Pharmaceutical Sciences
PHD, Hamdard University, 2005

Rahmani, Nazmul, Professor of the Practice
Chemical Engineering
PHD, University of Alberta, 2004

Rahn, Rhonda N, Instructional Professor
Health Behavior
PHD, Texas A&M University, 2014

Raibourn, Delmer, Adjunct Professor of Law
School of Law
JD, University of Oklahoma, 1998

Raisor, Cynthia M, Lecturer
International Affairs
MA, Texas A&M University, 1986

Rajan, Nithya, Professor
Soil & Crop Sciences
PHD, Texas Tech University, 2007

Rajan, Sue, Clinical Assistant Professor
Comprehensive Dentistry
DDS, Baylor College of Dentistry, 1998

Rajendran, Jeyavijayan, Associate Professor
Electrical & Computer Eng
PHD, New York University, 2015

Rajendran, Praveen, Research Associate Professor
College of Medicine
PHD, Birla Institute of Technology and Science, 2006

Ralph-Nurhikim, Gulnigar, Instructional Assistant Professor
College of Performance, Visualization & Fine Arts
MFA, University of Southern California School of Cinematic Arts, 2021

Ramadan, Hadeel M, Instructional Associate Professor
College of Performance, Visualization & Fine Arts
MFA, Virginia Tech, 2014

Ramani, Nandini, Assistant Professor
Marketing
PHD, University of Texas at Austin, 2019

Rambo-Hernandez, Karen, Professor
Teaching, Learning & Culture
PHD, University of Connecticut, 2011

Ramirez Agamez, Luisa Fernanda, Research Assistant Professor
Vet Large Animal Clinical Sc
DVM, Universidad Nacional de Colombia, 2017
PHD, Texas A&M University, 2024

Ramirez, Miranda Renee, Clinical Faculty
College of Nursing
DNP, Texas A&M University, 2024

Ramirez, Robert, Adjunct Professor of Law
School of Law
JD, Southern Methodist University, 2001

Ramos Garcimartin, Hector, Lecturer
Educational Psychology
PHD, Texas A&M University, 2015

Ramos, Kenneth S., Professor
College of Medicine
MD, University of Louisville Health Sciences Center, 2011
PHD, The University of Texas at Austin, 1983

Ramos, Suzanna J, Clinical Assistant Professor
Educational Psychology
PHD, Texas A&M University, 2015

Ramseur, Stephen, Professor of the Practice
Finance
MTH, Dallas Theological Seminary, 2017

Ramsey, Jolene, Assistant Professor
Biology
PHD, Indiana University Bloomington, 2017

Ramsey, W, Professor
Animal Science
PHD, New Mexico State University, 1996

Ranabhat, Min Bahadur, Instructional Assistant Professor
Mathematics
PHD, Kansas State University, 2020

Randolph, Justin, Assistant Professor
History
PHD, Yale University, 2020

Rangan, Sudarsan, Clinical Professor
Information & Operations Mgmt
PHD, University of Alabama, 2008

Rangel Posada, Juliana, Professor
Entomology
PHD, Cornell University, 2010

Rantschler, James O, Instructional Assistant Professor
Foundational Sciences
PHD, University of Alabama, 2003

Ranzilla, Sam J., Professor of the Practice
Accounting
BS, University of Detroit, 1978

Rao, Asha, Instructional Professor
Biology
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Rao, Mano, Visiting Senior Lecturer
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PHD, Carnegie Mellon University, 1991

Rapp, Anita D, Professor
Atmospheric Sciences
PHD, Colorado State University, 2008

Rapp, Ralf F, Professor
Physics & Astronomy
PHD, Rheinische Friedrich-Wilhelma University, Bonn, 1996

Rasmussen, Bryan P, Professor
Mechanical Engineering
PHD, University of Illinois, 2005

Rassas, Lori, Adjunct Professor of Law
School of Law
LLM, New York University, 2000

Rathinam, Sivakumar, Professor
Mechanical Engineering
PHD, University of California at Berkeley, 2007

Ratzlaff, Brandon, Visiting Lecturer
Agricultural Economics
MBA, The University of Texas at Dallas, 2010

Raudsepp, Terje, Professor
Vet Integrative Biosciences
PHD, Swedish University of Agricultural Sciences, 1999

Rauschel, Frank M, Distinguished Professor
Chemistry
PHD, University of Wisconsin, Madison, 1976

Ray, Erin, Clinical Assistant Professor
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Ray, Korok, Associate Professor
Accounting
PHD, Stanford University Graduate School of Business, 2004

Ray, Margaret, Instructional Associate Professor
Economics
PHD, University of Te, 1988

Ray, Nina, Clinical Associate Professor
Pediatric Dentistry
DDS, Howard University, 2007

Ray, Tamla, Adjunct Professor of Law
School of Law
JD, University of Texas, 2004

Raymond, Anne, Professor
Geology & Geophysics
PHD, University of Chicago, 1983

Raymond, Dwayne F, Instructional Associate Professor
Philosophy
PHD, University of Western Ontario, 2006

Read-Fuller, Andrew M, Clinical Associate Professor
Oral & Maxillofacial Surgery
MD, UT Southwestern Medical School, 2014
DDS, UCLA, 2011

Rech, Raquel R, Clinical Associate Professor
Veterinary Pathobiology
DVM, Santa Catarina State University, 1999
PHD, Federal University of Santa Maria (UFSM), 2007

Reddy, Anil K, Clinical Faculty
Pediatric Dentistry
DDS, Columbia University, 1994

Reddy, Indra K, Professor
Pharmaceutical Sciences
PHD, University of Florida, 1989

Reddy, J.N., Distinguished Professor
Mechanical Engineering
PHD, University of Alabama at Huntsville, 1974

Reddy, Likith V, Professor
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MD, University of Texas Southwestern Medical Center, 2000
DDS, Case Western Reserve University, 1995

Reddy, Samba, Professor
College of Medicine
PHD, Panjab University, India, 1998

Reddy, Sanjay M, Professor
Poultry Science
BVSc, Andhra Pradesh Agricultural University, India, 1986
PHD, University of Maryland, College Park, 1994

Reddy, Sanjay M, Professor
Veterinary Pathobiology
BVSc, Andhra Pradesh Agricultural University, India, 1986
PHD, University of Maryland, College Park, 1994

Reddy, Vanita D, Associate Professor
English
PHD, University of California at Davis, 2009

Reece, Julia S, Associate Professor
Geology & Geophysics
PHD, The University of Texas at Austin, 2011

Reed, Helen L, Senior Professor
Aerospace Engineering
PHD, Virginia Polytechnic Institute & State University, 1981

Reed, Nathan, Professor of the Practice
College of Arts & Sciences
MS, Kansas State University, 2012

Reed, Shannon, Clinical Associate Professor
Vet Large Animal Clinical Sc
DVM, University of Missouri, Columbia, 2003

Reese, Roger R, Professor
History
PHD, The University of Texas at Austin, 1990

Reeves, Adam, Assistant Professor of the Practice
Marine Engineering Technology
BS, Massachusetts Maritime Academy, 1993

Reeves, Baley A, Visiting Professor of the Practice
Chemical Engineering
PHD, Princeton University, 2010

Reeves, Greg, Associate Professor
Chemical Engineering
PHD, Princeton University, 2008

Regalado-Ibarra, Adriana Margarita, Clinical Assistant Professor
Vet Small Animal Clinical Sc
MVM, University of Guadalajara, 2001

Regan, Annette Karena, Adjunct Assistant Professor
Epidemiology & Biostatistics
PHD, University of Western Australia, 2016

Regan, Martin P, Professor
College of Performance, Visualization & Fine Arts
PHD, University of Hawai'i at Manoa, 2006

Reid, Jonathan, Assistant Professor
Sociology
PHD, Florida State University, 2021

Reid, Russell W, Instructional Associate Professor
Land Arch & Urban Planning
MAR, Texas A&M University, 2001

Reihani, Kamran, Instructional Assistant Professor
Mathematics
PHD, Tarbiat Modares University, 2005

Reilly, Michael D, Associate Professor of the Practice
Public Service and Administration
MS, National Defense University, School of Information Warfare and Strategy, 2016

Reilly, Peter R, Professor
School of Law
JD, Harvard University, 1993

Reinemeyer, Anneliese, Instructional Associate Professor
Political Science
PHD, Texas A&M University, 2001

Reiner, David J, Associate Professor
College of Medicine
PHD, University of Washington, 1996

Reinhardt, Susan, Visiting Senior Lecturer
Construction Science
MBA, Thunderbird School of Global Management, 2006

Reiser, Vanessa, Visiting Lecturer
College of Performance, Visualization & Fine Arts
MS, Trinity Laban Conservatoire of Music & Dance, 2022

Ren, Dingding, Lecturer
Land Arch & Urban Planning
MLA, Texas A&M University, 2018

Rentzepis, Peter M, Professor
Electrical & Computer Eng
PHD, University of Cambridge, 1963

Restrepo Perez, Vanessa, Assistant Professor
Mechanical Engineering
PHD, Purdue University, 2021

Retchless, David P, Associate Professor
Marine and Coastal Environmental Science
PHD, Pennsylvania State University, 2015

Retnanto, Albertus, Professor of the Practice
Petroleum Engineering-Qatar Campus
PHD, Texas A&M University, 1998

Retteen, Aaron J, Instructional Associate Professor
School of Law
JD, Florida State University, 2015

Reuben, Jayne S, Instructional Professor
Biomedical Sciences
PHD, Florida A&M University, 2001

Rey, Danny G, Associate Professor of the Practice
Eng Tech & Ind Distribution
BS, Texas A&M University, 1990

Rey, Laura M, Instructional Assistant Professor
Vet Small Animal Clinical Sc
MLS, University of North Texas, 2020

Reyes Denizard, Nelymar, Senior Lecturer
Eng Tech & Ind Distribution
PHD, Carlos Albizu University, 2018

Reynolds, Jeff, Professor of the Practice
Biomedical Engineering
PHD, Purdue University, 1996

Reynolds, Mollie M, Principal Lecturer
Biochemistry & Biophysics
PHD, Texas A&M University, 2010

Reynolds, Stephanie, Visiting Lecturer
Teaching, Learning & Culture
MED, Texas A&M University, 2024

Rhee, Joohyun, Instructional Assistant Professor
Environmental & Occpntl Hlth
PHD, Texas A&M University, 2015

Rhee, Maji, Adjunct Professor of Law
School of Law
JD, Thomas Jefferson School of Law, 2009
EDD, Rutgers University, 1982

Rhim, Jimin, Instructional Assistant Professor
College of Performance, Visualization & Fine Arts
PHD, Korea Advanced Institute of Science & Technology, 2024

Riaz, Mian N, Instructional Associate Professor
Food Science and Technology
PHD, The University of Maine, 1992

Rice, Dale A, Associate Professor of the Practice
Communication & Journalism
BA, Syracuse University, 1973

Rice, Douglas, Clinical Associate Professor
Educ Admn & Human Resource Dev
PHD, Texas A&M Univeristy, College Station, 2020

Rice, Judith, Clinical Faculty
College of Nursing
DNP, University of Tennessee HSC, 2012

Rice, Sarah C, Professor
Accounting
PHD, The Ohio State University, 2007

Rich, Elisabeth, Associate Professor
Global Languages & Cultures
PHD, University of Michigan Ann Arbor, 1985

Rich, Sharon Kay, Professor of the Practice
Multidisciplinary Engineering
BS, Texas A&M University - Galveston, 1992

Richard, Jacques C, Instructional Professor
College of Engineering
PHD, Rensselaer University, 1989

Richmond, Douglas, Adjunct Professor of Law
School of Law
JD, University of Kansas, 1989

Richter, Katy, Clinical Instructor
College of Nursing
MSN, Texas A&M University, 2021

Ridley, Charles R, Professor
Educational Psychology
PHD, University of Minnesota, 1978

Riechman, Steven E, Professor
Kinesiology & Sport Management
PHD, University of Pittsburgh, 2000

Riegg, Stephen B, Associate Professor
History
PHD, The University of North Carolina at Chapel Hill, 2016

Riera-Lizarazu, Oscar, Professor
Horticultural Sciences
PHD, University of Minnesota, 1996

Rife, Kimberly G, Lecturer
Teaching, Learning & Culture
MED, Texas A&M University, 2016

Riggs, Penny, Associate Professor
Animal Science
PHD, Texas A&M University, 1996

Righetti, Raffaella, Associate Professor
Electrical & Computer Eng
PHD, University of Houston, 2005

Rijnkels, Monique G, Research Associate Professor
Vet Integrative Biosciences
PHD, Leiden University, 1997

Riley, Bruce B, Professor
Biology
PHD, University of Wisconsin, Madison, 1990

Riley, David Greg, Professor
Animal Science
PHD, Texas A&M University, 2000

Rimer, Mendell, Associate Professor
College of Medicine
PHD, University of Maryland at Baltimore, 1993

Ripley, Jeff P, Visiting Professor of the Practice
Ag Leadership, Educ & Comm
PHD, Texas A&M University, 2008

Rister, M E, Professor
Agricultural Economics
PHD, Michigan State University, 1981

Ritchey, Niki, Associate Professor of the Practice
College of Engineering
PHD, Purdue University, 2014

Ritchey, Philip, Instructional Associate Professor
Computer Science & Engineering
PHD, Purdue University, 2015

Ritter, Nicola L, Instructional Associate Professor
Vet Integrative Biosciences
PHD, Texas A&M University, 2014

Rivera, Hector H, Associate Professor
Educational Psychology
PHD, University of California at Santa Cruz, 2001

Rivera, Omar, Associate Professor
Philosophy
PHD, The Pennsylvania State University, 2007

Rivera, Sheila M, Professor of the Practice
College of Engineering
BS, Texas A&M University, 1983

Riviere, Aaron, Lecturer
Nutrition
MS, Texas A&M University, 2023

Roach, David S, Lecturer
Agricultural Economics
MBA, University of Texas at Permian Basin, 2019

Roark, Erin B, Professor
Geography
PHD, University of California at Berkeley, 2005

Roberman, Susan G, Clinical Associate Professor
College of Medicine
MD, University of Texas Medical Branch, 1990

Robertson, John D, Professor
Political Science
PHD, University of Illinois at Urbana-Champaign, 1979

Robertson, Raymond E, Professor
International Affairs
PHD, The University of Texas at Austin, 1997

Robichau, Robbie, Associate Professor
Public Service and Administration
PHD, Arizona State University, 2013

Robinson, Elizabeth K, Instructional Professor
English
PHD, Texas A&M University, 1995

Robinson, John R, Professor
Accounting
JD, University of Michigan, 1979
PHD, University of Michigan, 1981

Robinson, Phillip, Professor of the Practice
Health Policy & Management
MHA, Washington University School of Medicine, 1980

Robinson, Sally A, Professor
English
PHD, University of Washington, 1989

Robison, Zach, Lecturer
Health Policy & Management
MBA, University of Colorado, 2018

Roblyer, Dwight A, Instructional Professor
Political Science
PHD, Texas A&M University, 2009

Robnett, Leslie, Adjunct Professor of Law
School of Law
JD, University of Texas at Austin, 2008

Robotham-Reid, Leisa, Clinical Assistant Professor
Pediatric Dentistry
DDS, Howard University College of Dentistry, 2017

Rocchio, Leland, Instructional Associate Professor
Construction Science
PHD, Our Lady of the Lake University, 2015

Roch, Geneva, Lecturer
College of Nursing
MSN, Texas A&M University, 2022

Rochford, Hannah Irene, Assistant Professor
Health Policy & Management
PHD, The University of Iowa, 2023

Rockey, Arash, Lecturer
Civil & Environmental Engineering
PHD, Texas A&M University, 2022

Rodden, John B, Professor of the Practice
Chemical Engineering
PHD, Texas A&M University, 1988

Rodgers, Annette Milagros, Associate Professor of the Practice
Industrial & Systems Engineering
BS, Texas A&M University, 1982

Rodrigue, Jean-Paul, Professor
Maritime Business Administration
PHD, Université de Montréal, 1994

Rodrigues De Paula Lima, Heitor, Professor of the Practice
Petroleum Engineering
PHD, Texas A&M University, 1998

Rodrigues, Antonio M.M., Assistant Professor
Ecology and Conservation Biology
DPhil, University of Oxford, 2014

Rodriguez Nieva, Joaquin, Assistant Professor
Physics & Astronomy
PHD, Massachusetts Institute of Technology, 2016

Rodriguez, Anabel, Assistant Professor
Environmental & Occupational Health
PHD, University of Texas Health Science Center at Houston, 2019

Rodriguez, Andrea, Assistant Professor of the Practice
Maritime Transportation
BS, Texas A&M University at Galveston, 2013

Rodriguez, Carlos, Professor of the Practice
Accounting
BBA, Texas A&M University, 1993

Roelke, Daniel L, Professor
Marine Biology
PHD, Texas A&M University, 1997

Rogachev, Grigory V, Professor
Physics & Astronomy
PHD, National Research Centre, 1999

Rogers, Alton G, Associate Professor of the Practice
Civil & Environmental Engineering
MS, Texas A&M University, 2020

Rogers, George O, Professor
Land Arch & Urban Planning
PHD, University of Pittsburgh, 1983

Rogers, James R, Associate Professor
Political Science
PHD, The University of Iowa, 1994

Rogers, Sara, Clinical Assistant Professor
School of Engineering Medicine
PHARMD, University of Houston, 2012

Rogers, Sara, Clinical Assistant Professor
College of Medicine
PHARMD, University of Houston, 2012

Rogers, William E, Professor
Ecology and Conservation Biology
PHD, Kansas State University, 1998

Roh, Taehyun, Assistant Professor
Epidemiology & Biostatistics
PHD, University of Iowa, 2016

Rohrbaugh, Collin Michael, Visiting Lecturer
History
PHD, Texas A&M University, 2023

Roiterchtein, Alexander, Instructional Associate Professor
Statistics
PHD, Israel Institute of Technology, 2004

Rojas, Joseph M, Professor
Mathematics
PHD, University of California at Berkeley, 1995

Rojas-Munoz, Edgar, Assistant Professor
College of Performance, Visualization & Fine Arts
PHD, Purdue University, 2020

Rold, Michael F, Senior Lecturer
Communication & Journalism
PHD, Louisiana State University, 2014

Rollins, John W, Visiting Lecturer
Public Service and Administration
JD, American University, 2001

Romero, John M, Adjunct Professor of Law
School of Law
MEN, Texas A&M University, 2024

Rooker, Jay R, Professor
Marine Biology
PHD, The University of Texas at Austin, 1997

Rooney, William L, Professor
Soil & Crop Sciences
PHD, University of Minnesota, 1992

Roque, Maria Teresa, Instructional Assistant Professor
Health Behavior
PHD, Texas A&M University, 2024

Rosen, Chelsey L, Clinical Assistant Professor
College of Nursing
PHD, The University of Texas Medical Branch at Galveston, 2023

Rosenblum, Michael, Senior Professor
College of Medicine
PHD, University of Arizona College of Medicine, 1978

Rosenheim, Nathanael Proctor, Research Associate Professor
Land Arch & Urban Planning
PHD, Texas A&M University, 2015

Rosenthal, Adam R, Associate Professor
Global Languages & Cultures
PHD, Emory University, 2014

Ross, Allison, Lecturer
College of Nursing
MSN, The University of Texas at Tyler, 2021

Ross, Ashley D, Associate Professor
Marine and Coastal Environmental Science
PHD, Texas A&M University, 2010

Ross, Catharine, Professor
Nutrition
PHD, Cornell University, 1976

Ross, Gary, Associate Professor of the Practice
International Affairs
MS, National Intelligence University, 2008

Ross, Joseph H, Professor
Physics & Astronomy
PHD, University of Illinois at Urbana-Champaign, 1986

Ross, Shawna M, Associate Professor
English
PHD, The Pennsylvania State University, 2011

Rossi, Lorenzo, Assistant Professor
Horticultural Sciences
PHD, Scuola Superiore Sant'Anna, 2014

Rossi, Marco, Associate Professor
Finance
PHD, Pennsylvania State University, 2010

Roth, Augusta D, Professor of the Practice
Maritime Transportation
DBA, Walden University, 2018

Rothman, Andrea, Clinical Associate Professor
Comprehensive Dentistry
DDS, Baylor College of Dentistry, 1991

Rotter, Craig A, Lecturer
Ag Leadership, Educ & Comm
PHD, Texas A&M University, 2004

Rouhi Rad, Mani, Assistant Professor
Agricultural Economics
PHD, University of Illinois, 2017

Rouleau, Brian J, Professor
History
PHD, University of Pennsylvania, 2010

Roumell, Elizabeth A, Professor
Educ Admn & Human Resource Dev
PHD, University of Wyoming, 2009

Rouziou, Maria, Assistant Professor
Eng Tech & Ind Distribution
PHD, HEC Paris, 2016

Rowden, Karon L, Senior Lecturer
School of Law
JD, Texas Wesleyan University, 2001

Rowe, Ronald, Adjunct Professor of Law
School of Law
JD, Texas Southern University, 1992

Rowell, Eric C, Professor
Mathematics
PHD, University of California at San Diego, 2003

Rowlett, Kristen M, Instructional Associate Professor
School of Law
JD, Louisiana State University, 2013

Roy Sarkar, Tapasree, Assistant Professor
Biology
PHD, Purdue University, 2008

Roy, Abhishek, Assistant Professor
Statistics
PHD, University of California, Davis, 2020

Roy, Sandip, Professor
Electrical & Computer Eng
PHD, Massachusetts Institute of Technology, 2003

Roykovich, JR, Instructional Assistant Professor
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MFA, Rutgers University, 2014

Rubio Goldsmith, Pat, Professor
Sociology
PHD, University of Arizona, 1999

Rude, Catherine, Adjunct Professor of Law
School of Law
JD, University of Washington, 2010

Ruest, LouisBruno, Associate Professor
Biomedical Sciences
PHD, McGill University, Montreal, Canada, 2002

Ruggero, Roque P, Instructional Associate Professor
College of Medicine
MD, University of Texas Health Science Center at San Antonio, 1997

Rundell, William, Professor
Mathematics
PHD, Glasgow University, 1974

Runnels, Daniel, Assistant Professor
Global Languages & Cultures
PHD, Indiana University, Bloomington, 2022

Rupley, William H, Professor
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PHD, University of Illinois at Urbana-Champaign, 1975

Russell, B. Don, Distinguished Professor
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PHD, University of Oklahoma, 1975

Russell, David H, Professor
Chemistry
PHD, University of Nebraska at Lincoln, 1978

Russell, Karen E, Professor
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DVM, Virginia Tech, 1990
PHD, North Carolina State University, 1997

Russell, Lauren A, Clinical Associate Professor
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Russell, Richard L, Visiting Lecturer
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PHD, University of Virginia, 1997

Russell, Richard Wayne, Visiting Lecturer
Construction Science
MBA, Texas A&M University, 1997

Rusyn, Ivan, Professor
Vet Physiology & Pharmacology
MD, Bogomolets National Medical University, Ukraine, 1994
PHD, University of North Carolina at Chapel Hill, 2000

Rutherford, Rebecca, Adjunct Professor of Law
School of Law
JD, Southern Methodist University, 1998

Rutkowski, Joseph M, Associate Professor
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PHD, Ecole Polytechnique Federale de Lausanne, Switzerland, 2008

Rutter, Christine R, Clinical Associate Professor
Vet Small Animal Clinical Sc
DVM, Mississippi State University, 2003

Ryan, Juliana Rosa Alonso, Clinical Assistant Professor
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DDS, University of Texas Health Science Center at San Antonio, 2022

Ryan, Kathryn J, Instructional Associate Professor
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PHD, Baylor College of Medicine, 1998

Rybkowski, Zofia K, Professor
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PHD, University of California at Berkeley, 2009

Rye, Chavela M, Instructional Professor
Biochemistry & Biophysics
PHD, Massachusetts Institute of Technology, 2014

Rye, Hays S, Associate Professor
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PHD, University of California at Berkeley, 1995

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College of Performance, Visualization & Fine Arts
PHD, Texas A&M University, 2011

Saavedra, Abelardo, Professor of the Practice
Educ Admn & Human Resource Dev
PHD, University of Michigan, Ann Arbor, 1976

Sacchetti, James C, Professor
Biochemistry & Biophysics
PHD, Washington University in St. Louis, 1987

Sachdeva, Riti, Instructional Assistant Professor
College of Performance, Visualization & Fine Arts
MFA, University of New Mexico, 2011

Sachs, Matthew S, Professor
Biology
PHD, Massachusetts Institute of Technology, 1986

Sachs, Miranda, Assistant Professor
History
PHD, Yale University, 2017

Sadler, Landon J, Lecturer
English
PHD, Texas A&M University, 2022

Sadr, Reza, Professor
Mechanical Engineering-Qatar Campus
PHD, University of Utah, 2002

Safar, John, Clinical Faculty
Comprehensive Dentistry
DDS, Texas A&M University, College Station, 1991

Safavi Amirlak, Mojan Safavi, Clinical Faculty
Comprehensive Dentistry
DDS, Texas A&M College of Dentistry, 2003

Safe, Stephen H, Distinguished Professor
Vet Physiology & Pharmacology
PHD, University of Oxford, 1966

Safonov, Alexei N, Professor
Physics & Astronomy
PHD, University of Florida, 2001

Sagapuram, Dinakar, Associate Professor
Industrial & Systems Engineering
PHD, Purdue University, 2013

Sage, William, Professor
College of Medicine
JD, Stanford University, 1988
MD, Stanford University, 1988

Sage, William, Professor
School of Law
JD, Stanford University, 1988
MD, Stanford University, 1988

Sakiev, Azamat, Visiting Lecturer
International Affairs
PHD, Syracuse University, 2011

Salaga, Steven H, Clinical Assistant Professor
Kinesiology & Sport Management
PHD, University of Michigan, 2012

Salama, Ghada H, Instructional Professor
Chemical Engineering-Qatar Campus
PHD, Cairo University, 2001

Saldivar Garza, Marianela Fabiola, Instructional Assistant Professor
College of Medicine
MD, Universidad de Monterrey, 2008

Saleh, Meriam, Clinical Assistant Professor
Veterinary Pathobiology
PHD, Virginia Tech, 2017

Salis, George L., Adjunct Professor of Law
School of Law
PHD, Union Institute & University, 1995
LLM, Thomas Jefferson School of Law, 2002

Salmani, Khalid, Lecturer
Chemistry
PHD, Drexel University, 2010

Samouei, Hamidreza, Research Assistant Professor
Petroleum Engineering
PHD, Shiraz Univeristy, 2011

Sampson, Sarah N, Clinical Associate Professor
Vet Large Animal Clinical Sc
DVM, Washington State University, 1999
PHD, Washington State University, 2008

Sams, Alan R, Professor
Poultry Science
PHD, University of Florida, 1987

Samuel, James E, Professor
College of Medicine
PHD, Washington State University, 1986

Samuel, Nephthys G, Clinical Associate Professor
College of Pharmacy
PHARM D, Texas A&M University, 2014

San Pedro, Joanna Maria N, Instructional Associate Professor
Chemistry
PHD, Johns Hopkins University, 2014

Sanchez Castilla, Marcelo Javier, Professor
Civil & Environmental Engineering
PHD, Universidad Politecnica de Catalunya (UPC), Barcelona, Spain, 2004

Sanchez, John, Clinical Assistant Professor
Management
DBA, Liberty U, 2022

Sanchez, Thomas, Professor
Land Arch & Urban Planning
PHD, Georgia Institute of Technology, 1996

Sanders, Joan T, Principal Lecturer
Accounting
MS, Texas A&M University, 1990

Sang, Huiyan, Professor
Statistics
PHD, Duke University, 2008

Sangare, Lamba Omar, Assistant Professor
Biology
PHD, Lille 2 University, 2015

Sansom, Garrett T, Assistant Professor
Environmental & Occpnl Hlth
DrPH, Texas A&M University, 2016

Sansom, Lindsay C, Research Assistant Professor
Environmental & Occpnl Hlth
PHD, Texas A&M University, 2018

Sansom, Rebecca, Assistant Professor
Teaching, Learning & Culture
PHD, Brigham Young University, 2019

Sansom, Roger B, Associate Professor
Philosophy
PHD, University of North Carolina at Chapel Hill, 2002

Santana, Emilce, Assistant Professor
Sociology
PHD, Princeton University, 2019

Santillan, Lucely, Clinical Assistant Professor
Pediatric Dentistry
DDS, Texas A&M University, 2021

Santos, Rose Anna, Visiting Clinical Assistant Professor
Educ Admn & Human Resource Dev
PHD, Texas A&M University, 2013

Sarathi, Akshay, Lecturer
Anthropology
PHD, University of Wisconsin-Madison, 2020

Saravanan, Ramalingam, Professor
Atmospheric Sciences
PHD, Princeton University, 1990

Sari, Halil, Instructional Assistant Professor
College of Medicine
PHD, University of Florida, 2016

Sarin, Vivek, Associate Professor
Computer Science & Engineering
PHD, University of Illinois at Urbana-Champaign, 1997

Saripalli, Srikanth, Professor
Mechanical Engineering
PHD, University of Southern California, 2007

Sasangohar, Farzan, Associate Professor
Industrial & Systems Engineering
PHD, University of Toronto, 2015

Sato, Shogo, Assistant Professor
Biology
PHD, Waseda University, 2012

Satterfield, Michael C, Professor
Animal Science
PHD, Texas A&M University, 2008

Saunders, Ashley B, Professor
Vet Small Animal Clinical Sc
DVM, Texas A&M University, 2001

Saunders, Clint, Professor of the Practice
Ag Leadership, Educ & Comm
MS, Texas Tech University, 2002

Saunders, William B, Professor
Vet Small Animal Clinical Sc
DVM, Texas A&M University, 2001
PHD, Texas A&M University, 2005

Savage, Patti N., Clinical Assistant Professor
College of Medicine
MSW, University of Houston, 1996

Savari, Serap A, Associate Professor
Electrical & Computer Eng
PHD, Massachusetts Inst of Technology, 1996

Savell, Jeffrey W, Professor
Animal Science
PHD, Texas A&M University, 1978

Saxena, Nitesh, Professor
Computer Science & Engineering
PHD, University of California, Irvine, 2006

Scallan, Elizabeth M, Clinical Associate Professor
Vet Small Animal Clinical Sc
DVM, Ross University School of Veterinary Medicine, 2007

Scarfuto, Jessica C, Lecturer
Civil & Environmental Engineering
MS, Texas A&M University, 2014

Schade, Gunnar W, Associate Professor
Atmospheric Sciences
PHD, Johannes Gutenberg Universitat at Germany, 1997

Schaefer, Amber J, Instructional Associate Professor
Chemistry
PHD, Rice University, 2007

Schaefer, Kristin Lyn, Instructional Assistant Professor
College of Engineering
PHD, University of Houston, 2024

Schaefer, Scott D, Professor
Computer Science & Engineering
PHD, Rice University, 2006

Schafer, Toryn, Assistant Professor
Statistics
PHD, University of Missouri, 2020

Schakel, David J, Instructional Assistant Professor
Kinesiology & Sport Management
MA, Ball State University, 1978

Schanerberger, Evan, Adjunct Professor of Law
School of Law
JD, University of Chicago Illinois, 2015
LLM, Northwestern University, 2017

Schieck, Ashley R, Adjunct Professor of Law
School of Law
JD, Southern Methodist University, 2008

Schielack, Vincent, Associate Professor
Mathematics
PHD, The University of Texas at Austin, 1982

Schlegel, Rebecca J, Professor
Psychological & Brain Sciences
PHD, University of Missouri at Columbia, 2009

Schleining, Jennifer A, Clinical Professor
Vet Large Animal Clinical Sc
DVM, Iowa State University, 2001

Schloss, Rebecca H, Associate Professor
History
PHD, Duke University, 2003

Schlumprecht, Thomas B, Professor
Mathematics
PHD, Ludwig Maximilians Universitat, Germany, 1988

Schmeichel, Brandon J, Professor
Psychological & Brain Sciences
PHD, Florida State University, 2005

Schmit, Cason D, Associate Professor
Health Policy & Management
JD, Arizona State University, 2012

Schmitz, David G, Visiting Associate Professor
Vet Large Animal Clinical Sc
DVM, Kansas State University, 1976

Schneiderman, Emet D, Professor
Biomedical Sciences
PHD, University of Michigan at Ann Arbor, 1985

Schobert, Sarah, Lecturer
Animal Science
MS, Oklahoma State University, 2017

Schoenung, Julie M, Professor
Mechanical Engineering
PHD, Massachusetts Institute of Technology, 1987

Schoenung, Julie M, Professor
Materials Science & Engr
PHD, Massachusetts Institute of Technology, 1987

Schrader, Todd W, Instructional Associate Professor
Mathematics
MS, Texas A&M University, 2016

Schriever, John, Visiting Professor of the Practice
Kinesiology & Sport Management
BBA, Stephen F Austin State University, 1983

Schuessler, Hans A, Professor
Physics & Astronomy
PHD, Universitat Heidelberg, 1964

Schuessler, John M, Associate Professor
International Affairs
PHD, University of Chicago, 2007

Schuld, Dawna L, Associate Professor
College of Performance, Visualization & Fine Arts
PHD, The University of Chicago, 2009

Schuller, Michael J, Visiting Instructional Professor
Ocean Engineering
DEN, Texas A&M University, 1985

Schulman, Craig T, Professor of the Practice
Economics
PHD, Texas A&M University, 1990

Schulman, Steven Herbert, Adjunct Professor of Law
School of Law
JD, Northwestern University, 1994

Schulze, Anja, Professor
Marine Biology
PHD, University of Victoria, Canada, 2001

Schumacher, Courtney, Professor
Atmospheric Sciences
PHD, University of Washington, 2003

Schutz, Alyssa, Lecturer
College of Nursing
MSN, Texas A&M University, 2018

Schwartz, Daniel L, Associate Professor
History
PHD, Princeton University, 2009

Schwarz, John R, Senior Professor
Marine Biology
PHD, Rensselaer Polytechnic Institute, 1972

Schwehr, Kathleen A, Instructional Assistant Professor
Foundational Sciences
PHD, Texas A&M University, 2004

Schweikert, Emile A, Professor
Chemistry
PHD, Universite de Paris, France, 1964

Schweitzer, Jordan L, Clinical Associate Professor
Endodontics
DDS, Baylor College of Dentistry, 1986

Schwitzer, David, Clinical Assistant Professor
Oral & Maxillofacial Surgery
DDS, University of Michigan, 2017
MD, University of Texas Southwestern, 2020

Scialdone, Michael, Clinical Associate Professor
Information & Operations Mgmt
PHD, Syracuse University, 2014

Scott, Andee, Associate Professor
College of Performance, Visualization & Fine Arts
MFA, Texas Woman's University, 2001

Scott, Bentley Nelson, Assistant Professor of the Practice
Land Arch & Urban Planning
MS, Texas A&M University, 2015

Scott, H. Morgan, Professor
Veterinary Pathobiology
DVM, University of Saskatchewan, 1988
PHD, University of Guelph, 1998

Scott, Matthew A, Assistant Professor
Vet Large Animal Clinical Sc
DVM, Mississippi State University, 2018
PHD, Mississippi State University, 2021

Scott, Timothy P, Professor
Biology
PHD, Texas A&M University, 1996

Scully, Marlan O, Distinguished Professor
Physics & Astronomy
PHD, Yale University, 1966

Sczepanski, Jonathan T, Professor
Chemistry
PHD, The Johns Hopkins University, 2010

Seaback, Wanda F, Lecturer
College of Nursing
MNU, Texas Women's University, 2005

Seabury, Christopher M, Professor
Veterinary Pathobiology
PHD, Texas A&M University, 2004

Sears, Nicholas Allen, Instructional Associate Professor
Multidisciplinary Engineering
PHD, Texas A&M University, 2017

Seaworth, Angela, Instructional Associate Professor
Public Service and Administration
PHD, Indiana University, 2016

Seely, Andrew, Instructional Associate Professor
Biology
PHD, Texas A&M University, 2017

Seers, Thomas D, Associate Professor
Petroleum Engineering-Qatar Campus
PHD, University of Manchester, 2016

Segal, Shoshana, Assistant Professor
Marketing
PHD, New York University, 2025

Seeger, Michael B, Associate Professor of the Practice
College of Engineering
PHD, University of Texas at Dallas, 2023

Seguin-Fowler, Rebecca, Professor
Nutrition
PHD, Tufts University, 2008

Seifikar, Shahrooz, Clinical Faculty
Periodontics
DDS, Texas A&M, 2006

Seipp, Adam R, Professor
History
PHD, University of North Carolina at Chapel Hill, 2005

Seipp, Leslie S, Senior Lecturer
Marketing
MBA, Rice University, 2008

Sekhposyan, Tatevik, Associate Professor
Economics
PHD, University of North Carolina Chapel Hill, 2010

Selig, Keegan, Assistant Professor
Anthropology
PHD, University of Toronto, 2021

Selli, Serene, Clinical Assistant Professor
College of Medicine
DO, University of North Texas Health Science Center, 2020

Selva Valero, Daniel, Associate Professor
Aerospace Engineering
PHD, Massachusetts Institute of Technology, 2012

Seminario, Jorge M, Professor
Chemical Engineering
PHD, Southern Illinois University Carbondale, 1987

Sen, Arun, Professor
Information & Operations Mgmt
PHD, Pennsylvania State University, 1979

Sen, Ravi, Associate Professor
Information & Operations Mgmt
PHD, University of Illinois at Urbana-Champaign, 2003

Sengupta, Sinjini, Instructional Associate Professor
Mathematics
PHD, Florida State University, 2006

Sentmanat, Martin L, Professor of the Practice
Chemical Engineering
PHD, McGill University, 1995

Seo, Haram, Assistant Professor
Management
PHD, University of Minnesota, 2021

Seo, Jinsil, Professor
College of Performance, Visualization & Fine Arts
PHD, Simon Fraser University, 2011

Septiningsih, Endang M, Professor
Soil & Crop Sciences
PHD, Cornell University, 2002

Seremetis, Laurie, Clinical Associate Professor
College of Medicine
MD, SUNY Upstate Medical University, 1989

Serpedin, Erchin, Professor
Electrical & Computer Eng
PHD, University of Virginia, 1999

Serpedin, Erchin, Professor
Electrical & Computer Eng-Qatar Campus
PHD, University of Virginia, 1999

Serra, Danila, Associate Professor
Economics
PHD, University of Oxford and Centre for the Study of African Economies, 2009

Serrato, Isabella Marie, Clinical Assistant Professor
College of Pharmacy
PHARMD, University of Houston College of Pharmacy, 2023

Sexton, Taylor, Visiting Lecturer
Health Policy & Management
MPH, University of North Texas Health Science Center, 2021

Seyed Sadr Khani, Seyed Moein, Clinical Faculty
Endodontics
DDS, Tabriz University of Medical Sciences, 2013

Seymore, Malinda L, Professor
School of Law
JD, Baylor University, 1986

Sezgin, Ergin, Professor
Physics & Astronomy
PHD, State University of New York at Stony Brook, 1980

Shafer, C S, Professor
Hospitality Hotel Management & Tourism
PHD, Clemson University, 1993

Shafron, Emily-Anne Chicksen, Assistant Professor
Accounting
PHD, The University of Georgia, 2019

Shah Esmaeili, Yasmina, Visiting Assistant Professor
Marine Biology
PHD, State University of Campinas, 2023

Shah, Dhvani, Clinical Assistant Professor
Pediatric Dentistry
DDS, Herman Ostrow School of Dentistry of USC, 2019

Shah, Ruby Preeti, Instructional Assistant Professor
School of Engineering Medicine
MD, Baylor College of Medicine, 2008

Shah, Sarita, Clinical Faculty
Pediatric Dentistry
DDS, University of the Pacific, 1996

Shahmirzadi, Solaleh, Clinical Assistant Professor
Diagnostic Sciences
DDS, Tehran Azad University School of Dentistry, 2009

Shakkottai, Srinivas G, Professor
Electrical & Computer Eng
PHD, University of Illinois Urbana-Champaign, 2007

Shaltout, Mahmoud, Instructional Associate Professor
Epidemiology & Biostatistics
PHD, University of Salford, 2015

Shamberger, Patrick J, Associate Professor
Materials Science & Engr
PHD, University of Washington, 2010

Shandley, Robert R, Professor
International Affairs
PHD, University of Minnesota, Twin Cities, 1996

Shao, Lin, Professor
Nuclear Engineering
PHD, University of Houston, 2001

Shapiro, Lee A, Associate Professor
College of Medicine
PHD, State University of New York at Stony Brook, 2004

Sharma, Amalesh, Associate Professor
Marketing
PHD, Georgia State University, 2017

Sharon, Guni, Associate Professor
Computer Science & Engineering
PHD, Ben-Gurion University, 2015

Sharp, Nate Y, Professor
Accounting
PHD, University of Texas, 2007

Shatalov, Oksana, Instructional Professor
Mathematics
PHD, Technion - Israel Institute of Technology, 2001

Shaw, Brian D, Professor
Plant Pathology & Microbiology
PHD, Cornell University, 2000

Shaw, Shana, Associate Professor of the Practice
College of Engineering
MS, Purdue University, 2000

Shaw, Surupa, Instructional Assistant Professor
Multidisciplinary Engineering
PHD, University of New Hampshire, 2015

Shaw, Timothy A, Visiting Lecturer
Public Service and Administration
JD, Ohio Northern University School of Law, 1983

Sheehan, Niall, Visiting Lecturer
Information & Operations Mgmt
DBA, Middlesex University - London, 2013

Shehane, Melissa R, Instructional Assistant Professor
Rangeland, Wildlife and Fisheries Management
PHD, Texas A&M University, 2014

Shehata, Ehab Aly, Clinical Associate Professor
Oral & Maxillofacial Surgery
BDS, Alexandria University, Egypt, 1997
PHD, Alexandria University, Egypt, 2004

Sheikh, Emmad, Clinical Faculty
Comprehensive Dentistry
DDS, University of Maryland School of Dentistry, 2011

Shell, Dylan A, Professor
Computer Science & Engineering
PHD, University of Southern California, 2008

Shen, Yang, Associate Professor
Electrical & Computer Eng
PHD, Boston University, 2008

Shenoy Katapadikar, Vinayak, Instructional Associate Professor
College of Medicine
PHD, University of Florida, 2009

Shenoy, Anitha Kota, Instructional Associate Professor
College of Medicine
PHD, University of Florida, 2012

Shepard, Mark Cullom, Visiting Lecturer
Eng Tech & Ind Distribution
MS, University of Houston, 2018

Sherman, Elizabeth, Visiting Associate Professor of the Practice
International Affairs
MS, National War College, 2021

Sherman, John Bradley, Professor of the Practice
Bush School of Government and Public Service

Sherman, Ledric D, Associate Professor
Health Behavior
PHD, Texas A&M University, 2013

Sherrod, Denise, Visiting Senior Lecturer
Eng Tech & Ind Distribution
MEN, Texas A&M University, 2021

Shetty, Ashok K, Professor
College of Medicine
PHD, All India Institute of Medical Sciences, 1990

Shetty, Bala, Professor
Information & Operations Mgmt
PHD, Southern Methodist University, 1985

Shetty, Manish M, Assistant Professor
Chemical Engineering
PHD, Massachusetts Institute of Technology, 2017

Shetty, Naresh Yedthare, Clinical Assistant Professor
Oral & Maxillofacial Surgery
BDS, Dharwad University, 1997
PHD, Pacific Academy of Higher Education and Research University, Udaipur, 2018

Sheynin, Jony, Research Assistant Professor
College of Medicine
PHD, Rutgers, 2014

Shi, Huanhuan, Associate Professor
Marketing
PHD, The Pennsylvania State University, 2016

Shi, Wei Dong, Senior Lecturer
Global Languages & Cultures
MA, Beijing Normal University, 1999

Shi, Weiping, Professor
Electrical & Computer Eng
PHD, University of Illinois Urbana-Champaign, 1992

Shim, Won Bo, Professor
Plant Pathology & Microbiology
PHD, Purdue University, 2000

Shin, Jiho, Assistant Professor
Chemical Engineering
PHD, University of Illinois at Urbana Champaign, 2018

Shipman, Frank M, Professor
Computer Science & Engineering
PHD, University of Colorado, 1993

Shippen, Dorothy E, Senior Professor
Biochemistry & Biophysics
PHD, University of Alabama at Birmingham, 1987

Shireman, Paula K, Professor
College of Medicine
MD, Indiana University Purdue University Indianapolis, 1990

Shireman, Paula K, Professor
College of Medicine
MD, Indiana University Purdue University Indianapolis, 1990

Shiu, Anne J, Professor
Mathematics
PHD, University of California at Berkeley, 2010

Shoemake, Brian, Clinical Assistant Professor
Vet Large Animal Clinical Sc
DVM, University of Tennessee - Knoxville, 2011

Shoemaker, Tyler, Assistant Professor
English
PHD, University of California, Santa Barbara, 2020

Shor, Roman J, Associate Professor
Petroleum Engineering
PHD, University of Texas, 2016

Short, Aric K, Professor
School of Law
JD, University of Texas at Austin, 1996

Shrestha, Khim Raj, Instructional Assistant Professor
Foundational Sciences
PHD, Syracuse University, 2015

Shrestha, Madhu, Clinical Assistant Professor
Diagnostic Sciences
BDS, Tribhuvan University, 2008
PHD, Hiroshima University, 2019

Shryock, Kristi J, Associate Professor
Multidisciplinary Engineering
PHD, Texas A&M University, 2011

Shukla, Keshawa, Professor of the Practice
Multidisciplinary Engineering
PHD, Banaras Hindu University, 1979

Shults, Ryan, Visiting Senior Lecturer
Construction Science
MAR, University of Kansas, 2013

Shumbera, Kristen L, Senior Lecturer
Teaching, Learning & Culture
MS, University of Florida, 2007

Shynkaruk, Kateryna, Senior Lecturer
International Affairs
PHD, National Taras Shevchenko University of Kyiv, 2011

Sicilio, Mark, Clinical Associate Professor
College of Medicine
MD, Texas A&M University, 1981

Siddiqui, Farhan, Research Professor
Aerospace Engineering
PHD, Texas A&M University, 2021

Sideris, Petros, Associate Professor
Civil & Environmental Engineering
PHD, University of Buffalo - The State University of New York, 2012

Siegel, Jonathan, Assistant Professor
Mathematics
PHD, University of California, Los Angeles, 2018

Siegele, Deborah A, Associate Professor
Biology
PHD, University of Wisconsin, Madison, 1989

Sievert, Ronald J, Associate Professor of the Practice
International Affairs
JD, The University of Texas at Austin, 1977

Siktar, Joshua, Visiting Assistant Professor
Mathematics
PHD, University of Tennessee, Knoxville, 2024

Silkwood, Catherine, Instructional Associate Professor
Veterinary Pathobiology
PHD, Texas A&M University, 2015

Silva, Rick, Instructional Assistant Professor
College of Medicine
PHD, Colorado State University, 2000

Silva-Martinez, Jose E, Professor
Electrical & Computer Eng
PHD, Katholieke Universiteit Leuven, 1992

Silvy, Beth, Instructional Assistant Professor
Rangeland, Wildlife and Fisheries Management
PHD, Texas A&M University, 2019

Simanjuntak, Paul, Visiting Assistant Professor
Mathematics
PHD, University of Missouri-Columbia, 2023

Simas, Elizabeth, Associate Professor
Political Science
PHD, University of California, Davis, 2011

Simmons, Sara, Clinical Instructor
College of Nursing
MSN, Western Governors University, 2022

Simmons, Tiffany Ann, Visiting Lecturer
Eng Tech & Ind Distribution
MS, Southern Illinois University, 2019

Simms, Lance Eric, Senior Lecturer
Construction Science
MS, Texas A&M University, 2000

Simpson II, Harold V, Clinical Faculty
Pediatric Dentistry
DDS, The University of Texas Health Science Center, 1977
MSD, Baylor University Waco, 1979

Sinatra, Alexandra, Adjunct Professor of Law
School of Law
JD, Texas A&M University, 2014

Singer, John N, Associate Professor
Kinesiology & Sport Management
PHD, Ohio State University, 2002

Singer, Shaunta L, Lecturer
Teaching, Learning & Culture
PHD, University of Virginia, 2008

Singh, Chanan, University Distinguished Professor
Electrical & Computer Eng
PHD, University of Saskatchewan, 1972

Singh, Irtisha, Assistant Professor
College of Medicine
PHD, Weill Cornell Graduate School of Medical Sciences, 2017

Singh, Narendra, Assistant Professor
Aerospace Engineering
PHD, University of Minnesota, Twin Cities, 2020

Singh, Vijay P, Professor
Biological & Agricultural Eng
PHD, Colorado State University, 1974

Singleton, Daniel A, Professor
Chemistry
PHD, University of Minnesota, 1986

Singleton, Julie A, Clinical Associate Professor
Teaching, Learning & Culture
PHD, Texas A&M University, 2011

Singleton, Leslie, Instructional Associate Professor
College of Medicine
EDD, Texas Tech University, 2015

Sinha, Nikita, Clinical Assistant Professor
Comprehensive Dentistry
BDS, Dr. NTR University of Health Sciences, 2013
MSD, Dr. NTR University of Health Sciences, 2016

Sinha, Samiran, Professor
Statistics
PHD, University of Florida, 2004

Sinova, Jairo, Senior Professor
Physics & Astronomy
PHD, Indiana University, 1999

Sitcheran, Raquel M, Associate Professor
College of Medicine
PHD, University of California at San Francisco, 2000

Sivaram, Gargi, Lecturer
Biochemistry & Biophysics
BS, University of Washington, 2020

Siwko, Stefan K, Instructional Assistant Professor
College of Medicine
PHD, Stanford University, 2005

Skaggs, Chris L, Professor
Animal Science
PHD, Iowa State University, 1992

Skare, Jon T, Professor
College of Medicine
PHD, Washington State University, 1992

Skillen, Kinsey, Assistant Professor
Civil & Environmental Engineering
PHD, Purdue University, 2020

Skokowski, Nikolas, Adjunct Professor of Law
School of Law
JD, Texas A&M University, 2014

Skow, Loren C, Senior Professor
Vet Integrative Biosciences
PHD, Texas A&M University, 1976

Slagel, Kristin N, Instructional Associate Professor
Kinesiology & Sport Management
MS, Texas A&M University, 2002

Slaton, Mary, Clinical Instructor
College of Nursing
MSN, Walden University, 2014

Slattery, George P, Professor
Teaching, Learning & Culture
PHD, Louisiana State University, 1989

Slattery, Jeff W, Clinical Associate Professor
School of Law
JD, University of California, 1999

Slatton, Katie J, Instructional Associate Professor
Maritime Studies
MED, University of Montevallo, 2003

Slavov, Arden Anderson, Visiting Lecturer
Kinesiology & Sport Management
PHD, Texas A&M University, 2019

Sliva, Catherine A, Associate Professor of the Practice
Petroleum Engineering
BS, Texas A&M University, 1980

Sliva, Glenn M, Associate Professor of the Practice
Petroleum Engineering
BS, Texas A&M University, 1981

Slivkoff, Mark, Instructional Associate Professor
School of Engineering Medicine
PHD, New Mexico State University, 2001

Slobodin, Howard S., Adjunct Professor of Law
School of Law
JD, University of Texas, 2001

Slough, Sharlet, Clinical Associate Professor
College of Medicine
DO, University of North Texas Health Science Center, 2001

Slowey, Niall C, Professor
Oceanography
PHD, Massachusetts Institute of Technology, 1991

Smallman, Rachel E, Associate Professor
Psychological & Brain Sciences
PHD, University of Illinois at Urbana-Champaign, 2010

Smith Cox, Shae Vaughn, Assistant Professor
History
PHD, University of Nevada, Las Vegas, 2020

Smith, A. Peyton, Associate Professor
Soil & Crop Sciences
PHD, University of Wisconsin, Madison, 2013

Smith, Andrew T, Visiting Professor of the Practice
Management
BBA, Texas A&M University, 2008

Smith, Ava Kathryn, Clinical Assistant Professor
College of Medicine
MS, Baylor College of Medicine, Houston, 2017

Smith, C W, Professor
Soil & Crop Sciences
PHD, University of Tennessee, 1974

Smith, Chris Shane, Lecturer
Eng Tech & Ind Distribution
MS, University of Arkansas at Little Rock, 1996

Smith, Christopher Wayne, Instructional Assistant Professor
Marine and Coastal Environmental Science
PHD, University of Georgia, 2019

Smith, Clint D, Lecturer
Eng Tech & Ind Distribution
MBA, University of Houston, 2002

Smith, Donald R, Senior Associate Professor
Industrial & Systems Engineering
PHD, University of Arkansas, 1973

Smith, James L, Professor
Biology
PHD, University of Florida, 2002

Smith, James M, Visiting Lecturer
International Affairs
PHD, The University of Alabama, 1993

Smith, Jason M, Lecturer
Political Science
PHD, Texas A&M University, 2009

Smith, Krista, Associate Professor
Physics & Astronomy
PHD, University of Maryland, 2017

Smith, Laura N, Assistant Professor
College of Medicine
PHD, George Mason University, 2008

Smith, Mason A, Instructional Assistant Professor
College of Performance, Visualization & Fine Arts
MS, Texas A&M University, 2018

Smith, Matthew L, Professor
Health Behavior
PHD, Texas A&M University, 2008

Smith, Patricia K, Professor
Biological & Agricultural Eng
PHD, North Carolina State University, 2000

Smith, Rachel J, Associate Professor
Psychological & Brain Sciences
PHD, University of Pennsylvania, 2008

Smith, Roger R, Professor
Mathematics
PHD, University of Oxford, 1976

Smith, Sonny, Visiting Lecturer
Public Service and Administration
PHD, Virginia Tech, 2009

Smith, Steven M, Professor
Psychological & Brain Sciences
PHD, University of Wisconsin, Madison, 1979

Smith-Oskrochi, Lauren, Clinical Assistant Professor
Vet Small Animal Clinical Sc
DVM, Texas A&M University, 2013

Smotherman, Michael S, Professor
Biology
PHD, University of California at Los Angeles, 1998

Snyder, Franklin G, Professor
School of Law
JD, University of Missouri at Columbia, 1983

Sobol, Neil L, Professor
School of Law
JD, Southern Methodist University, 1988

Socolofsky, Scott A, Professor
Civil & Environmental Engineering
PHD, Massachusetts Inst of Technology, 2001

Sohn McCormick, Anita, Clinical Associate Professor
Educational Psychology
PHD, Texas A&M University, 2000

Sohrabji, Farida, Professor
College of Medicine
PHD, University of Rochester, 1991

Sokolov, Alexei V, Professor
Physics & Astronomy
PHD, Stanford University, 2001

Soltis, Alison, Instructional Assistant Professor
Kinesiology & Sport Management
MS, Texas A&M University, 2023

Somogyi, Simon, Professor
Agricultural Economics
PHD, University of Adelaide, 2012

Son, Dong H, Professor
Chemistry
PHD, The University of Texas at Austin, 2002

Sones, Amerian D, Clinical Associate Professor
Comprehensive Dentistry
DMD, Tufts University, 1979

Song, Donggil, Associate Professor
Eng Tech & Ind Distribution
PHD, Indiana University Bloomington, 2015

Song, Hojun, Professor
Entomology
PHD, The Ohio State University, 2006

Song, Jianxun Jim, Professor
College of Medicine
PHD, Third Military Medical University, 1998

Song, Xiaotong, Associate Professor
College of Medicine
PHD, Nanjing Medical University, China, 2002
PHD, Nanjing Medical University, Nanjing, China, 2002

Song, Xingyong, Professor
Eng Tech & Ind Distribution
PHD, University of Minnesota, Twin Cities, 2011

Song, Yang, Associate Professor
Land Arch & Urban Planning
PHD, Clemson University, 2017

Song, Yifan, Associate Professor
Management
PHD, University of Florida, 2019

Songok, Abigail C, Instructional Assistant Professor
Chemistry
PHD, Louisiana State University, 2018

Sopchak, Kelly Savage, Clinical Assistant Professor
College of Medicine
PHD, University of Houston, 2013

Sorensen, Andrew D, Associate Professor
Multidisciplinary Engineering
PHD, University of Nebraska-Lincoln, 2009

Sorenson, Matthew, Professor
College of Nursing
PHD, Loyola University, 2002

Sorescu, Alina, Professor
Marketing
PHD, University of Houston, 2002

Sorescu, Sorin M, Professor
Finance
PHD, University of Florida, 1996

Sorg, Joseph A, Professor
Biology
PHD, University of Chicago, 2006

Sottile, Frank J, Professor
Mathematics
PHD, University of Chicago, 1994

Southard, Derek, Visiting Associate Professor of the Practice
Biomedical Engineering
MBA, Penn State, 2020

Souza, Karienn A, Research Assistant Professor
College of Medicine
PHD, University of Florida, 2012

Spalink, Angenette Marie, Associate Professor
College of Performance, Visualization & Fine Arts
PHD, Bowling Green State University, 2014

Spalink, Daniel, Associate Professor
Ecology and Conservation Biology
PHD, University of Wisconsin, Madison, 2015

Spann, Carla, Clinical Faculty
Comprehensive Dentistry
DDS, Baylor College of Dentistry, 2010

Spath, Jeffrey B, Professor
Petroleum Engineering
PHD, Mining University of Leoben, Austria, 1996

Spears, Craig M, Associate Professor of the Practice
College of Engineering
MEN, Texas A&M University, 2004

Speed, Fred M, Senior Lecturer
Eng Tech & Ind Distribution
JD, Ohio State University, 1995
PHD, University of Alabama - Huntsville, 1992

Speights, Mary, Lecturer
College of Nursing
MSN, Texas Woman's University, Denton, 2022

Spence, Alicia M, Clinical Assistant Professor
Comprehensive Dentistry
DDS, Texas A&M University, 2012

Spence, Joseph W, Adjunct Professor of Law
School of Law
JD, Baylor University, 1983

Spence, Lisa A, Senior Lecturer
Eng Tech & Ind Distribution
PHD, Gonzaga University, 2022

Sperrazza, Whitney, Assistant Professor
English
PHD, Indiana University, Bloomington, 2017

Spiers, Aurore, Assistant Professor
College of Performance, Visualization & Fine Arts
PHD, University of Chicago, 2022

Spilker, Justin, Assistant Professor
Physics & Astronomy
PHD, University of Arizona, 2017

Spittle, Leah Sarai, Clinical Assistant Professor
Dental Hygiene
MS, Texas A&M University, 2016

Sprekeler, Timo Frank, Assistant Professor
Mathematics
PHD, University of Oxford, 2021

Springer, Daniel L, Visiting Lecturer
Kinesiology & Sport Management
PHD, Texas A&M University, 2021

Springfield, Clark, Professor of the Practice
Agricultural Economics
PHD, Texas A&M University, 2008

Sprintson, Alexander, Professor
Electrical & Computer Eng
PHD, Technion-Israel Institute of Technology, 2003

Sreenivasan, Akshaya, Clinical Associate Professor
Marketing
PHD, The Pennsylvania State University, 2016

Sridhar, Shrihari, Professor
Marketing
PHD, University of Missouri at Columbia, 2009

Srinivasa, Arun R, Professor
Mechanical Engineering
PHD, University of California at Berkeley, 1991

Srinivasan, Niraja, Adjunct Professor of Law
School of Law
PHD, The University of Pennsylvania, 1996

Srinivasan, Raghavan, Professor
Ecology and Conservation Biology
PHD, Purdue University, 1992

Srinivasan, Rahul, Associate Professor
College of Medicine
PHD, University of Pittsburgh, 2006

Sriskandarajah, Chelliah, Professor
Information & Operations Mgmt
PHD, L'Institut National Polytechnique de Grenoble, 1986

Srivastava, Ankit, Associate Professor
Materials Science & Engr
PHD, University of North Texas, 2013

Srivastava, Vinod K, Research Associate Professor
Vet Integrative Biosciences
PHD, Avadh University, Faizabad, India, 1986

St. Clair, Allison, Senior Lecturer
Biology
PHD, Texas A&M University, 2017

St. Germain, Deborah Lynn, Lecturer
College of Nursing
DNP, University of Tennessee, 2008

St. Louis, Pat, Clinical Assistant Professor
Kinesiology & Sport Management
EDD, Concordia University Portland, 2020

Staack, David A, Associate Professor
Mechanical Engineering
PHD, Drexel University, 2008

Stabile, Susan M, Associate Professor
English
PHD, University of Delaware, 1997

Stagg, Robert, Assistant Professor
English
PHD, University of Southampton/ University of London, 2018

Stallone, John N, Professor
Vet Physiology & Pharmacology
PHD, University of Arizona, 1984

Stanev, Lyubo, Associate Professor of the Practice
Multidisciplinary Engineering
MEN, Texas A&M University, 2018

Stanley, Christine A, Professor
Educ Admn & Human Resource Dev
PHD, Texas A&M University, 1990

Starr, Brantley, Adjunct Professor of Law
School of Law
JD, University of Texas at Austin, 2004

Starr, LaTasha, Professor of the Practice
College of Engineering
MS, University of Texas at Arlington, 2020

Starrett, Courtney, Associate Professor
College of Performance, Visualization & Fine Arts
MFA, Temple University, 2005

Stasi, Selina M, Instructional Assistant Professor
Health Behavior
PHD, Texas A&M University, 2018

Stauffer, Jon M, Associate Professor
Information & Operations Mgmt
PHD, Indiana University, Kelley School of Business, 2016

Stech, Todd, Lecturer
Information & Operations Mgmt
MBA, Rice University- Houston, TX, 2020

Steffes, Hans, Instructional Assistant Professor
Architecture
MAR, Southern California Institute of Architecture, 2022

Steglich, Alan Lee, Clinical Faculty
Comprehensive Dentistry
DDS, Baylor College of Dentistry, 1986

Steichen, Jamie L, Instructional Associate Professor
Marine Biology
PHD, Texas A&M University, 2013

Steiner, Joerg M, Professor
Vet Small Animal Clinical Sc
PHD, Texas A&M University, 2000

Steinman, Adam, Professor
School of Law
JD, Yale University, 1997

Stelly, David M, Professor
Soil & Crop Sciences
PHD, University of Wisconsin, Madison, 1983

Stephan, Clifford C, Research Associate Professor
College of Medicine
PHD, Vanderbilt University, 1988

Stephens, Mattyna, Clinical Assistant Professor
Educ Admn & Human Resource Dev
PHD, Texas A&M University, 2014

Stevens, Jeffery A., Clinical Assistant Professor
Management
PHD, Texas A&M University, 2003

Stevens, Mark L, Clinical Assistant Professor
College of Medicine
MD, University of Texas Health Science Center, 1990

Stewart, Randolph H, Clinical Professor
Vet Physiology & Pharmacology
DVM, Texas A&M University, 1983
PHD, Texas A&M University, 1997

Stewart, Zachary, Associate Professor
Architecture
PHD, Columbia University, 2015

Stiles, Misty, Lecturer
Teaching, Learning & Culture
MED, Southwest Texas State University, 2003

Stiller, Peter F, Professor
Mathematics
PHD, Princeton University, 1977

Stoddard, Kati L, Instructional Associate Professor
Plant Pathology & Microbiology
PHD, University of North Texas, 2012

Stoleru, Radu, Professor
Computer Science & Engineering
PHD, University of Virginia, 2007

Stooksberry, John Ross, Clinical Associate Professor
Comprehensive Dentistry
DDS, Baylor College of Dentistry, 1998

Stout, Hunter Kelley, Clinical Assistant Professor
College of Pharmacy
PHARM D, University of Oklahoma, 2022

Strader, Marie, Assistant Professor
Biology
PHD, The University of Texas at Austin, 2017

Straight, Paul D, Associate Professor
Biochemistry & Biophysics
PHD, University of Colorado, 2000

Stranahan, Lauren W, Clinical Assistant Professor
Veterinary Pathobiology
DVM, North Carolina State University, 2016

Stranges, Anthony N, Associate Professor
History
PHD, University of Wisconsin, Madison, 1977

Stratton, Eric, Lecturer
College of Nursing
MSN, University of Texas at Austin, 2010

Strawser, Jerry R, Professor
Accounting
PHD, Texas A&M University, 1985

Street, Nancy A, Instructional Professor
Communication & Journalism
MA, The University of Texas at Austin, 1980

Street, Richard L, Professor
Communication & Journalism
PHD, The University of Texas at Austin, 1980

Strganac, Thomas W, Senior Professor
Aerospace Engineering
PHD, Virginia Polytechnic Institute & State University, 1987

Strickland, Chelsea Evan, Instructional Assistant Professor
Economics
PHD, Texas A&M University, 2022

Strickland, Jack, Adjunct Professor of Law
School of Law
JD, University of Texas, 1971

Strigari, Louis E, Professor
Physics & Astronomy
PHD, Ohio State University, 2005

Stringfellow, Joan E, Instructional Associate Professor
School of Law
MLS, University of North Texas, 2002

Strong, Jennifer R, Associate Professor
Ag Leadership, Educ & Comm
PHD, Oklahoma State University, 2007

Strong, Robert L, Professor
Ag Leadership, Educ & Comm
PHD, University of Florida, 2010

Stronza, Amanda L, Professor
Ecology and Conservation Biology
PHD, University of Florida, 2000

Strouboulis, Theofanis, Professor
Aerospace Engineering
PHD, University of Texas, 1986

Stuber, Sarah Barron, Associate Professor
Information & Operations Mgmt
PHD, Michigan State University, 2019

Stutts, Erin, Visiting Lecturer
Ag Leadership, Educ & Comm
MED, Texas A&M University, 2004

Su, Hung-Jue, Professor
Materials Science & Engr
PHD, University of Michigan at Ann Arbor, 1988

Su-Keene, Eleanor, Assistant Professor
Teaching, Learning & Culture
PHD, Florida Atlantic University, 2022

Subash, Sarguru, Associate Professor
Veterinary Pathobiology
BVSc, Madras Veterinary College Tamil Nadu Veterinary and Animal
Sciences University, 2005
PHD, Michigan State University, 2011

Subbarao, Suhasini T, Professor
Statistics
PHD, University of Bristol, 2001

Subramaniam, Velumani, Instructional Associate Professor
Mechanical Engineering
PHD, Bharathiar University, 1998

Suchodolski, Jan, Professor
Vet Small Animal Clinical Sc
PHD, Texas A&M University, 2005

Sudderth, Bonnie, Adjunct Professor of Law
School of Law
JD, University of Texas, 1985

Sueda, Shinjiro, Associate Professor
Computer Science & Engineering
PHD, University of British Columbia, 2010

Suermann, Patrick C, Professor
Construction Science
PHD, University of Florida, 2009

Suess Raeisinafchi, Courtney, Associate Professor
Hospitality Hotel Management & Tourism
PHD, University of Nevada, Las Vegas, 2014

Suh, C. Steve, Associate Professor
Mechanical Engineering
PHD, Texas A&M University, 1997

Suhag, Rahul, Assistant Professor
Marketing
MBA, Indian Institute of Management Indore, 2023

Sui, Xuewu, Assistant Professor
Biochemistry & Biophysics
PHD, Case Western Reserve University, 2016

Sukhishvili, Svetlana A, Professor
Materials Science & Engr
PHD, Lomonosov Moscow State University, 1989

Sullins, Alex DALE, Clinical Assistant Professor
Kinesiology & Sport Management
PHD, Texas A&M University, 2021

Sullins, Donna Lee, Instructional Associate Professor
Hospitality Hotel Management & Tourism
EDD, University of Georgia, 2016

Sullivan, Harry W, Executive Professor
School of Law
JD, Louisiana State University, 1976

Sullivan, Patrick, Assistant Professor
College of Performance, Visualization & Fine Arts
PHD, University of Rochester, 2022

Sullivan, Ronald D, Visiting Lecturer
Public Service and Administration
JD, University of Kansas, 2014

Sullivan, Seth C, Senior Lecturer
College of Engineering
MBA, The University of Texas at San Antonio, 2011

Sun, Qing, Associate Professor
Chemical Engineering
PHD, University of Delaware, 2010

Sun, Rui, Research Assistant Professor
Chemical Engineering
PHD, Texas A&M University, 2020

Sun, Yuefeng, Professor
Geology & Geophysics
PHD, Columbia University, 1994

Sun, Yuxiang, Professor
Nutrition
PHD, University of Manitoba, 2000

Susindar, Saya, Instructional Assistant Professor
College of Engineering
PHD, Texas A&M University, 2022

Sutherland, Susan, Lecturer
College of Performance, Visualization & Fine Arts
MA, University of Wisconsin, Madison, 1994

Suva, Larry J, Professor
Vet Physiology & Pharmacology
PHD, The University of Melbourne, 1992

Suzuki, Kazuko, Associate Professor
Sociology
PHD, Princeton University, 2003

Suzuki, Masako, Assistant Professor
Nutrition
PHD, Gifu University, 2002

Svajda-Hardy, Megan, Clinical Assistant Professor
Teaching, Learning & Culture
PHD, Texas A&M University, 2022

Svidzinsky, Anatoly A, Research Professor
Physics & Astronomy
PHD, Stanford University, 2001

Svoboda, Kathy K, Professor
Biomedical Sciences
PHD, University of Nebraska Medical Center, 1982

Svyantek, Andrej, Assistant Professor
Horticultural Sciences
PHD, North Dakota State University, 2021

Sweany, Noelle Wall, Clinical Professor
Educational Psychology
PHD, The University of Texas at Austin, 1999

Sweeney, David S, Visiting Associate Professor of the Practice
Eng Tech & Ind Distribution
PHD, Texas A&M University, 2018

Sweet, Kristi, Professor
Philosophy
PHD, Loyola University, Chicago, 2006

Swink, Virginia C, Visiting Senior Lecturer
Eng Tech & Ind Distribution
BS, King's College, 1986

Sword, Gregory A, Professor
Entomology
PHD, The University of Texas at Austin, 1998

Sylvan, Jason B, Professor
Oceanography
PHD, Rutgers University, 2008

Sze, Christopher, Lecturer
Mathematics
PHD, University of South Florida, 2023

Sze, Sing H, Associate Professor
Computer Science & Engineering
PHD, University of Southern California, 2000

Szerlag, Kathryn Daria, Assistant Professor
Soil & Crop Sciences
PHD, University of Delaware, 2021

Szunyogh, Istvan, Professor
Atmospheric Sciences
PHD, Hungarian Academy of Sciences, 1994

Szura, Jordan, Instructional Assistant Professor
Kinesiology & Sport Management
MS, Texas A&M University, 2019

Tabaar, Mohammad A, Associate Professor
International Affairs
PHD, Georgetown University, 2012

Tabor, Daniel, Assistant Professor
Chemistry
PHD, University of Wisconsin, Madison, 2016

Tadepalli, Krupa Sailaja, Instructional Associate Professor
College of Medicine
MD, Andhra Medical College, 2005
PHD, Osmania Medical College, 2012

Tadlock, Larry P, Clinical Professor
Orthodontics
DDS, Baylor College of Dentistry, 1984

Taele, Paul P, Instructional Associate Professor
Computer Science & Engineering
PHD, Texas A&M University, 2019

Tafet, Gustavo, Clinical Associate Professor
College of Medicine
MD, University of Buenos Aires, Argentina, 1989
PHD, Universidad de Buenos Aires, 2009

Tafreshi, Reza, Professor
Mechanical Engineering-Qatar Campus
PHD, University of British Columbia, Canada, 2005

Tag, Andrew, Instructional Associate Professor
Biology
PHD, Texas A&M University, 2003

Taha, Ramzi A, Instructional Professor
Civil & Environmental Engineering
PHD, Texas A&M University, 1989

Taheri Andani, Mohsen, Assistant Professor
Mechanical Engineering
PHD, University of Michigan, 2022

Taheri, Babak, Professor
Hospitality Hotel Management & Tourism
PHD, University of Strathclyde, UK, 2012

Tahmasbi, Mehrnaz, Clinical Associate Professor
Diagnostic Sciences
DDS, Kerman Univeristy, 2011

Tai, Bruce L., Associate Professor
Mechanical Engineering
PHD, University of Michigan Ann Arbor, 2011

Takachi Tomita, Jesuino, Professor of the Practice
Aerospace Engineering
PHD, Instituto Tecnológico de Aeronáutica,, 2009

Takir, Driss, Visiting Lecturer
Marine and Coastal Environmental Science
PHD, University of Tennessee, 2013

Talbot, Brent J, Lecturer
International Affairs
PHD, University of Denver, 2003

Talcott, Stephen T, Professor
Food Science and Technology
PHD, University of Arkansas, 2000

Talcott, Susanne U, Professor
Food Science and Technology
PHD, University of Florida, 2004

Talreja, Ramesh R, Professor
Aerospace Engineering
PHD, The Technical University of Denmark, 1974

Talreja, Ramesh R, Professor
Materials Science & Engr
PHD, The Technical University of Denmark, 1974

Tam, Esther, Clinical Faculty
Endodontics
DMD, Boston University, 2003

Tamamis, Phanourios, Associate Professor
Chemical Engineering
PHD, University of Cyprus, 2010

Tamborindéguy Camacho, Cecilia, Professor
Entomology
PHD, Institut National Polytechnique de Toulouse, 2004

Tang, Candy, Instructional Associate Professor
Hospitality Hotel Management & Tourism
PHD, Victoria University, Australia, 2012

Tang, Catherine, Assistant Professor
Psychological & Brain Sciences
PHD, Washington University - St. Louis, MO, 2021

Tang, Lu, Professor
Communication & Journalism
PHD, University of Southern California, 2007

Tanur, Monique, Clinical Faculty
Pediatric Dentistry
DDS, Universidad Tecnológica de Mexico, 1989

Tao, Feng, Professor
Biomedical Sciences
MD, Wannan Medical College, People's Republic of China, 1986
PHD, Fudan University, China, 2000

Tao, Jian, Assistant Professor
College of Performance, Visualization & Fine Arts
PHD, Washington University in St. Louis, 2008

Tapias Perdigon, Helena, Clinical Associate Professor
Comprehensive Dentistry
DDS, Universidad Nacional de Colombia, 1993

Tarar, Ahmer S, Associate Professor
Political Science
PHD, University of Rochester, 2003

Tarazaga, Pablo A, Professor
Mechanical Engineering
PHD, Virginia Polytechnic Institute and State University, 2009

Tarone, Aaron M, Professor
Entomology
PHD, Michigan State University, 2007

Tarvin, David T, Instructional Professor
Communication & Journalism
PHD, Louisiana State University, 2013

Tarwater, Patrick, Professor
Epidemiology & Biostatistics
PHD, The University of Texas Health Science Center, 1999

Tate, James Michael, Associate Professor
Architecture
MAR, Yale University, 2007

Tayce, Jordan D, Instructional Associate Professor
Vet Integrative Biosciences
DVM, Texas A&M University, 2008

Taylor, Kenneth A, Associate Professor of the Practice
Public Service and Administration
PHD, Our Lady of the Lake University, 2017

Taylor, Lathrop, Instructional Associate Professor
Biology
PHD, Texas A&M University, 1985

Taylor, Leah, Clinical Assistant Professor
Vet Small Animal Clinical Sc
DVM, University of Minnesota, 2010

Taylor, Loni, Assistant Professor
Epidemiology & Biostatistics
DVM, University of Missouri, 2008

Taylor, Lori, Professor
Public Service and Administration
PHD, University of Rochester, 1990

Taylor, Matthew, Professor
Animal Science
PHD, University of Tennessee, Knoxville, 2006

Taylor, Michelle Carron, Visiting Associate Professor of the Practice
International Affairs
BS, North Carolina State University, 2001

Taylor, Michelle M, Professor
Political Science
PHD, Rice University, 1990

Taylor, Reginald W, Associate Professor
Orthodontics
DMD, Harvard School of Dental Medicine, 1987

Taylor, Robert Stanley, Adjunct Professor of Law
School of Law
JD, Harvard University, 1975

Taylor, Thad, Clinical Faculty
Oral & Maxillofacial Surgery
DDS, Howard University, 1994

Teague, Aileen T., Assistant Professor
International Affairs
PHD, Vanderbilt University, 2018

Tedeschi, Luis O, Professor
Animal Science
PHD, Cornell University, 2001

Teel, Pete D, Research Professor
Entomology
PHD, Oklahoma State University, 1978

Teifke, Christopher Justin, Adjunct Professor of Law
School of Law
JD, Vermont Law & Graduate School, 2007

Teixeira, Erica, Professor
Comprehensive Dentistry
DDS, University of Campinas, 2000

Teixeira, Fabricio, Professor
Endodontics
DDS, Gama Filho University, 1993

Teizer, Winfried, Professor
Physics & Astronomy
PHD, University of Massachusetts - Amherst, 1998

Tejada Oller, Jennifer Natalia, Clinical Assistant Professor
College of Medicine
MD, San Juan Bautista school of Medicine, 2015

Teller, Lori M, Clinical Professor
Vet Small Animal Clinical Sc
DVM, Texas A&M University, 1990

Templin, Mai Phuong L, Instructional Assistant Professor
Kinesiology & Sport Management
MAR, University of Houston, 1992

Tenpas, Andrew Scott, Clinical Assistant Professor
College of Pharmacy
PHARM D, University of Wisconsin-Madison School of Pharmacy, 2019

Terner, Benjamin, Adjunct Professor of Law
School of Law
JD, Thomas Jefferson School of Law, 2011
LLM, Thomas Jefferson School of Law, 2011

Tewari, Bhanu, Assistant Professor
Biology
PHD, National Institute of Mental Health and Neurosciences, 2014

Thakar, Heather B, Assistant Professor
Anthropology
PHD, University of California at Santa Barbara, 2014

Thangavel, Samikkannu, Associate Professor
Pharmaceutical Sciences
PHD, University of Madras, 1997

Thibault, Aaron, Associate Professor of the Practice
College of Performance, Visualization & Fine Arts
BS, University of Texas, Austin, 2004

Thicke, Kyle Steven, Instructional Assistant Professor
Mathematics
PHD, Duke University, 2019

Thielman, Frances M, Lecturer
English
PHD, Texas A&M University, 2021

Thieman, Kelley, Professor
Vet Small Animal Clinical Sc
DVM, University of Missouri at Columbia, 2006

Thomas, Andy Alexander, Assistant Professor
Chemistry
PHD, University of Illinois at Urbana - Champaign, 2017

Thomas, Daniel Josiah, Assistant Professor
Teaching, Learning & Culture
PHD, University of Texas at Austin, 2021

Thomas, Deborah J, Professor
Oceanography
PHD, University of North Carolina at Chapel Hill, 2002

Thomas, Edwin L, Professor
Materials Science & Engr
PHD, Cornell University, 1974

Thomas, Francis E, Instructional Professor
Kinesiology & Sport Management
MS, Texas A&M University, 1980

Thomas, Gray Cortright, Assistant Professor
Mechanical Engineering
PHD, University of Texas at Austin, 2019

Thomas, Karen, Lecturer
College of Nursing
MSN, University of Texas Health Science Houston, 2013

Thomas, Laura E, Visiting Lecturer
Kinesiology & Sport Management
MS, Texas A&M University, 2013

Thomas, Levi, Adjunct Professor of Law
School of Law
JD, New York University, 2012

Thomas, Naveen, Instructional Assistant Professor
Mechanical Engineering
PHD, Texas A&M University, 2021

Thomas, Rebecca S, Senior Lecturer
Teaching, Learning & Culture
MED, Texas A&M University, 1998

Thomas, Shawna, Instructional Associate Professor
Computer Science & Engineering
PHD, Texas A&M University, 2010

Thompson, Christopher G, Associate Professor
Educational Psychology
PHD, Florida State University, 2016

Thompson, James A, Professor
Vet Large Animal Clinical Sc
DVM, University of Guelph, 1982

Thompson, Julie L, Associate Professor
Educational Psychology
PHD, University of North Carolina at Charlotte, 2014

Thompson, Regina, Visiting Associate Professor of the Practice
Public Service and Administration
MSW, The Ohio State University, 2005

Thompson, Stephen William, Senior Lecturer
Eng Tech & Ind Distribution
PHD, University of Dundee, 1976

Thompson, Troy Neal, Assistant Professor of the Practice
Agricultural Economics
MS, Texas A&M University, 1989

Thompson, Tye S, Instructional Assistant Professor
Chemistry
PHD, Texas A&M University, 2024

Thomson, Michael J, Professor
Soil & Crop Sciences
PHD, Cornell University, 2002

Thornton, Daniel C, Professor
Oceanography
PHD, Queen Mary Westfield College, University of London, 1996

Thornton, Hailey N, Instructional Assistant Professor
Kinesiology & Sport Management
MS, Texas A&M University, 2024

Thornton, Michael A, Clinical Assistant Professor
Kinesiology & Sport Management
PHD, Texas A&M University, 2007

Thornton, Patricia H, Professor
Sociology
PHD, Stanford University, 1993

Thornton, Sara, Adjunct Professor of Law
School of Law
JD, Texas Tech University, 2008

Threadgill, David W, Professor
Nutrition
PHD, Texas A&M University, 1989

Threadgill, David W, Professor
College of Medicine
PHD, Texas A&M University, 1989

Thyagarajan, Ravi Shanker, Professor of the Practice
Mechanical Engineering
PHD, California Institute of Technology, 1989

Tian, Chao, Professor
Electrical & Computer Eng
PHD, Cornell University, 2005

Tian, Guanyu, Assistant Professor
Marine Engineering Technology
PHD, University of Central Florida, 2022

Tian, Guoqiang, Professor
Economics
PHD, University of Minnesota, Twin Cities, 1987

Tian, Limei, Associate Professor
Biomedical Engineering
PHD, Washington University in St. Louis, 2014

Tichenor, Nathan R, Visiting Research Associate Professor
Aerospace Engineering
PHD, Texas A&M University, 2010

Timmins, Lucas, Associate Professor
Biomedical Engineering
PHD, Texas A&M University, 2010

Timothe, Peggy, Associate Professor
Public Health Sciences
DDS, New York University, 1994

Tingey, Scott M, Visiting Senior Lecturer
Eng Tech & Ind Distribution
MBA, Washington State University, 2000

Tinker, Audrey, Instructional Assistant Professor
Construction Science
PHD, Texas A&M University, 2003

Titi, Edriss S, Professor
Mathematics
PHD, Indiana University, Bloomington, 1986

Tiwari, Ananya, Assistant Professor
Educational Psychology
PHD, University of Illinois, 2023

Toback, David, Professor
Physics & Astronomy
PHD, University of Chicago, 1997

Todd, Dorothy R, Instructional Assistant Professor
English
PHD, University of Georgia, 2017

Tofighi Zavareh, Amir, Assistant Professor
Eng Tech & Ind Distribution
PHD, Texas A&M University, 2019

Tolbert, Katie, Associate Professor
Vet Small Animal Clinical Sc
DVM, University of Georgia, 2006
PHD, North Carolina State University, 2013

Tolentino, Mary Vu, Clinical Faculty
Dental Hygiene
MS, Texas A&M University, 2013

Toliyat, Hamid A, Professor
Electrical & Computer Eng
PHD, University of Wisconsin, Madison, 1991

Tomaszewski, Michael A, Visiting Professor
Animal Science
PHD, North Carolina State University, 1972

Tomberlin, Jeffery K, Professor
Entomology
PHD, University of Georgia, 2001

Tomio, Davide, Assistant Professor
Finance
PHD, Copenhagen Business School, 2017

Tommos, Cecilia, Professor
Biochemistry & Biophysics
PHD, Stockholm University, 1997

Toney, Glenn, Professor
College of Medicine
PHD, University of Louisville, 1992

Tong, Carl W, Associate Professor
College of Medicine
MD, Texas A&M University, 2002
PHD, Texas A&M University, 2002

Tong, David Y C, Visiting Senior Lecturer
Eng Tech & Ind Distribution
MA, Houston Baptist University, 2019

Tong, Fuhui, Professor
Educational Psychology
PHD, Texas A&M University, 2006

Tong, Wai, Assistant Professor
College of Performance, Visualization & Fine Arts
PHD, The Hong Kong University of Science & Technology, 2023

Topinka, Joseph Baar, Adjunct Professor of Law
School of Law
JD, Northern Illinois University, 1993
LLM, Loyola University Chicago, 2008

Torabi, Katayoun, Instructional Associate Professor
English
PHD, Texas A&M University, 2018

Torbenson, Max, Assistant Professor
Geography
PHD, University of Arkansas, Fayetteville, 2019

Torbic, Kristin, Lecturer
College of Nursing
MSN, Troy University, 2022

Torres, Jacob M, Senior Lecturer
Civil & Environmental Engineering
PHD, Rice University, 2016

Toussaint, L. Gerard, Clinical Faculty
College of Medicine
MD, The University of North Carolina, 2000
MD, University of North Carolina School of Medicine, 2000

Tower, Amelia, Instructional Associate Professor
College of Medicine
DO, A.T. Still University of Health Sciences, 2008

Townsend, Grace L, Instructional Associate Professor
Foundational Sciences
MS, University of Houston at Clear Lake, 1983

Traber, Daniel S, Professor
Maritime Studies
PHD, University of Houston, 2000

Trache, Andreea, Associate Professor
College of Medicine
PHD, Institute of Atomic Physics, Romania, 1996

Tran, Han Duc, Instructional Assistant Professor
Computer Science & Engineering
PHD, The University of Texas at Austin, 2010

Tran, Minh Binh, Associate Professor
Mathematics
PHD, Paris 13 University, 2011

Tran, Tien Dinh, Clinical Faculty
Comprehensive Dentistry
DDS, UTHealth School of Dentistry, 2023

Trevino, Ruth, Instructional Associate Professor
College of Medicine
MD, Texas A&M University Health Science Center, 2010

Trimble, Amanda, Clinical Assistant Professor
Vet Large Animal Clinical Sc
BVMS, University of Glasgow, 2014

Triplett, Holden, Visiting Professor of the Practice
International Affairs
JD, University of California, Berkeley, 2003

Tripp, Andrew Reed, Associate Professor
Architecture
PHD, University of Pennsylvania, 2017

Tropina, Albina, Research Professor
Aerospace Engineering
PHD, Kyiv Aviation University, 2011
PHD, V.N. Karazin Kharkiv National University, 1999

Trost, Zina, Associate Professor
Psychological & Brain Sciences
PHD, Ohio University, Athens, OH, 2010

Troy, Lisa C, Clinical Professor
Marketing
PHD, Texas A&M University, 1997

Tryon, Kerry, Clinical Assistant Professor
Comprehensive Dentistry
DMD, Washington University School of Dental Medicine, 1984

Tsai, Chia-Che, Assistant Professor
Computer Science & Engineering
PHD, Stony Brook University, 2017

Tsai, Robert Y, Professor
College of Medicine
PHD, John Hopkins University School of Medicine, 1996

Tse, Senyo Y, Professor
Accounting
PHD, University of California at Berkeley, 1983

Tsenn, Joanna N, Instructional Associate Professor
Mechanical Engineering
PHD, Texas A&M University, 2016

Tseregounis, Spyros I, Professor of the Practice
Chemical Engineering
PHD, University of California at Los Angeles, 1984

Tseregounis, Spyros I, Professor of the Practice
Mechanical Engineering
PHD, University of California at Los Angeles, 1984

Tsvetkov, Pavel, Professor
Nuclear Engineering
PHD, Texas A&M University, 2002

Tsvetkova, Galina V, Senior Lecturer
Nuclear Engineering
PHD, Texas A&M University, 2003

Tu, Qing, Assistant Professor
Materials Science & Engr
PHD, Duke University, 2017

Tu, Zhengzhong, Assistant Professor
Computer Science & Engineering
PHD, The University of Texas at Austin, 2022

Tuhkanen, Mikko J, Professor
English
PHD, University at Buffalo, 2005

Tunnell, John C, Clinical Faculty
Periodontics
DDS, University of Texas Health Science Center, 2013

Tuo, Rui, Associate Professor
Industrial & Systems Engineering
PHD, Chinese Academy of Sciences, 2013

Turner, John, Associate Professor
Educ Admn & Human Resource Dev
PHD, University of North Texas, 2015

Turner, Kenneth E, Lecturer
Veterinary Pathobiology
DVM, University of Pennsylvania, 1992

Twedt, Brady James, Professor
Accounting
PHD, Texas A&M University, 2013

Twining, Neoma, Adjunct Professor of Law
School of Law
BA, Texas A&M University, 1983

Tyagi, Aakash, Professor of the Practice
Computer Science & Engineering
PHD, University of Louisiana, 1993

Tyagi, Ashish, Research Assistant Professor
Pharmaceutical Sciences
PHD, HNB Garhwal University, 2014

Tyler, John, Senior Lecturer
Electrical & Computer Eng
MS, University of Central Texas, 1979

Uchacz, Tianna Helena, Assistant Professor
College of Performance, Visualization & Fine Arts
PHD, University of Toronto, 2016

Uddin, Mohammad Nasir, Research Associate Professor
College of Medicine
PHD, Gifu University, 2000

Udeani, George, Clinical Professor
College of Pharmacy
PHARM D, University of Minnesota, 1985

Ufodike, Chukwuzubelu O, Assistant Professor
Eng Tech & Ind Distribution
PHD, Florida A&M University, 2020

Ugaz, Victor M, Professor
Chemical Engineering
PHD, Northwestern University, 1999

Ukert, Benjamin, Assistant Professor
Health Policy & Management
PHD, Georgia State University, 2016

Umorin, Mikhail P, Instructional Assistant Professor
Biomedical Sciences
PHD, Baylor University, 2006

Unruh, William George, Research Professor
Physics & Astronomy
PHD, Princeton University, 1971

Unterman, Katherine R, Associate Professor
History
PHD, Yale University, 2011

Utku, Buran, Lecturer
English
PHD, Ataturk University, 2014

Vadali, Sharada R., Senior Lecturer
Eng Tech & Ind Distribution
PHD, Texas A&M University, 1996

Vadali, Srinivas R, Professor
Aerospace Engineering
PHD, Virginia Tech, 1983

Vaddevolu, Uday Bhanu Prakash, Assistant Professor
Biological & Agricultural Eng
PHD, North Dakota State University, 2023

Vaddiraju, Sreeram, Associate Professor
Chemical Engineering
PHD, University of Louisville, 2006

Vaid, Jyotsna, Professor
Psychological & Brain Sciences
PHD, McGill University, 1982

Vajipeyajula, Bhaskar, Instructional Assistant Professor
Eng Tech & Ind Distribution
PHD, Texas A&M University, 2021

Valant, John R, Clinical Faculty
Orthodontics
DDS, Loyola University, Chicago, 1979

Valasek, John L, Professor
Aerospace Engineering
PHD, University of Kansas, 1995

Valdez Flores, Ciriaco, Professor of the Practice
Industrial & Systems Engineering
PHD, Texas A&M University, 1987

Valeris-Chacin, Robert, Assistant Professor
Veterinary Pathobiology
DVM, University of Zulia, Venezuela, 2001

Vales, Maria Isabel, Professor
Horticultural Sciences
PHD, University of Vigo, Spain, 1996

Vallone, Lucien V, Clinical Associate Professor
Vet Small Animal Clinical Sc
DVM, Mississippi State University, 2011

Van Schaik, Erin J, Research Assistant Professor
College of Medicine
PHD, University of Alberta, Edmonton, AB, Canada, 2006

Van Zandt, Shannon S, Professor
Land Arch & Urban Planning
PHD, University of North Carolina at Chapel Hill, 2004

Van, Suzanne M, Clinical Faculty
College of Nursing
MSN, University of Texas at El Paso, 2014

Vanalstyne, John A, Professor of the Practice
Management
MS, Department of the Army, 1976

Vanburen, Vincent J, Instructional Associate Professor
College of Medicine
PHD, Lehigh University, 2002

Vanden Brink, Heidi K, Assistant Professor
Nutrition
PHD, Cornell University, 2019

Vanegas, Jorge A, Professor
Architecture
PHD, Stanford University, 1988

Varadarajan, Poondi, Distinguished Professor
Marketing
PHD, University of Massachusetts Amherst, 1979

Vargas, Ariana, Clinical Assistant Professor
Dental Hygiene
MPH, University of North Texas Health Science Center, 2023

Vargas, Sylvia, Clinical Assistant Professor
College of Nursing
DNP, The University of Texas Health Science Center at San Antonio, 2021

Varghese, Adel, Instructional Associate Professor
Economics
PHD, University of Pennsylvania, 1996

Varni, James Walter, Research Professor
Land Arch & Urban Planning
PHD, University of California, Los Angeles, 1976

Vartan, Lynn, Associate Professor
College of Performance, Visualization & Fine Arts
PHD, University of Southern California, 2004

Vasilakis, Apostolos, Instructional Professor
English
PHD, Emory University, 2004

Vassar, William, Adjunct Professor of Law
School of Law
JD, University of Oklahoma, 2002

Vaughan, David Bradley, Clinical Assistant Professor
College of Medicine
MD, The University of Texas School of Medicine at San Antonio, 1990

Vazquez, Jose A, Senior Lecturer
Industrial & Systems Engineering
MA, University of Iowa, 1986

Vechan, Ryan J, Associate Professor of the Practice
Maritime Transportation
JD, University of Houston, 2014

Vechot, Luc N, Professor
Chemical Engineering-Qatar Campus
PHD, Ecole Nationale Supérieure des Mines de Saint Etienne, France, 2007

Vedenov, Dmitry, Associate Professor
Agricultural Economics
PHD, Ohio State University, 2001

Vedlitz, Arnold, Professor
Public Service and Administration
PHD, University of Houston, 1975

Vela, Carmen G, Clinical Assistant Professor
College of Nursing
DNP, American Sentinel University, 2018

Veldman, Joseph W, Associate Professor
Ecology and Conservation Biology
PHD, University of Florida, 2010

Veldman, Robin Globus, Associate Professor
Global Languages & Cultures
PHD, University of Florida, 2018

Veldt, Nate, Assistant Professor
Computer Science & Engineering
PHD, Purdue University, 2019

Velesky, Peter, Instructional Assistant Professor
College of Arts & Sciences
MS, U.S. Army War College, 2018

Vemulapalli, Ramesh, Professor
Veterinary Pathobiology
BVSc, Andhra Pradesh Agricultural University, India, 1986
PHD, University of Maryland, 1996

Vemulapalli, Tracy H, Clinical Professor
Vet Small Animal Clinical Sc
DVM, Virginia-Maryland Regional College of Veterinary Medicine, 1998

Verchot, Jeanmarie, Professor
Plant Pathology & Microbiology
PHD, Texas A&M University, 1995

Verduzco, Rene A, Clinical Associate Professor
College of Pharmacy
PHARM, University of Texas Health Science Center at Houston, 2011

Verhoef, Aart, Assistant Professor
Soil & Crop Sciences
PHD, Ludwig-Maximilians-Universität München, 2007

Verhulst, Brad, Research Assistant Professor
College of Medicine
PHD, Stony Brook University, 2010

Verma, Alok, Professor
Marine Engineering Technology
PHD, Old Dominion University, 2005

Verma, Suzanne N, Clinical Faculty
Comprehensive Dentistry
MMS, University of Illinois at Chicago, 2001

Versaw, Wayne K, Professor
Biology
PHD, University of Wisconsin, Madison, 1995

Vess, Matthew K, Professor
Psychological & Brain Sciences
PHD, University of Missouri, 2010

Vestal, Evan D, Senior Lecturer
Eng Tech & Ind Distribution
MBA, Sam Houston State University, 1998

Viana, Andres G, Professor
Psychological & Brain Sciences
PHD, Pennsylvania State University, 2011

Victor, Collin, Visiting Assistant Professor
Mathematics
PHD, University of Nebraska - Lincoln, 2023

Vidakovic, Brani, Professor
Statistics
PHD, Purdue University, 1992

Vigus, Glen W, Visiting Lecturer
College of Performance, Visualization & Fine Arts
MED, Texas A&M University, 2005

Vijayaraghavan, Sriniketh, Assistant Professor
Marketing
PHD, University of Wisconsin - Madison, 2024

Vilaros, Teresa M, Professor
Global Languages & Cultures
PHD, University of Georgia, 1989

Villalon-Arriaga, Lorena, Lecturer
College of Nursing
MSN, Texas A&M University, 2021

Villanueva, George Allen O., Associate Professor
Communication & Journalism
PHD, University of Southern California, 2014

Villareal, Samuel S, Senior Lecturer
College of Engineering
PHD, Texas A&M University, 1999

Villarreal, Jaime, Adjunct Professor of Law
School of Law
JD, Texas A&M University, 2021

Villavicencio, Xavier Alfredo, Instructional Assistant Professor
Agricultural Economics
PHD, Texas A&M University, 2010

Vincent, Kenneth Rumsey, Visiting Lecturer
International Affairs
PHD, George Washington University, 2017

Viruru, Radhika, Clinical Professor
Teaching, Learning & Culture
PHD, Texas A&M University, 1998

Viser, Victor J, Instructional Associate Professor
Maritime Studies
PHD, Temple University, 1995

Vlasek, Scott, Senior Lecturer
Construction Science
MS, University of Houston, 2015

Voelker, Gary A, Professor
Ecology and Conservation Biology
PHD, University of Washington, 1998

Voges, Andra, Clinical Professor
Vet Large Animal Clinical Sc
DVM, Texas A&M University, 1991

Vogle, Gregory, Professor of the Practice
International Affairs
BA, The Citadel, 1981

Vohra, Sameera, Instructional Associate Professor
College of Medicine
MD, Government Medical College, India, 2002

Von Vacano, Diego A, Professor
Political Science
PHD, Princeton University, 2003

Voneiff, George W, Professor of the Practice
Petroleum Engineering
MS, Texas A&M University, 1992

Vorobets, Mariya, Instructional Associate Professor
Mathematics
PHD, Lviv National University, 2004

Vorobets, Yaroslav, Associate Professor
Mathematics
PHD, Moscow Lomonosov State University, 1998

Vujanovic, Anka A., Professor
Psychological & Brain Sciences
PHD, University of Vermont, 2009

WAKEFIELD, JODIE, Lecturer
Teaching, Learning & Culture
MED, Texas A&M University, 2010

Waas, Jack R, Senior Lecturer
Chemistry
PHD, University of Michigan, 1997

Wachsmann, Shelley, Professor
Anthropology
PHD, Institute of Archaeology, Hebrew University, 1991

Wade, Pauline C, Professor of the Practice
Computer Science & Engineering
MS, Columbia University, 1991

Waer, Amy L., Clinical Professor
College of Medicine
MD, University of Arizona, 1992

Waer, Richard M., Professor of the Practice
Nuclear Engineering
BS, University of Arizona, 1989

Wakefield, Karen J, Instructional Assistant Professor
College of Medicine
PHD, Texas A&M University, 2014

Walewski, John A, Associate Professor of the Practice
Civil & Environmental Engineering
PHD, The University of Texas at Austin, 2005

Walichowski, Miranda F, Clinical Associate Professor
Educational Psychology
PHD, Texas A&M University, 2009

Walker, Aaron, Adjunct Professor of Law
School of Law
JD, University of Michigan, 2015

Walker, Duncan M, Professor
Computer Science & Engineering
PHD, Carnegie Mellon University, 1986

Walker, Tennessee Wilson, Adjunct Professor of Law
School of Law
JD, Baylor University, 2008

Wallace, Brandon, Visiting Associate Professor of the Practice
Construction Science
BS, Texas A&M University, 2004

Wallace, James C, Visiting Lecturer
International Affairs
PHD, Boston University, Graduate School of Arts/Science, 2018

Wallace, James P, Senior Lecturer
Eng Tech & Ind Distribution
MS, Texas A&M University, 1993

Wallace, William D, Adjunct Professor of Law
School of Law
JD, Texas Wesleyan University, 2009

Walsh, Alexandra, Associate Professor
Biomedical Engineering
PHD, Vanderbilt University, 2015

Walsh, Colleen Susan, Lecturer
Information & Operations Mgmt
JD, University of Houston, 2007

Walsh, Jonelle L, Associate Professor
Physics & Astronomy
PHD, University of California at Irvine, 2011

Walsh, Michael M, Associate Professor of the Practice
Mechanical Engineering
MFA, University of Southern California, 2001

Walsh, Michael M, Associate Professor of the Practice
College of Performance, Visualization & Fine Arts
MFA, University of Southern California, 2001

Waltemyer, David S, Clinical Associate Professor
Kinesiology & Sport Management
PHD, Texas A&M University, 2006

Walters, Daniel, Professor
School of Law
JD, University of Michigan, 2012
PHD, University of Wisconsin-Madison, 2019

Walters, Filza H., Professor of the Practice
Multidisciplinary Engineering
MBA, Lawrence Technological University, 1997

Walzem, Rosemary L, Professor
Poultry Science
PHD, University of California at Davis, 1987

Wand, Josh, Professor
Biochemistry & Biophysics
PHD, University of Pennsylvania, 1984

Wang, Dechun, Professor
Accounting
PHD, University of Missouri at Columbia, 2004

Wang, Fen, Professor
College of Medicine
PHD, Clarkson University, 1994

Wang, Fengming, Clinical Associate Professor
Endodontics
DDS, Nanjing Medical University, 2001
PHD, Sichuan University, West China College of Stomatology, 2006

Wang, Hairong, Visiting Lecturer
Eng Tech & Ind Distribution
MS, Georgia Institute of Technology, 2021

Wang, Hongbin, Professor
College of Medicine
PHD, Ohio State University, 1998

Wang, Jia, Professor
Educ Admn & Human Resource Dev
PHD, University of Georgia, 2004

Wang, Jinbo, Associate Professor
Oceanography
PHD, Massachusetts Institute of Technology, 2011

Wang, Jun, Associate Professor
Ag Leadership, Educ & Comm
PHD, Colorado State University, 2013

Wang, Jun, Professor
College of Medicine
PHD, Shanghai Institutes for Biological Sciences, 1999

Wang, Jyhwen, Professor
Eng Tech & Ind Distribution
PHD, Northwestern University, 1991

Wang, Kun, Instructional Assistant Professor
Mathematics
PHD, University of Puerto Rico, Rio Piedras, 2014

Wang, Lifan, Professor
Physics & Astronomy
PHD, University of Science and Technology of China, 1993

Wang, Miranda, Clinical Assistant Professor
College of Medicine
MD, Baylor College of Medicine, 2017

Wang, Ni, Instructional Associate Professor
Mechanical Engineering
PHD, University of Louisville, 2012

Wang, Qian, Professor
Biomedical Sciences
PHD, Chinese Academy of Sciences, 1998

Wang, Qingsheng, Professor
Chemical Engineering
PHD, Texas A&M University, 2010

Wang, Runmin, Assistant Professor
Statistics
PHD, University of Illinois at Urbana-Champaign, 2020

Wang, Shiren, Professor
Industrial & Systems Engineering
PHD, Florida State University, 2006

Wang, Suojin, Professor
Statistics
PHD, The University of Texas at Austin, 1988

Wang, Weijie, Associate Professor
Public Service and Administration
PHD, University of Southern California, 2015

Wang, Wenping, Professor
Computer Science & Engineering
PHD, University of Alberta, 1992

Wang, Xi, Assistant Professor
Construction Science
PHD, University of Michigan - Ann Arbor, 2022

Wang, Xiaofang, Associate Professor
Biomedical Sciences
BDS, Fourth Military Medical University, China, 1995
PHD, Fourth Military Medical University, China, 2003

Wang, Xiubin B, Professor
Civil & Environmental Engineering
PHD, University of California at Irvine, 2001

Wang, Xuan, Instructional Associate Professor
Chemistry
PHD, Texas A&M University, 2016

Wang, Xueyin, Visiting Assistant Professor
Mathematics
PHD, Nankai University, 2024

Wang, Ya, Associate Professor
Mechanical Engineering
PHD, Virginia Tech, 2012

Wang, Yen J, Senior Lecturer
Industrial & Systems Engineering
PHD, Northwestern University, 1991

Wang, Ying, Assistant Professor
Soil & Crop Sciences
PHD, University of California, 2019

Wang, Ying S., Clinical Assistant Professor
Periodontics
DDS, Kyushu University School of Dentistry, 2014

Wang, Zhaojun, Assistant Professor
Marine and Coastal Environmental Science
PHD, University of Delaware, 2021

Wang, Zhe, Associate Professor
Educational Psychology
PHD, Virginia Tech, 2013

Wanzer-Serrano, Darrel, Associate Professor
Communication & Journalism
PHD, Indiana University, 2007

Warden, Robert B, Professor
Architecture
MAR, Texas A&M University, 1986

Ware, Michael L, Adjunct Professor of Law
School of Law
JD, University of Houston, 1983

Ware, Taylor H, Professor
Biomedical Engineering
PHD, University of Texas at Dallas, 2013

Ware, Taylor H, Associate Professor
Materials Science & Engr
PHD, University of Texas at Dallas, 2013

Waren, Warren P, Instructional Associate Professor
Sociology
PHD, Texas A&M University, 2008

Warren, Gina S., Visiting Professor
College of Engineering
JD, Rutgers School of Law, 2004

Warren, James, Assistant Professor
Accounting
PHD, University of Georgia, 2021

Warren, Jesse T, Lecturer
Foundational Sciences
MS, University of Houston at Clear Lake, 2005

Warren, Nancy B, Professor
English
PHD, Indiana University, 1997

Warry, Emma, Clinical Associate Professor
Vet Small Animal Clinical Sc
DVM, The University of Sydney, 2004

Wascom, David, Visiting Senior Lecturer
Eng Tech & Ind Distribution
MS, Louisiana State University, 1990

Washburn, Kevin E, Professor
Vet Large Animal Clinical Sc
DVM, Oklahoma State University, 1993

Washburn, Shannon E, Clinical Professor
Vet Physiology & Pharmacology
DVM, Texas A&M University, 1994
PHD, Texas A&M University, 2010

Washington, Karen R, Adjunct Professor of Law
School of Law
JD, University of Texas at Austin, 1984

Watanabe, Coran M, Professor
Chemistry
PHD, John Hopkins University, 1999

Watanabe, Ryota, Assistant Professor
Vet Small Animal Clinical Sc
BVSc, Azabu University, 2013
PHD, Universite de Montreal, 2021

Waters, Michael R, Professor
Anthropology
PHD, The University of Arizona, 1980

Watkins, Jeffrey P, Professor
Vet Large Animal Clinical Sc
DVM, Kansas State University, 1980

Watkins, Laci, Associate Professor
Educational Psychology
PHD, University of Texas at Austin, 2017

Watson, Karan L., Senior Professor
Electrical & Computer Eng
PHD, Texas Tech University, 1982

Waugh, Yuki, Instructional Associate Professor
Global Languages & Cultures
PHD, University of Nebraska, 2006

Weary, Katherine T, Associate Professor of the Practice
International Affairs
MA, The George Washington University, 2005

Weaver, Stephen R, Assistant Professor of the Practice
Maritime Transportation
BS, Texas A&M University at Galveston, 2017

Weaver, Timothy, Instructional Associate Professor
College of Performance, Visualization & Fine Arts
MS, Texas A&M University, 2010

Weaver-Rosen, Jonathan M, Instructional Assistant Professor
Mechanical Engineering
PHD, Texas A&M, 2021

Webb, Elaine, Clinical Instructor
College of Nursing
MSN, Texas A&M University, 2018

Webb, Gwendolyn Carol, Associate Professor
Educ Admn & Human Resource Dev
PHD, Illinois State University, 1994

Webb, Samuel C, Visiting Lecturer
Agricultural Economics
DJ, Texas Tech University School of Law, 2010

Weber, Kaitlyn Maree Dinges, Instructional Assistant Professor
Agricultural Economics
PHD, Kansas State University, 2022

Weber, Nathaniel R, Lecturer
History
PHD, Texas A&M University, 2016

Webster, Sunshine P, Instructional Associate Professor
Eng Tech & Ind Distribution
PHD, The University of Texas at Austin, 2009

Weeks, John M, Instructional Assistant Professor
Mathematics
PHD, Mathematics, 2022

Weeks, William Dale, Visiting Lecturer
History
PHD, Texas A&M University, 2020

Wehman, Ann, Assistant Professor
Biochemistry & Biophysics
PHD, University of California, San Francisco, 2006

Wei, Yinan, Professor
Pharmaceutical Sciences
PHD, Princeton University, 2003

Weissgold, Linda, Visiting Professor of the Practice
International Affairs
BS, Georgetown University, 1984

Weitzel, Christopher Shawn, Instructional Associate Professor
Chemistry
PHD, Indiana University, Bloomington, 2009

Welch, Ben D, Clinical Professor
Management
PHD, Texas A&M University, 1990

Welch, Brennan, Clinical Faculty
Comprehensive Dentistry
DDS, University of Texas School of Dentistry - ouston, 2019

Weldon, Charlie Charles, Visiting Professor of the Practice
Finance
MBA, The University of Texas at Austin, 2000

Wells, Gregg B, Associate Professor
College of Medicine
MD, The University of Chicago, 1989
PHD, The University of Chicago, 1987

Wells, Robert J, Professor
Marine Biology
PHD, Louisiana State University, 2007

Welsh, Andrea, Visiting Assistant Professor
Mathematics
PHD, Georgia Institute of Technology, 2019

Welsh, Jane, Professor
Vet Integrative Biosciences
PHD, London University, 1981

Welsh, Mark A, Executive Professor
Bush School of Government and Public Service
MA, Webster University, 1987

Welsh, Nancy A, Professor
School of Law
JD, Harvard University, 1982

Welsh, Thomas H, Professor
Animal Science
PHD, North Carolina State University, 1980

Wen, Sy-Bor, Associate Professor
Mechanical Engineering
PHD, University of California at Berkeley, 2006

Wenzel, Theresa M, Instructional Professor
Kinesiology & Sport Management
MED, Baylor University, 1992

Werdel, Ty, Assistant Professor
Rangeland, Wildlife and Fisheries Management
PHD, Kansas State University, 2022

Werner, Cynthia A, Professor
Anthropology
PHD, Indiana University, 1997

Wesner, Kyle J, Clinical Assistant Professor
Management
PHD, Texas A&M University, 2014

Wesselowski, Sonya R, Associate Professor
Vet Small Animal Clinical Sc
DVM, Kansas State University, 2008

West, Jason B, Professor
Ecology and Conservation Biology
PHD, University of Georgia, 2002

Wheeler, Lance, Clinical Assistant Professor
Vet Small Animal Clinical Sc
DVM, Texas A&M College of Veterinary Medicine, 2019
DVM, Texas A&M University, 2019

Wherley, Benjamin G, Professor
Soil & Crop Sciences
PHD, North Carolina State University, 2008

Whiddon, James, Visiting Assistant Professor of the Practice
Agricultural Economics
MS, The American College, 1998

Whitcomb, John D, Professor
Aerospace Engineering
PHD, Virginia Tech, 1988

White, Edward C, Professor of the Practice
Finance
MBA, University of Hawaii, 1972

White, Jacob Anthony, Instructional Assistant Professor
Mathematics
PHD, Arizona State University, 2010

White, Lance Leon Allen, Lecturer
College of Engineering
MS, Texas A&M University, 2019

White, Lowell M, Instructional Associate Professor
English
PHD, Texas A&M University, 2010

White, Suzanne, Visiting Professor of the Practice
International Affairs
MA, Fletcher School of Law and Diplomacy, 1996

White-Springer, Sarah H, Associate Professor
Animal Science
PHD, University of Florida, 2014

White-Springer, Sarah H, Associate Professor
Kinesiology & Sport Management
PHD, University of Florida, 2014

Whiteacre, Matthew M, Senior Lecturer
Eng Tech & Ind Distribution
MEN, Texas A&M University, 1984

Whitelaw, Christine, Clinical Assistant Professor
College of Medicine
MD, St. George's University School of Medicine, 1989

Whiteside, Erinn, Clinical Associate Professor
Educational Psychology
PHD, University of Georgia, 2019

Whitfield, Jennifer G, Instructional Professor
Mathematics
PHD, Texas A&M University, 2017

Whitten, Dwayne, Clinical Professor
Information & Operations Mgmt
PHD, Louisiana Tech University, 2004

Whitten, Guy D, Professor
Political Science
PHD, University of Rochester, 1994

Wickersham, Tryon A, Professor
Animal Science
PHD, Kansas State University, 2006

Wickliff, Tanya V, Professor of the Practice
College of Engineering
PHD, Texas A&M University, 2005

Wicksten, Mary K, Professor
Biology
PHD, University of Southern California, 1977

Wiederwohl, Chrissy, Instructional Professor
Oceanography
PHD, Texas A&M University, 2012

Wiegert, Jeffrey Glennon, Instructional Associate Professor
Animal Science
PHD, North Carolina State University, 2019

Wieters, Jerald Scott, Clinical Professor
College of Medicine
MD, The University of Texas Health Science Center at San Antonio, 2001

Wijekumar, Kay, Professor
Teaching, Learning & Culture
PHD, The Pennsylvania State University, 2000

Wikander, Yvonne, Clinical Assistant Professor
Veterinary Pathobiology
DVM, Oregon State University, 1989

Wilborn, David F, Associate Professor
College of Performance, Visualization & Fine Arts
PHD, The University of Texas at Austin, 1994

Wilcox, Bradford P, Professor
Ecology and Conservation Biology
PHD, Texas A&M University, 1986

Wilcox, Keith, Professor
Marketing
PHD, City University of New York, 2009

Wilder, Ursula M., Visiting Professor of the Practice
International Affairs
PHD, George Washington University, 1992

Willey, William L, Clinical Faculty
Endodontics
DDS, Georgetown University, 1976

Wilhite, Benjamin A, Associate Professor
Chemical Engineering
PHD, University of Notre Dame, 2003

Wilkerson, Justin W, Associate Professor
Mechanical Engineering
PHD, Johns Hopkins University, 2014

Wilkins, Gwendolyn M, Lecturer
Teaching, Learning & Culture
PHD, Texas A&M University, 2018

Wilkinson, Heather H, Professor
Plant Pathology & Microbiology
PHD, Binghamton University, 1996

Wiley, Harley M, Lecturer
Eng Tech & Ind Distribution
BS, Texas A&M University, 1978

Williams, John Andrew, Associate Professor
Teaching, Learning & Culture
PHD, University of North Carolina at Charlotte, 2019

Williams, Megan Katelyn, Instructional Assistant Professor
Health Behavior
MPH, East Carolina University, 2020

Williams, Michael, Visiting Clinical Assistant Professor
College of Nursing
DNP, Baylor University, 2023

Williams, R Stanley, Professor
Electrical & Computer Eng
PHD, University of California at Berkeley, 1978

Williams, Sara S, Senior Lecturer
Maritime Studies
BS, Texas A&M University, 2000

Williams, Thomas, Adjunct Professor of Law
School of Law
JD, University of Texas, 1975

Williams-Stroud, Sherilyn Coretta, Professor of the Practice
Geology & Geophysics
PHD, The Johns Hopkins University, 1988

Williamson, Brandon T, Clinical Associate Professor
College of Medicine
MD, Texas A&M University, 2013

Williamson, Meredith L, Clinical Associate Professor
College of Medicine
PHD, Texas A&M University, 2014

Williamson, Robert, Clinical Faculty
Pediatric Dentistry
DDS, University of Texas Health Science Center at San Antonio, 2005

Willis, Michael, Assistant Professor
Mathematics
PHD, University of Virginia, 2017

Wilson, Aaron, Visiting Instructional Assistant Professor
Philosophy
PHD, University of Miami, 2014

Wilson, Christopher A, Professor of the Practice
Finance
MBA, Texas A&M University, 1990

Wilson, John Samuel, Instructional Associate Professor
School of Engineering Medicine
MD, University of Texas Southwestern Medical School, 2007
PHD, Yale University, 2015

Wilson, Kelly L, Professor
College of Nursing
PHD, Texas A&M University, 2004

Wilson, Lloyd T, Professor
Entomology
PHD, University of California, Davis, 1977

Wilson, Patrick, Clinical Associate Professor
Vet Integrative Biosciences
DVM, Washington State University, 1990

Wimer, Forest, Instructional Assistant Professor
Kinesiology & Sport Management
MA1, Texas A&M University, 2022

Winata, Fikriyah, Assistant Professor
Geography
PHD, University of Illinois Urbana-Champaign, 2022

Windén, Björn, Research Assistant Professor
Ocean Engineering
PHD, University of Southampton, Southampton, UK, 2014

Windham, Meghan E, Clinical Assistant Professor
Nutrition
MPH, University of Texas School of Public Health, 2010

Winemiller, Kirk O, Professor
Ecology and Conservation Biology
PHD, The University of Texas at Austin, 1987

Winemiller, Leslie K, Instructional Professor
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PHD, The University of Texas at Austin, 1989

Wingenbach, Gary, Professor
Ag Leadership, Educ & Comm
PHD, Iowa State University, 1995

Wingfield, Emma C, Lecturer
College of Performance, Visualization & Fine Arts
MA, University College London, 2012

Winking, Jeffrey W, Professor
Anthropology
PHD, The University of New Mexico, 2005

Winkley, Shel, Lecturer
Atmospheric Sciences
BS, Texas A&M University, 2007

Winzer-Serhan, Ursula, Associate Professor
College of Medicine
PHD, University of Bremen, Germany, 1989

Wirfs, Michael, Visiting Senior Lecturer
Construction Science
LLM, Texas A&M University - School of Law, 2022

Witherden, Freddie David, Associate Professor
Ocean Engineering
PHD, Imperial College London, United Kingdom, 2015

Witherspoon, Sarah J, Professor
Mathematics
PHD, University of Chicago, 1994

Wolf, Charles M, Professor of the Practice
Civil & Environmental Engineering
PHD, Texas A&M University, 2001

Wolf, Joan B, Associate Professor
Sociology
PHD, University of Chicago, 1997

Wolfe, Anna W, Associate Professor
Communication & Journalism
PHD, Ohio University, 2013

Wolfe, Joda, Instructional Assistant Professor
Kinesiology & Sport Management
MS, Ohio University, 2012

Wolfe, Wesley C, Lecturer
Accounting
MS, Texas A&M University, 2020

Wolski, Chris, Adjunct Professor of Law
Maritime Business Administration
MBA, University of Maryland Global Campus, 2018

Wolski, Chris, Adjunct Professor of Law
School of Law
MBA, University of Maryland Global Campus, 2018

Woltering, Steven, Associate Professor
Educational Psychology
PHD, University of Toronto, 2012

Wong, Lolo, Clinical Assistant Professor
Pediatric Dentistry
DDS, Creighton University, 1990

Wong, Raymond, Professor
Statistics
PHD, University California, Davis, 2014

Woo, Victoria, Clinical Professor
Diagnostic Sciences
DDS, University of Western Ontario, 2001

Wood, Amanda L, Instructional Associate Professor
Ocean Engineering
PHD, University of Houston, 2010

Wood, Justin, Adjunct Professor of Law
School of Law
JD, Texas Tech University, 2002

Wood, Kristin Phillips, Adjunct Professor of Law
School of Law
JD, Washburn University, 1996

Woodard, Denise D, Instructional Associate Professor
Kinesiology & Sport Management
MS, University of Central Missouri, 2000

Woodard, Susan L, Senior Lecturer
Chemical Engineering
PHD, Colorado State University, 1992

Woodard, Wendy, Professor of the Practice
College of Arts & Sciences
MA, University of Colorado at Colorado Springs, 2011

Woodcock, David, Adjunct Professor of Law
School of Law
JD, University of Texas, 2000

Woodcook, Craig, Adjunct Professor of Law
School of Law
JD, Texas Wesleyan University, 2005

Woodfin, Samuel, Instructional Assistant Professor
College of Performance, Visualization & Fine Arts
MFA, Laguna College of Art and Design, 2018

Woodfin, Thomas M, Executive Professor
Land Arch & Urban Planning
PHD, Texas A&M University, 2007

Woodman, Christopher R, Associate Professor
Kinesiology & Sport Management
PHD, University of Arizona, 1995

Woods, Timothy S, Instructional Professor
Sociology
PHD, Texas A&M University, 2000

Woodward, Richard T, Professor
Agricultural Economics
PHD, University of Wisconsin, 1997

Woodward, Robert S, Clinical Professor
Educational Psychology
PHD, Texas A&M University, 2004

Wooley, Karen L, Distinguished Professor
Chemistry
PHD, Cornell University, 1993

Woosley, James R, Instructional Professor
Kinesiology & Sport Management
MS, Western Illinois University, 1975

Worthy, Darrell A, Associate Professor
Psychological & Brain Sciences
PHD, The University of Texas at Austin, 2010

Wright, David L, Professor
Kinesiology & Sport Management
PHD, Pennsylvania State University, 1989

Wright, John M, Professor
Diagnostic Sciences
DDS, West Virginia University, 1973

Wright, Lane, Associate Professor of the Practice
Construction Science
BS, Texas A&M University, 1987

Wright, Lesley M, Professor
Mechanical Engineering
PHD, Texas A&M University, 2006

Wright, Matthew Gerald, Adjunct Professor of Law
School of Law
JD, Texas Wesleyan University, 2008

Wright, Rachel N, Instructional Assistant Professor
Biology
PHD, Texas A&M University, 2011

Wright, Scott, Instructional Assistant Professor
Kinesiology & Sport Management
MA, The University of Texas - Pan American, 1997

Wright, Steven M, Professor
Electrical & Computer Eng
PHD, University of Illinois Urbana-Champaign, 1984

Wu, Chaodong, Professor
Nutrition
PHD, Beijing Medical University, 1998

Wu, Chenglin, Associate Professor
Civil & Environmental Engineering
PHD, University of Texas at Austin, 2016
PHD, Missouri University of Science and Technology, 2012

Wu, Chia Shan, Instructional Assistant Professor
Nutrition
PHD, University of Auckland, 2005

Wu, Chia-Ching, Lecturer
Land Arch & Urban Planning
MS, National Taiwan University, 2017

Wu, Guoyao, Professor
Animal Science
PHD, University of Alberta, Canada, 1989

Wu, Hung-Jen, Associate Professor
Chemical Engineering
PHD, Texas A&M University, 2006

Wu, Kan, Professor
Petroleum Engineering
PHD, The University of Texas at Austin, 2014

Wu, Wei, Associate Professor
Finance
PHD, University of Chicago, 2015
PHD, Duke University, 2009

Wu, X. Ben, Professor
Ecology and Conservation Biology
PHD, University of Tennessee, Knoxville, 1991

Wu, Ximing, Professor
Agricultural Economics
PHD, University of California at Berkeley, 2003

Wu, Xin, Research Assistant Professor
College of Medicine
MD, Nantong Medical College, 1985

Wunneburger, Douglas F, Instructional Professor
Land Arch & Urban Planning
PHD, Texas A&M University, 1992

Wurbs, Ralph A, Senior Professor
Civil & Environmental Engineering
PHD, Colorado State University, 1978

Wurtz, Kimberly Ann, Adjunct Professor of Law
School of Law
JD, University of Oklahoma, 2018

Wyatt, Briana, Associate Professor
Soil & Crop Sciences
PHD, Oklahoma State University, 2019

Wygle, Robert P, Senior Lecturer
Chemical Engineering
BS, University of Notre Dame, 1980

Wynn, Sheila, Adjunct Professor of Law
School of Law
JD, University of Notre Dame, 1996

Xia, Jun, Assistant Professor
College of Medicine
PHD, Baylor College of Medicine, 2017

Xia, Junwei, Assistant Professor
Accounting
PHD, INDIANA UNIVERSITY - KELLEY SCHOOL OF BUSINESS, 2020

Xia, Meng, Assistant Professor
Computer Science & Engineering
PHD, Hong Kong University of Science and Technology, 2020

Xia, Yiping, Assistant Professor
Communication & Journalism
PHD, University Wisconsin-Madison, 2022

Xiang, Ping, Professor
Kinesiology & Sport Management
PHD, Louisiana State University, 1996

Xie, Kelvin Yu Xuan, Associate Professor
Materials Science & Engr
PHD, University of Sydney, 2013

Xie, Linglin, Associate Professor
Nutrition
PHD, Kansas State University, 2008

Xie, Runshi, Instructional Assistant Professor
Biology
PHD, Texas A&M University, 2022

Xie, Shuyi, Assistant Professor
Chemical Engineering
PHD, University Of Minnesota-Twin Cities, 2020

Xie, Zhigang, Research Associate Professor
College of Medicine
PHD, University of Alabama at Birmingham, 2001

Xie, Zhizhang, Professor
Mathematics
PHD, The Ohio State University, 2011

Xiong, Zixiang, Professor
Electrical & Computer Eng
PHD, University of Illinois Urbana-Champaign, 1996

Xu, Boqian, Assistant Professor
Land Arch & Urban Planning
PHD, University of Pennsylvania, 2023

Xu, Chang, Instructional Assistant Professor
Ocean Engineering
PHD, Texas A&M University, 2022
PHD, Harbin Institute of Technology, China, 2017

Xu, Eric, Associate Professor of the Practice
College of Engineering
MS, Massachusetts Institute of Engineering Technology, 2015

Xu, Shenglong, Assistant Professor
Physics & Astronomy
PHD, University of California, San Diego, 2017

Xu, Shiqing, Assistant Professor
Chemistry
PHD, Fudan University, 2009

Xu, Shiqing, Assistant Professor
Pharmaceutical Sciences
PHD, Fudan University, 2009

Xu, Wei, Associate Professor
Vet Physiology & Pharmacology
PHD, Michigan State University, 2009

Xu, Xiaohui, Professor
Epidemiology & Biostatistics
PHD, University of Pittsburgh, 2007

Xu, Yangyang, Associate Professor
Atmospheric Sciences
PHD, University of California at San Diego, 2014

Xu, Yi, Associate Professor
College of Medicine
PHD, University of Texas Health Science Center at Houston, 1998

Xu, Zhihong, Associate Professor
Ag Leadership, Educ & Comm
PHD, Texas A&M University, 2020

Xu, Ziteng, Assistant Professor
Poultry Science
PHD, University of Missouri- Columbia, 2023

Yadav, Dinesh, Associate Professor
College of Performance, Visualization & Fine Arts
PHD, Indira Gandhi National Open University, 2018

Yadav, Kamlesh, Instructional Associate Professor
School of Engineering Medicine
PHD, New York University, 2011

Yadav, Manjit S, Professor
Marketing
PHD, Virginia Tech, 1990

Yadav, Shobha, Visiting Assistant Professor
Geography
PHD, West Virginia University, 2023

Yagua, Norma Lucia, Visiting Lecturer
Eng Tech & Ind Distribution
PHD, Texas A&M University, 2011

Yakovlev, Vladislav V, Professor
Biomedical Engineering
PHD, Moscow State University, 1990

Yalvac, Bugrahan, Associate Professor
Teaching, Learning & Culture
PHD, Pennsylvania State University, 2005

Yamauchi, Takashi, Associate Professor
Psychological & Brain Sciences
PHD, Columbia University, 1997

Yan, Harry, Assistant Professor
Communication & Journalism
PHD, Indiana University Bloomington, 2023

Yan, Huafei, Professor
Mathematics
PHD, Massachusetts Institute of Technology, 1997

Yan, Wei, Professor
Architecture
MAR, University of California at Berkeley, 2004

Yan, Xin, Associate Professor
Chemistry
PHD, Purdue University, 2015

Yan, Yaojun, Assistant Professor
Communication & Journalism
PHD, University of Indiana, Bloomington, 2023

Yang, Junhua, Assistant Professor
Vet Integrative Biosciences
PHD, University, Hangzhou, China, 2015

Yang, Mohan, Assistant Professor
Educ Admn & Human Resource Dev
PHD, Purdue University, 2021

Yang, Ping, Professor
Atmospheric Sciences
PHD, University of Utah, 1995

Yang, Tian, Associate Professor
Mathematics
PHD, Rutgers University at New Brunswick, 2013

Yang, Tianbao, Professor
Computer Science & Engineering
PHD, Michigan State University, 2012

Yang, Xiaomin, Senior Lecturer
Eng Tech & Ind Distribution
PHD, Purdue University, 2002

Yang, Yunkang, Assistant Professor
Communication & Journalism
PHD, University of Washington, 2020

Yang, Yuxuan, Visiting Assistant Professor
Mathematics
BS, Peking University, 2020

Yang, Zhilong, Professor
Veterinary Pathobiology
PHD, University of Nebraska-Lincoln, 2007

Yankin, Igor, Clinical Associate Professor
Vet Small Animal Clinical Sc
DVM, Kuban State Agrarian University, 2010

Yao, Noah Yinuo, Assistant Professor
Civil & Environmental Engineering
PHD, Stanford University, 2021

Yasskin, Philip B, Associate Professor
Mathematics
PHD, University of Maryland, 1979

Yazhari, Yasamin, Clinical Faculty
Pediatric Dentistry
DDS, University of Texas Health Science Center at Houston, 2011

Ye, Liangfei, Assistant Professor
Sociology
PHD, University of Wisconsin, Madison, 2021

Ye, Xinyue, Professor
Land Arch & Urban Planning
PHD, University of California at Santa Barbara, 2010

Yearty, Bethany, Clinical Assistant Professor
College of Nursing
PHD, William Carey University, 2022

Yeh, Paul, Instructional Assistant Professor
School of Engineering Medicine
MD, University of Texas School of Medicine at San Antonio, 2016
DrPH, The University of Texas Health Science Center at Houston, 2023

Yennello, Sherry J, Professor
Chemistry
PHD, Indiana University, 1990

Yentes, Jenna, Associate Professor
Kinesiology & Sport Management
PHD, University of Nebraska Medical Center, 2013

Yeoman, Michelle S, Lecturer
Vet Integrative Biosciences
MS, Texas A&M University, 2013

Yero, Shannon, Adjunct Professor of Law
School of Law
DJ, University of Oklahoma, 2019

Yershova, Yuliia, Visiting Assistant Professor
Mathematics
PHD, Institute of Mathematics of National Academy of Sciences of Ukraine, 2015

Yeun, Che, Assistant Professor
History
PHD, Harvard University, 2024

Yi, Eunjeong, Professor
Foundational Sciences
PHD, University of Houston, 2003

Yi, Jieun, Visiting Assistant Professor
Educ Admn & Human Resource Dev
PHD, Texas A&M University, 2023

Yi, Seongbaek, Instructional Assistant Professor
Statistics
PHD, Texas A&M University, 1996

Yi, Suin, Assistant Professor
Electrical & Computer Eng
PHD, Texas A&M University, 2017

Yi, Zhenhuan, Research Assistant Professor
Physics & Astronomy
PHD, Texas A&M University, 2016

Yildirim, Abdulkadir, Visiting Lecturer
International Affairs
PHD, Ohio State University, 2010

Yim, Mansung, Professor
Nuclear Engineering
PHD, Harvard University, 1994
PHD, University of Cincinnati, 1987

Yoder, Paula, Clinical Assistant Professor
Educ Admn & Human Resource Dev
EDD, Tarleton State University, 2018

Yoho, Kelie, Instructional Assistant Professor
Entomology
MS, Purdue University, 2019

Yoo, Youngho, Visiting Assistant Professor
Mathematics
PHD, Georgia Institute of Technology, 2022

Yoon, Byung-Jun, Professor
Electrical & Computer Eng
PHD, California Institute of Technology, 2007

Yoon, Myeongsun, Associate Professor
Educational Psychology
PHD, Arizona State University, 2007

Yoon, Seung Won, Professor
Educ Admn & Human Resource Dev
PHD, University of Illinois Urbana Champaign, 2003

York, Beverly D, Clinical Associate Professor
Comprehensive Dentistry
DDS, Baylor College of Dentistry, 1981

Yorzinski, Jessica L, Associate Professor
Ecology and Conservation Biology
PHD, University of California at Davis, 2012

Younes, Khaled M, Clinical Assistant Professor
Comprehensive Dentistry
DDS, University of Science and Technology in Yemen, 2000

Young, Colin R, Lecturer
Vet Integrative Biosciences
PHD, Kings College London, University of London, 1977

Young, Jamaal, Professor
Teaching, Learning & Culture
PHD, Texas A&M University, 2011

Young, Jemimah, Professor
Teaching, Learning & Culture
PHD, Texas A&M University, 2013

Young, Ry, Senior Professor
Biochemistry & Biophysics
PHD, University of Texas at Dallas, 1975

Youngs, Mike, Instructional Assistant Professor
Physics & Astronomy
PHD, Michigan State University, 2013

Younis, Rami M, Associate Professor
Petroleum Engineering
PHD, Stanford University, 2011

Yu, Guoliang, Professor
Mathematics
PHD, State University Of New York At Stony Brook, 1991

Yu, Ling, Research Associate Professor
Vet Physiology & Pharmacology
PHD, Nanjing Agricultural University, 2001

Yu, Peter K, Professor
School of Law
JD, Yeshiva University, 1999

Yu, Siyu, Associate Professor
Land Arch & Urban Planning
PHD, Texas A&M University, 2019

Yudkin, Joshua, Assistant Professor
Health Behavior
PHD, University of Texas School of Public Health, 2023

Yum, Ki H, Senior Lecturer
Computer Science & Engineering
PHD, The Pennsylvania State University, 2002

Yust, Christopher G, Associate Professor
Accounting
PHD, University of Texas, 2015

Yvon-Lewis, Shari A, Professor
Oceanography
PHD, University of Miami, 1994

Zadeh, Jamshyd M, Adjunct Professor of Law
School of Law
JD, Southern Methodist University, 1988

Zagaris, Bruce, Adjunct Professor of Law
School of Law
JD, George Washington University, 1972
LLM, George Washington University, 1973

Zahabi, Maryam, Associate Professor
Industrial & Systems Engineering
PHD, North Carolina State University, 2017

Zaid, Mark S., Visiting Professor of the Practice
International Affairs
JD, Albany Law School, 1992

Zampierin, Sara, Clinical Associate Professor
School of Law
JD, Harvard University, 2011

Zanwar, Preeti C, Visiting Associate Professor
Pharmaceutical Sciences
PHD, University of Texas, 2012
DOC, UT Health School of Public Health, 2012

Zapata Raudale, Samuel D, Associate Professor
Agricultural Economics
PHD, Clemson University, 2012

Zarate Barrera, Tatiana, Assistant Professor
International Affairs
PHD, University of British Columbia, 2023

Zarin, Aref, Assistant Professor
Biology
PHD, The University of Dublin, 2013

Zartman, Justin Allen, Adjunct Professor of Law
School of Law
JD, Texas Wesleyan University, 2008

Zartman, Rosemarie R, Clinical Associate Professor
Comprehensive Dentistry
DDS, Baylor College of Dentistry, 1991

Zawieja, David C, Professor
College of Medicine
PHD, The Medical College of Wisconsin, 1986

Zelenko, Igor, Professor
Mathematics
PHD, Technion - Israel Institute of Technology, 2002

Zeng, Lanying, Professor
Biochemistry & Biophysics
PHD, University of Illinois at Urbana-Champaign, 2007

Zhan, Hongbin, Professor
Geology & Geophysics
PHD, University of Nevada, Reno, 1996

Zhan, Wei, Professor
Eng Tech & Ind Distribution
PHD, Washington University in St. Louis, 1991

Zhang, Bangning, Instructional Assistant Professor
Epidemiology & Biostatistics
PHD, Texas A&M University, College Station, 2023

Zhang, Bin, Associate Professor
Information & Operations Mgmt
PHD, Carnegie Mellon University, 2012

Zhang, Cheng, Assistant Professor
Computer Science & Engineering
PHD, The Ohio State University, 2022

Zhang, Chi, Instructional Assistant Professor
Biomedical Sciences
PHD, University of Pittsburgh, 2020

Zhang, Dan D, Professor
Educational Psychology
PHD, University of New Orleans, 1998

Zhang, Dekai, Associate Professor
College of Medicine
PHD, University of Hong Kong, 1995

Zhang, Han, Research Assistant Professor
Electrical & Computer Eng
PHD, Utah State University, 2019

Zhang, Hongbin, Research Professor
Soil & Crop Sciences
PHD, University of California at Davis, 1990

Zhang, Hua, Instructional Associate Professor
Biomedical Sciences
MD, Qingdao Medical College, China, 1994
PHD, University of Missouri at Kansas City, 2010

Zhang, Jin, Associate Professor
Geology & Geophysics
PHD, University of Illinois at Urbana-Champaign, 2014

Zhang, Junjie, Professor
Biochemistry & Biophysics
PHD, Baylor College of Medicine, 2009

Zhang, Ke, Associate Professor
Nutrition
PHD, Kansas State University, 2008

Zhang, Ke, Associate Professor
College of Medicine
PHD, Kansas State University, 2008

Zhang, Renyi, Professor
Atmospheric Sciences
PHD, Massachusetts Institute of Technology, 1994

Zhang, Shixuan, Assistant Professor
Industrial & Systems Engineering
PHD, Georgia Tech, 2022

Zhang, Shuang, Assistant Professor
Oceanography
PHD, Yale University, 2017

Zhang, Xi, Professor
Electrical & Computer Eng
PHD, University of Michigan, 2002

Zhang, Xianyang, Professor
Statistics
PHD, University of Illinois at Urbana-Champaign, 2013

Zhang, Xiuren, Professor
Biochemistry & Biophysics
PHD, Cornell University, 2003

Zhang, Xudong, Professor
Industrial & Systems Engineering
PHD, University of Michigan Ann Arbor, 1997

Zhang, Yu, Assistant Professor
Computer Science & Engineering
PHD, University of Illinois at Urbana-Champaign, 2024

Zhang, Yue, Assistant Professor
Atmospheric Sciences
PHD, Harvard University, 2010

Zhang, Yunlong, Professor
Civil & Environmental Engineering
PHD, Virginia Tech, 1996

Zhang, Yuzhe, Professor
Economics
PHD, University of Minnesota, 2006

Zhang, Yvette Yu, Professor
Agricultural Economics
PHD, Texas A&M University, 2010

Zhang, Zhe, Associate Professor
Geography
PHD, Aalto University, 2016

Zhang, Zhenyu, Assistant Professor
Construction Science
PHD, University of Washington, 2021

Zhao, Feng, Professor
Biomedical Engineering
PHD, Tianjin University, 2001

Zhao, Xuying, Professor
Information & Operations Mgmt
PHD, University of Texas at Dallas, 2007

Zheltikov, Alexey M, Professor
Physics & Astronomy
PHD, Lomonosov Moscow State University, 1990

Zhen, Shuyang, Assistant Professor
Horticultural Sciences
PHD, University of Georgia, 2017

Zheng, Minghui, Associate Professor
Mechanical Engineering
PHD, University of California, Berkeley, 2017

Zheng, Qi, Professor
Epidemiology & Biostatistics
PHD, Texas A&M University, 1993

Zhong, Sinan, Assistant Professor
Land Arch & Urban Planning
PHD, Texas A&M University, 2020

Zhong, Suhan, Visiting Assistant Professor
Mathematics
PHD, University of California- San Diego, 2019

Zhou, Aifen, Research Associate Professor
Chemical Engineering
PHD, Shandong University, 1999

Zhou, Guo Dong, Research Assistant Professor
College of Medicine
MPH, Shanghai Medical University, School of Public Health, 1986

Zhou, Hongcai J, Professor
Chemistry
PHD, Texas A&M University, 2000

Zhou, Jianxin, Professor
Mathematics
PHD, Pennsylvania State University, 1986

Zhou, Kangying, Assistant Professor
Finance
PHD, Yale University, 2025

Zhou, Lan, Associate Professor
Statistics
PHD, University of California at Berkeley, 1997

Zhou, Le, Associate Professor
Management
PHD, University of Florida, 2014

Zhou, Lianghua, Assistant Professor
Philosophy
PHD, University of Michigan, 2024

Zhou, Quan, Associate Professor
Statistics
PHD, Baylor College of Medicine, 2017

Zhou, Samson S, Assistant Professor
Computer Science & Engineering
PHD, Purdue University, 2018

Zhou, Yang, Assistant Professor
Civil & Environmental Engineering
PHD, University of Wisconsin-Madison, 2019

Zhou, Yi, Associate Professor
Computer Science & Engineering
PHD, The Ohio State University, 2018

Zhou, Yubin, Professor
College of Medicine
PHD, Georgia State University, 2008

Zhou, Yuxiao, Assistant Professor
Mechanical Engineering
PHD, Pennsylvania State University, 2020

Zhu Salzman, Keyan, Professor
Entomology
PHD, Purdue University, 1994

Zhu, Bo, Visiting Assistant Professor
Mathematics
MA, Peking University, 2016

Zhu, Ding, Professor
Petroleum Engineering
PHD, The University of Texas at Austin, 1992

Zhu, Hejian, Assistant Professor
Aerospace Engineering
PHD, Massachusetts Institute of Technology, 2023

Zhu, Lin, Instructional Professor
Chemistry
PHD, University of Hawaii at Manoa, 2000

Zhu, Lin, Associate Professor
Pharmaceutical Sciences
PHD, University of Tennessee Health Science Center, 2010

Zhu, Xuejun, Assistant Professor
Chemical Engineering
PHD, University of California, Berkeley, 2017

Zhu, Xuemei, Professor
Architecture
PHD, Texas A&M University, 2008

Zhu, Ze Mia, Assistant Professor
Psychological & Brain Sciences
PHD, George Mason University, 2021

Zhuang, Yuling, Assistant Professor
Teaching, Learning & Culture
PHD, University of Georgia, 2020

Ziff, Anna Laura, Assistant Professor
Economics
MA, Duke University, 2021

Ziff, Stewart Edward, Instructional Associate Professor
College of Performance, Visualization & Fine Arts
MFA, School of Visual Arts, 1995

Zika, Joel, Assistant Professor
College of Performance, Visualization & Fine Arts
PHD, Swinburne University, 2021

Zimmer, Wendi N, Clinical Assistant Professor
Kinesiology & Sport Management
PHD, Texas A&M University, 2019

Zoghi, Behbood, Visiting Instructional Professor
Eng Tech & Ind Distribution
PHD, Texas A&M University, 1993

Zollinger, Dan, Professor
Civil & Environmental Engineering
PHD, University of Illinois at Urbana-Champaign, 1989

Zoran, Debra L, Professor
Vet Small Animal Clinical Sc
DVM, Kansas State University, 1984
PHD, Texas A&M University, 1997

Zoran, Mark J, Professor
Biology
PHD, Iowa State University, 1987

Zornig, Brian P, Professor of the Practice
College of Engineering
MS, North Carolina A&T State University, 2009

Zou, Jun, Professor
Electrical & Computer Eng
PHD, University of Illinois Urbana-Champaign, 2002

Zou, Lei, Associate Professor
Geography
PHD, Louisiana State University, 2017

Zubairy, M. Suhail, Professor
Physics & Astronomy
PHD, University of Rochester, 1979

Zubairy, Sarah, Professor
Economics
PHD, Duke University, 2010

de Avillez, André Rosenbaum, Visiting Lecturer
Maritime Studies
PHD, The Pennsylvania State University, 2016

del Carmen, Sara Jane, Adjunct Professor of Law
School of Law
JD, St. Mary's University, 2005

van Hengstum, Peter J, Professor
Marine and Coastal Environmental Science
PHD, Dalhousie University, Canada, 2011

APPENDICES

- Family Educational Rights and Privacy Act (FERPA) (p. 1411)
- Hazing Law (Education Code) (p. 1412)
- International Agreements (p. 1413)
- Jeanne Clery Campus Safety Act (Clery Act) (p. 1416)
- Notification for Students Pursuing a License (p. 1416)
- Oak Ridge Associated Universities (p. 1416)
- Rules and Regulations for Determining Residence Status (p. 1417)
- Scholastic Honor Societies (p. 1417)
- Texas Common Course Numbering System (p. 1417)

Family Educational Rights and Privacy Act

Texas A&M University informs students annually of the Family Educational Rights and Privacy Act. This Act, with which the University intends to comply fully, is intended to protect the privacy of education records, to establish the rights of students to inspect and review their education records and to provide guidelines for the correction of inaccurate or misleading data through informal and formal hearings. Students also have the right to file complaints with the Student Privacy Policy Office of the Department of Education in Washington, D.C. concerning alleged failures by the University to comply with the Act.

The Family Educational Rights and Privacy Act (FERPA) is a federal law that provides minimum standards for the management of student education records for universities receiving funds made available under any federal program administered by the U.S. Secretary of Education. The Act provides, among other things, that an institution will maintain the confidentiality of student education records, and students will have the right to inspect their own education records.

This Policy is designed to meet FERPA provisions. Texas A&M University is committed to the good faith implementation of this Policy. Questions may be emailed to ferpa@tamu.edu.

If a student, the parent of a student, or any other individual has a complaint that an official of the University is violating FERPA, and the complaint cannot be satisfactorily resolved within the University, that person has the right to file a complaint with the Department of Education by contacting:

Student Privacy Policy Office
U.S. Department of Education
400 Maryland Ave., S.W.
Washington, D.C. 20202

For the purposes of this Policy, Texas A&M University has used the following definitions of terms:

Student. An individual who has been in attendance at the University and for whom the University maintains education records.

Education Records. Any records (in handwriting, print, tapes, film or other medium) maintained by the University, an employee of the University or agent of the University that are directly related to a student.

Directory Information. Information contained in an education record of a student that would not generally be considered harmful or an invasion of privacy if disclosed. The University has designated the following

items as directory information, thus they may be made public unless the student submits a request to withhold any or all of this information: the student's name; UIN (Universal Identification Number); local address; permanent address; email address; local telephone number; permanent telephone number; dates of attendance; program of study; classification; previous institution(s) attended; degrees, honors, and awards received; participation in officially recognized activities and sports; medical residence location (Health Science Center students); and medical residence specialization (Health Science Center students).

Currently-enrolled students may request to withhold any or all directory information by logging into the Howdy (<https://howdy.tamu.edu/>) portal, and searching "Directory Holds". The student may select directory information to be withheld by clicking the box next to the associated directory item and then clicking "Submit" to save the selection.

Directory information may be released unless a Withhold Directory Information request is submitted by the student. The request remains in effect until the student revokes it or is deceased. Only currently-enrolled students may request directory information be withheld.

Directory holds will not prevent information from student education records from being released to University officials, authorized agents acting on behalf of the University, and to others with a legitimate educational interest under certain conditions (e.g., for the receipt of financial aid, to other institutions to which a student has applied, in connection with health and safety emergencies) without prior consent. Additionally, students may not use directory holds to remain anonymous in a class.

Statement of Rights

Texas A&M University encourages students to exercise all of their rights under the Family Educational Rights and Privacy Act (20 U.S.C. 1232g). Operating under the premise that the educational process is a cooperative venture between a student and the University, we emphasize the following rights of eligible students:

1. The right to inspect and review, with certain limited exceptions, the student's education records, including the right to receive explanations and interpretations of the records and to obtain copies of the records when such are needed to allow the student to effectively exercise their right of inspection and review. Conduct files maintained by the Student Conduct Office will be administered under its rules. Students who want to inspect and review their education records should submit a written request that identifies the record(s) to the appropriate record custodian (<https://rules-saps.tamu.edu/wp-content/uploads/2024/08/13.02.99.M0.01-Attachment-A.pdf>). (<https://rules-saps.tamu.edu/wp-content/uploads/2020/10/13.02.99.M0.01-Attachment-A-2016.pdf>) The custodian will make arrangements for access and notify the student of the time and place where the records may be inspected. If the records are not maintained by the custodian to whom the request was submitted, that custodian will advise the student of the correct school official to whom the request should be addressed.
2. The right to seek amendment of a student's education records when the records are inaccurate, misleading or otherwise in violation of FERPA. A student wishing to seek amendment of education records should notify the appropriate record custodian (<https://rules-saps.tamu.edu/wp-content/uploads/2024/08/13.02.99.M0.01-Attachment-A.pdf>). The notice must be written and specifically identify the desired amendment and the basis for the request. If the university decides not to amend the record as requested, the

university will notify the student in writing of the decision and the student's right to a hearing regarding the request for amendment. Additional information regarding the hearing procedures will be provided to the student when notified of the right to a hearing.

3. The right to consent to disclosures of personally identifiable information contained in the student's education records, except to the extent that FERPA authorizes disclosure without consent.

One exception which permits disclosure without consent is disclosure to *school officials with legitimate educational interests*. A *school official* is a person or entity: (a) employed by the university or the university system in an administrative, supervisory, academic, research, or support staff position; (b) serving on a university governing body or duly authorized panel or committee; or (c) not employed by the university who performs an institutional task, function, or service for which the university would otherwise use its own employees and who is under the direct control of the university with respect to the use and maintenance of education records. A school official has a *legitimate educational interest* if the information requested is necessary for that official to fulfill their professional responsibility, such as to (a) perform appropriate tasks that are specified in their position description or in the performance of regularly assigned duties by their supervisor; (b) fulfill the terms of a contractual agreement; (c) perform a task related to a student's education; (d) perform a task related to the discipline of a student; or (e) provide a service or benefit relating to the student or student's family, such as health care, counseling, financial aid, job placement, or former student-related activities.

The university, in accordance with FERPA, also discloses education records without consent to officials of another school where the student seeks or intends to enroll or where the student is already enrolled if the disclosure is requested by the other school and for purposes related to the student's enrollment or transfer.

4. The right to file a complaint with the Department of Education concerning alleged failures by the university to comply with the requirements of FERPA.

All the rights and protections given students under FERPA belong to the student. However, information in student records may be provided to parents/legal guardians without the written consent of the student if the eligible student is a financial dependent of their parents/legal guardians as defined under Section 152 of the Internal Revenue Code of 1954.

Records Not Available for Information and Review

Students shall have access to all education records concerning them maintained by the University with the exception of the following:

1. A personal record kept by a university faculty or staff member which meets the following tests:
 - a. It is in the personal possession of the individual who made it.
 - b. Information contained in it has never been revealed or made available to any other person except the maker's temporary substitute.
2. An employment record which is used in relation to a student's employment by the University, except where an individual in attendance at the University is employed as a result of their status as a student.

3. Records relating to a student which are created or maintained by a physician, psychiatrist, psychologist or other recognized professional or para-professional acting in their professional or para-professional capacity or assisting in that capacity which are used in connection with the provision of treatment to a student and are not disclosed to anyone other than the individuals providing the treatment.
4. Financial records and statements of a student's parents.
5. Confidential letters and statements of recommendation which were placed in the education records of a student prior to January 1, 1975.
6. Confidential letters and statements of recommendation which were placed in the education records of a student on or after January 1, 1975, if the student has waived their right to inspect and review the letters or statements.
7. Records concerning admissions to an academic component of the University which the student has never attended.

Any questions concerning FERPA should be directed to the Office of the Registrar.

Hazing Law (Education Code)

Hazing Policy Summary – Texas Education Code Chapter 37, Subchapter F and Federal Law Compliance

In accordance with Texas Education Code § 51.936, institutions of higher education must publish a summary of Texas Education Code Chapter 37, Subchapter F (§§ 37.151-157), which prohibits hazing. Additionally, recent federal legislation further reinforces the requirement for institutions to address and prevent hazing through transparency, reporting mechanisms, and enforcement.

Hazing is a criminal offense under both Texas law and federal law. A person may be found guilty of a crime if they: Engage in hazing; Encourage, direct, aid, or assist hazing; Permit hazing to occur; or Have knowledge of hazing activities and fail to report them in writing to the Director of Student Community Standards or designee. Under Texas law, penalties for hazing include: Class B misdemeanor for failure to report hazing or for hazing that does not result in serious bodily injury; Class A misdemeanor for hazing that results in serious bodily injury; State jail felony for hazing that results in a death.

Organizations found guilty of hazing may be fined \$5,000 to \$10,000, or if the hazing incident causes personal injury or property damage, fines may range from \$5,000 to double the amount of damages or losses incurred. Consent is not a defense to a hazing charge.

Federal law expands institutional responsibility by requiring colleges and universities to: Publish hazing incidents in a publicly available report; Ensure transparency in hazing-related disciplinary actions and criminal proceedings; Establish clear reporting procedures for students and staff; Implement prevention and education programs to mitigate hazing risks.

A person who reports a specific hazing incident to the Director of Student Community Standards or another appropriate institutional official is immune from civil and criminal liability unless they personally participated in the hazing or knowingly filed a false report in bad faith or with malicious intent.

These laws do not limit or affect the university's ability to impose additional disciplinary penalties for hazing beyond those prescribed by the state and federal government.

The Texas Education Code defines hazing as: *"Any intentional, knowing, or reckless act occurring on or off campus, by one person or acting with others, directed against a student for the purpose of pledging, being initiated into, affiliating with, holding office in, or maintaining membership in an organization."*

The law outlines specific conduct that constitutes hazing, including but not limited to: Physical brutality, such as whipping, beating, striking, or exposure to harmful elements; Forced consumption of food, alcohol, drugs, or other harmful substances; Activities that subject an individual to extreme mental stress, embarrassment, or harassment.

The Federal Hazing Law defines hazing as: *"any intentional, knowing, or reckless act committed by a person (whether individually or in concert with other persons) against another person or persons regardless of the willingness of such other person or persons to participate, that –*

- *is committed in the course of an initiation into, an affiliation with, or the maintenance of membership in, a student organization; and*
- *causes or creates a risk, above the reasonable risk encountered in the course of participation in the institution of higher education or the organization (such as the physical preparation necessary for participation in an athletic team), of physical or psychological injury"*

To report hazing incidents, contact:

Student Community Standards
Student Services Building, 3rd Floor
471 Houston Street
College Station, TX 77843-1172
(979) 847-7272
<https://studentconduct.tamu.edu/>

Student Affairs - Galveston
Suite 101, Seibel Student Services Center
Galveston, TX 77554
(409) 740-4829
https://cm.maxient.com/reportingform.php?TexasAMUniv&layout_id=1
(https://cm.maxient.com/reportingform.php?TexasAMUniv&layout_id=1)

Office of Student Affairs - Qatar
Education City
Doha, Qatar
+974.4423.0047
dsa@qatar.tamu.edu

International Agreements

Texas A&M University has a long history of cooperation and collaboration with global partners to build educational programs, conduct critical research, and develop innovative solutions for global problems.

International academic collaborations at Texas A&M University might exist at multiple levels, including at the department or research center level, the college level, or the university level.

For information regarding international partnerships, visit the Global Engagement (<https://global.tamu.edu/>) website list of current University partners or email globalsupport@tamu.edu.

All current (as of April 15, 2025) agreements with foreign institutions are as follows:

Argentina

Instituto Tecnológico de Buenos Aires (2025)

Universidad Nacional del Litoral (1995)

Armenia

International Center for Agribusiness Research and Education Foundation (1999)

Australia

Queensland University of Technology¹ (2001)

Swinburne University of Technology (2022)

University of Adelaide¹ (2010)

University of Queensland¹ (2002)

University of Sydney¹ (2019)

Austria

MCI Management Center Innsbruck¹ (2017)

Wirtschaftsuniversität Wien

Vienna University of Economics and Business¹ (2003)

Belgium

University of Liege¹ (2017)

Bolivia

Instituto Boliviano de Investigación Forestal (2023)

Museo de Historia Natural Noel Kempff Mercado (2022)

Universidad Privada de Santa Cruz de la Sierra (2024)

Brazil

Directoria Geral De Desenvolvimento Nuclear E Tecnológico da Marinha do Brasil (DGDNTM) Brazilian Navy (2020)

Fundação Getulio Vargas (FGV)¹ (2015)

Universidade Federal de Alenas (UNIFAL) (2021)

Universidade Federal do Rio Grande do Sul (UFRGS) (2008)

Cambodia

Ministry of Education, Youth and Sport of the Kingdom of Cambodia (2021)

Chile

Pontificia Universidad Católica de Chile in Santiago (2024)

China

Southwestern University of Finance and Economics¹ (2011)

Peking University¹ (1998)

Tsinghua University¹ (2004)

Colombia

Universidad Pamplona (2023)

Universidad Pontificia Bolivariana (2013)

Costa Rica

Universidad de Costa Rica (2015)

Czech Republic

Prague University of Economics and Business¹ (2016)

Denmark

Erhvervsakademiet Copenhagen Business

Copenhagen Business School¹ (2002)

Technical University of Denmark (2016)

Dominican Republic

Instituto Tecnológico de Santo Domingo¹ (2022)

Finland

Aalto University(2016)

Hanken Svenska Handelshögskolan¹ (2015)

Tampere University Foundation SR (2023)

France

Centre International de Formation Européenne (CIFE) (2011)

École Nationale d'Ingénieurs de Saint-Étienne¹ (2017)

École Nationale Supérieure d'Arts et Métiers (ENSAM) (2003)

École Nationale Vétérinaire de Toulouse (2017)

École Spéciale des Travaux Publics, du Bâtiment et de l'Industrie¹ (2003)

École Supérieure d'Agriculture (ESA)¹ (2021)

EDHEC Business School¹ (1998)

ESSEC Business School¹ (2019)

France Agro¹ (1998)

Université of Caen Normandie¹ (2004)

Université de Strasbourg¹ (2010)

Université de Technologie de Compiègne (2024)

Germany

European Business School Universität¹ (2008)

Technische Universität Dortmund¹ (2021)

Universität Hohenheim¹ (2011)

WHU Otto Beisheim School of Management¹ (1986)

Greece

Agricultural University of Athens (2024)

Aristotle University of Thessaloniki (2011)

Dimitris Perrotis College of Agriculture, American Farm School (2012)

National Technical University of Athens (NTUA)¹ (2015)

India

Amity University (2021)

Christ University (2016)

IFIM School of Law (2021)

Dhirubhai Ambani Institute of Information and Communication Technology (DAIICT) (2024)

Jagdish Sheth School of Management, Vijaybhoomi University (2022)

Hidayatullah National Law University (2024)

Indian Institute of Technology Roorkee (2025)

Karnataka State Law University (2023)

National Institute of Construction Management and Research (NICMAR) (2021)

O.P. Jindal Global University (2016)

Rajiv Gandhi Institute of Petroleum Technology (2013)

Sai University (2022)

SRM Institute of Science & Technology (2021)

University of Horticultural Sciences (2010)

Vellore Institute of Technology, Andhra Pradesh (2024)

Indonesia

Universitas Sam Ratulangi (2021)

Ireland

University of Limerick¹ (2016)

Italy

Alma Mater Studiorum - Università di Bologna (2016)

Ca' Foscari University of Venice¹ (2015)

Roma Tre University¹ (2018)

Sapienza University¹ (2010)

Università Bocconi¹ (2014)

Japan

Kwansei Gakuin University¹ (2011)

Kyoto University (2020)

Kyushu University¹ (2015)

Osaka University¹ (2001)

Kenya

Kenyan Ministry of Education (2021)

Korea, Republic of

Architecture and Urban Research Institute (2022)

Center for Exotic Nuclear Studies of the Institute for Basic Science (2021)

Chonnam National University (2025)

Chungnam National University¹ (2015)

Inha University (2015)

Korea Development Institute School of Public Policy and Management (2021)

Kyungpook National University (2025)

Pusan National University (2021)

Sogang University Graduate School (2024)

Soonchunhyang University¹ (2009)

Sungshin Women's University (2020)

Yeungnam University (2025)

Yonsei University (2024)

Mexico

Benemérita Universidad Autónoma de Puebla (2023)

Centro de Investigaciones Biológicas del Noroeste (1994)

Hospital Regional de Alta Especialidad de la Península de Yucatán (2025)

Instituto Tecnológico Autónomo de México (2021)

Universidad de Guanajuato (2009)

Yucatan Initiative Consortium (2024)

Netherlands, The

Erasmus Universiteit Rotterdam¹ (2012)

Universiteit Maastricht¹ (1998)

Vrije Universiteit Amsterdam¹ (2018)

New Zealand

Victoria University of Wellington¹ (2009)

Norway

BI Norwegian School of Management¹ (2001)

Norwegian University of Science and Technology (2002)

Qatar

Exxon Mobil Qatar Limited (2022)

Hamad Bin Khalifa University (2022)

Qatar Energy (2022)

Qatar Petrochemical Company (2023)

Rheinmetall Barzan Advanced Technologies QSTP-LLC (2022)

Saudi Arabia

King Fahd University of Petroleum & Minerals (2023)

Singapore

National University of Singapore¹ (2012)

Singapore Management University¹ (2025)

Singapore University of Technology and Design¹ (2018)

Spain

Universidad Carlos III de Madrid¹ (1998)

Universidad de Jaén¹ (2016)

Universitat Autònoma de Barcelona (2015)

Universidad Politécnica de Madrid¹ (2024)

Universitat Pompeu Fabra¹ (2000)

Switzerland

Université de Lausanne¹ (2006)

Taiwan

National Chiayi University (2025)

National Chung Hsing University (2024)

University Academic Alliance in Taiwan (2023)

Thailand

Kasetsart University (1988)

Turkey

Bilkent University (2022)

Gazi University (2023)

United Arab Emirates

American University of Sharjah¹ (1998)

United Kingdom

Lancaster University¹ (1996)

University of Essex (2024)

University of Leicester¹ (2007)

University of Lincoln (2021)

University of Nottingham¹ (2016)

Uzbekistan

Tashkent Chemical Technological Institute (2023)

¹ Includes a Reciprocal Educational Exchange Program (REEP)

Jeanne Clery Campus Safety Act (Clery Act)

In compliance with federal law, the following information is maintained and available for Texas A&M University and its separate campuses through the Clery Annual Reports webpage on the Texas A&M University Division of Risk, Ethics, and Compliance website. The Texas A&M University Annual Security Reports and Annual Fire Safety Reports are available and include information on campus safety and security policies and statistics. Examples of policies include: reporting crimes and emergencies, descriptions of campus law enforcement, health and safety notifications, crime awareness and prevention, security of campus facilities and residence halls, alcohol and drug policies, policies and programs to prevent sexual assault and other crimes, related disciplinary procedures, and fire safety systems and policies for on-campus student housing facilities.

The Annual Security Reports and Annual Fire Safety Reports can be found at: <https://orec.tamu.edu/clery/annual-security-report/>.

For a paper copy of the reports, please contact the respective campus as indicated in the following: https://orec.tamu.edu/wp-content/uploads/notification_security_fire_reports.pdf.

Notification for Students Pursuing a License

Occupational License

Please be advised that Texas A&M offers many programs that lead to an occupational license as defined under Texas Occupations Code 58.001. Licensing authorities may have guidelines concerning prior criminal convictions that would make an individual ineligible for issuance of a given license. Applicants are encouraged to review all eligibility requirements related to degrees resulting in a license. Note the following:

- An individual who has been convicted of an offense may be ineligible for issuance of an occupational license.
- Licensing authorities must establish and make available guidelines explaining why a particular offense is considered a basis for ineligibility for a particular license and other criterion that may affect the decision to grant or withhold a license.
- Local or county licensing authorities may establish additional guidelines related to criminal history. Applicants should contact their local or county licensing authority for more information.
- An individual has the right to request a criminal history evaluation letter regarding their eligibility for a license issued under Texas Occupations Code 53.102.
- Questions related to eligibility requirements should be directed to the individual licensing authorities.

Professional License or Certification

Notice to students pursuing programs that may lead to a professional license or certification required for employment.

Texas A&M offers programs that may lead to careers in which a professional license or certification is required for employment. Professional licensure/certification requirements vary from state to state, which may affect a student's ability to apply for a professional license/certification upon the completion of the program.

34 CFR 668.43(a)(5)(v) (<https://www.ecfr.gov/current/title-34/subtitle-B/chapter-VI/part-668/subpart-D/>) and 34 CFR 668.43(c) (<https://www.ecfr.gov/current/title-34/subtitle-B/chapter-VI/part-668/subpart-D/>) require disclosures by institutions regarding educational requirements for programs leading to professional licensure or certification, regardless of modality. 34 CFR 668.43(a)(5)(v) requires an institution to disclose whether programs leading to professional licensure or certification meet state's educational requirements. Specifically, the regulation requires a list of States where the institution has determined, including as part of the institution's obligation under 34 CFR 668.14(b)(32)(ii) (<https://www.ecfr.gov/current/title-34/subtitle-B/chapter-VI/part-668/subpart-D/>), that the program does and does not meet such requirements.

In accordance with 34 CFR 668.14(b)(32) (<https://www.ecfr.gov/current/title-34/subtitle-B/chapter-VI/part-668/subpart-D/>), Texas A&M University must certify that programs leading to licensure or certification satisfy applicable state educational requirements in the State of Texas and where students enrolled in distance education are located at the initial time of enrollment or where the student attests they intend to seek employment. Therefore, we cannot enroll students in distance education programs from a state where we have determined that the curriculum does not meet professional licensure/certification requirements or where we have yet to make a determination.

Each state board, agency, or department has the ultimate authority and discretion to determine whether professional licensure or certification will be issued. We recommend students contact the appropriate state licensing agency in the state where they intend to work to seek the most up-to-date information about state licensure/certification requirements before beginning the program.

For more details about programs at Texas A&M University that lead to professional licensure or certification, including state/territory determinations and requirements, please refer to Texas A&M Professional Licensure and Certification Programs (<https://registrar.tamu.edu/curricular-services/programs/professional-licensure-and-certification/licensure-and-certification-programs/>).

Oak Ridge Associated Universities (ORAU)

Oak Ridge Associated Universities

Since 1950, Texas A&M University and its branch campuses have been active members of Oak Ridge Associated Universities (ORAU), a leader in advancing national priorities in science, health, education and security. Through this partnership, Texas A&M faculty, students and researchers gain access to ORAU's network of more than 150 major colleges and universities, specialized teams of experts and unique laboratory capabilities, which creates opportunities for collaboration, funding and groundbreaking research.

ORAU manages the Oak Ridge Institute for Science and Education (ORISE) for the U.S. Department of Energy (DOE), offering Texas A&M students and researchers pathways to prestigious internships, fellowships and research initiatives that align with the nation's most pressing scientific and technological challenges. ORISE plays a key role in STEM workforce development, scientific and technical reviews and health-related studies. Through ORAU's university consortium, Texas A&M faculty and students collaborate with national experts on transformative scientific initiatives, reinforcing the university's leadership in research and innovation. ORAU connects Texas A&M researchers with government and private sector partners, fostering interdisciplinary projects that address critical issues in energy, environmental sustainability, healthcare and national security. As a champion of STEM education, ORAU provides Texas A&M students with invaluable resources to prepare for careers in science, engineering and technology. Research grants, professional development programs and mentorship opportunities further strengthen Texas A&M's role in shaping the next generation of scientific leaders.

With a shared commitment to advancing knowledge and solving real-world challenges, Texas A&M and ORAU continue to drive innovation and excellence. ORAU's mission—to integrate academia, government and industry for the benefit of the nation—aligns with Texas A&M's dedication to research, education and service. Together, they contribute to national priorities while equipping students and faculty with the tools and connections needed to excel in an evolving scientific landscape.

For more information, visit www.orau.org (<http://www.orau.org/>), or contact Texas A&M's Office of the Vice President for Research, vpr@tamu.edu.

Rules and Regulations for Determining Residence Status

Determination of Residency for Tuition Purposes

In accordance with Texas Higher Education Coordinating Board Rules and pursuant to Texas Education Code, a student's status as a resident, nonresident, or international (foreign) student for tuition purposes will be determined in the Office of Admissions prior to enrollment. Students must be prepared to pay tuition and other required fees by specified due dates.

Students with a status of permanent resident of the United States are not automatically eligible as a Texas state resident for tuition purposes.

Students who have knowledge of an error in their residency status for tuition purposes are responsible for notifying the Office of the Registrar and may be required to submit the Core Residency Questions form, which is available for download on the Aggie One Stop (<https://aggie.tamu.edu/billing-and-payments/residency-for-in-state-tuition/establishing-residency/>) website in order to amend their status.

Questions should be directed to the Residency Officers at (979) 845-1085 or email residency@tamu.edu. Complete rules and regulations are available on the Texas Higher Education Coordinating Board website.

Scholastic Honor Societies

Alpha Epsilon Delta — Premedical/Pre dental

Alpha Eta Mu Beta — Bioengineering

Alpha Pi Mu — Industrial Engineering

Alpha Psi Omega — Theatre Arts

Business Honors Association — Business

Chi Epsilon — Civil Engineering

Delta Eta Pi Dance Honor Society — Dance

Eta Kappa Nu — Electrical Engineering

Fulbright Students' Association — International

General O.R. Simpson Corps of Cadets Honor Society — Corps of Cadets

Honors Housing Community Student Leaders - Residence Life

Honors Student Council - University Honors Program

Lambda Pi Eta — Communication

National Society of Collegiate Scholars — Freshmen and Sophomores

Order of Omega — Fraternity/Sorority Life

Phi Eta Sigma — Freshmen

Pi Mu Epsilon — Mathematics

Pi Tau Sigma — Mechanical Engineering

Psi Chi — Psychology

Sigma Delta — Industrial Distribution

Sigma Gamma Tau — Aerospace Engineering

Sigma Lambda Chi — Construction

Tau Beta Pi — Engineering

Tau Sigma Delta — Architecture

Texas Common Course Numbering System

The Texas Common Course Numbering System (TCCNS) has been designed for the purpose of aiding students in the transfer of general academic courses between colleges and universities throughout Texas. Common courses are freshman and sophomore academic credit courses that have been identified as common by institutions that are members of the common course numbering system. The system ensures that if the student takes the courses the receiving institution designates as common, then the courses will be accepted in transfer and the credit will be treated as if the courses had actually been taken on the receiving institution's campus.

The table below lists the courses Texas A&M has identified as common and their TCCNS equivalents. Before using this table students should be sure that the institution they attend employs the TCCNS.

This table is revised quarterly in January, March, June, and September. The most recent version may be obtained from the Office of Admissions

or you may visit the Transfer Course Equivalency website (<https://howdy.tamu.edu/uPortal/p/tce-ui/max/>).

Texas A&M and Texas Common Course Equivalents

Texas A&M Course	TCCNS Equivalent Course
ACCT 229 Introductory Accounting	ACCT 2301
ACCT 229 Introductory Accounting	ACCT 2401
ACCT 230 Introductory Accounting	ACCT 2302
ACCT 230 Introductory Accounting	ACCT 2402
AGEC 105 Introduction to Agricultural Economics	AGRI 2317
AGLS 101 Modern Agricultural Systems and Renewable Natural Resources	AGRI 1131
AGSM 201 Agricultural Energy and Power Systems	AGRI 2301
ANSC 107 General Animal Science	AGRI 1319
ANSC 107 AND ANSC 108	AGRI 1419
ANSC 108 General Animal Science Laboratory	AGRI 1119
ANSC 215 Introduction to Livestock Evaluation	AGRI 2321
ANTH 201 Introduction to Anthropology	ANTH 2346
ANTH 201 Introduction to Anthropology	HUMA 2323
ANTH 202 Introduction to Archaeology	ANTH 2302
ANTH 210 Social and Cultural Anthropology	ANTH 2351
ANTH 225 Introduction to Biological Anthropology	ANTH 2301
ANTH 225 AND ANTH 226	ANTH 2401
ANTH 226 Introduction to Biological Anthropology Laboratory	ANTH 2101
ARAB 101 Beginning Arabic I	ARAB 1411
ARAB 102 Beginning Arabic II	ARAB 1412
ARAB 201 Intermediate Arabic I	ARAB 2311
ARAB 202 Intermediate Arabic II	ARAB 2312
ARCH 115 Visual Communication Foundations I	ARCH 1307
ARCH 249 Survey of World Architecture History I	ARCH 1301
ARCH 250 Survey of World Architecture History II	ARCH 1302
ARTS 103 Design I	ARTS 1311
ARTS 111 Drawing I	ARTS 1316
ARTS 149 Art History Survey I	ARTS 1303
ARTS 150 Art History Survey II	ARTS 1304
ARTS 210 Introduction to Digital Photography	ARTS 2356
ARTS 212 Life Drawing	ARTS 2323
ASTR 101 Basic Astronomy	ASTR 1303 or PHYS 1303

ASTR 102 Observational Astronomy	ASTR 1103 or PHYS 1103
ASTR 111 Overview of Modern Astronomy	ASTR 1303 and ASTR 1103
ASTR 111 Overview of Modern Astronomy	PHYS 1303 and PHYS 1103
ASTR 111 Overview of Modern Astronomy	ASTR 1403
ASTR 111 Overview of Modern Astronomy	PHYS 1403
BIOL 107 Zoology	BIOL 1313 and BIOL 1113
BIOL 107 Zoology	BIOL 1413
BIOL 111 Introductory Biology I	BIOL 1306 and BIOL 1106
BIOL 111 Introductory Biology I	BIOL 1406
BIOL 112 Introductory Biology II	BIOL 1307 and BIOL 1107
BIOL 112 Introductory Biology II	BIOL 1407
BIOL 113 Essentials in Biology	BIOL 1308
BIOL 113 Essentials in Biology	BIOL 1408
BIOL 206 Introductory Microbiology	BIOL 2320 and BIOL 2120
BIOL 206 Introductory Microbiology	BIOL 2321 and BIOL 2121
BIOL 206 Introductory Microbiology	BIOL 2420
BIOL 206 Introductory Microbiology	BIOL 2421
BUSN 101 Freshman Business Initiative	BUSI 1301
BUSN 203 Statistical Methods for Business	BUSI 2305
CHEM 106 Molecular Science for Citizens	CHEM 1305
CHEM 106 AND CHEM 116	CHEM 1405
CHEM 107 General Chemistry for Engineering Students	CHEM 1309
CHEM 107 AND CHEM 117	CHEM 1409
CHEM 116 Molecular Science for Citizens Laboratory	CHEM 1105
CHEM 117 General Chemistry for Engineering Students Laboratory	CHEM 1109
CHEM 119 Fundamentals of Chemistry I	CHEM 1311 and CHEM 1111
CHEM 119 Fundamentals of Chemistry I	CHEM 1411
CHEM 120 Fundamentals of Chemistry II	CHEM 1312 and CHEM 1112
CHEM 120 Fundamentals of Chemistry II	CHEM 1412
CHEM 227 Organic Chemistry I	CHEM 2323
CHEM 227 AND CHEM 237	CHEM 2423
CHEM 228 Organic Chemistry II	CHEM 2325
CHEM 228 AND CHEM 238	CHEM 2425
CHEM 237 Organic Chemistry Laboratory	CHEM 2123
CHEM 238 Organic Chemistry Laboratory	CHEM 2125
CHIN 101 Beginning Chinese I	CHIN 1411
CHIN 102 Beginning Chinese II	CHIN 1412
CHIN 201 Intermediate Chinese I	CHIN 2311
CHIN 202 Intermediate Chinese II	CHIN 2312

CLAS 121 Beginning Latin I	LATI 1411	GEOL 102 Principles of Geology Laboratory	GEOL 1103
CLAS 122 Beginning Latin II	LATI 1412	GEOL 106 Historical Geology	GEOL 1304 and GEOL 1104
CLAS 221 Intermediate Latin I	LATI 2311	GEOL 106 Historical Geology	GEOL 1404
CLAS 222 Intermediate Latin II	LATI 2312	GERM 101 Beginning German I	GERM 1411
COMM 101 Introduction to Communication	SPCH 1311	GERM 102 Beginning German II	GERM 1412
COMM 203 Public Speaking	SPCH 1315	GERM 201 Intermediate German I	GERM 2311
COMM 210 Group Communication and Discussion	SPCH 2333	GERM 202 Intermediate German II	GERM 2312
COMM 243 Argumentation and Debate	SPCH 2335	HIST 101 Western Civilization to 1660	HIST 2311
COSC 253 Construction Materials and Methods I	ARCH 2312	HIST 102 Western Civilization Since 1660	HIST 2312
CSCE 206 Structured Programming in C	COSC 1420 ¹	HIST 103 World History to 1500	HIST 2321
DCED 202 Dance Appreciation	DANC 2303	HIST 104 World History Since 1500	HIST 2322
DCED 260 Ballet I	DANC 1241	HIST 105 History of the United States	HIST 1301
ECON 202 Principles of Economics	ECON 2302	HIST 106 History of the United States	HIST 1302
ECON 203 Principles of Economics	ECON 2301	HIST 226 History of Texas	HIST 2301
EDCI 353 Early Childhood through Adolescent Education	TECA 1311	HLTH 231 Healthy Lifestyles	PHED 1304
ENDS 101 Design Process	ARCH 1311	HORT 201 Horticultural Science and Practices	AGRI 1315
ENGL 103 Introduction to Rhetoric and Composition	ENGL 1301	HORT 201 Horticultural Science and Practices	HORT 1301
ENGL 104 Composition and Rhetoric	ENGL 1302	HORT 201 AND HORT 202	HORT 1401
ENGL 210 Technical and Professional Writing	ENGL 2311	HORT 201 AND HORT 202	AGRI 1415
ENGL 221/MODL 221 World Literature	ENGL 2332	HORT 202 Horticultural Science and Practices Laboratory	HORT 1101
ENGL 222/MODL 222 World Literature	ENGL 2333	HORT 202 Horticultural Science and Practices Laboratory	AGRI 1115
ENGL 227 American Literature: The Beginnings to Civil War	ENGL 2327	INST 210 Understanding Special Populations	EDUC 2301
ENGL 228 American Literature: Civil War to Present	ENGL 2328	ISTM 210 Fundamentals of Information Systems	BCIS 1305
ENGL 231 Survey of English Literature I	ENGL 2322	ISTM 210 Fundamentals of Information Systems	BCIS 1405
ENGL 232 Survey of English Literature II	ENGL 2323	ITAL 101 Beginning Italian I	ITAL 1411
ENGL 235 Elements of Creative Writing	ENGL 2307	ITAL 102 Beginning Italian II	ITAL 1412
FREN 101 Beginning French I	FREN 1411	ITAL 201 Intermediate Italian I	ITAL 2311
FREN 102 Beginning French II	FREN 1412	ITAL 202 Intermediate Italian II	ITAL 2312
FREN 201 Intermediate French I	FREN 2311	JAPN 101 Beginning Japanese I	JAPN 1411
FREN 202 Intermediate French II	FREN 2312	JAPN 102 Beginning Japanese II	JAPN 1412
FSTC 201 Food Science	AGRI 1329	JOUR 102 American Mass Media	COMM 1307
GEOG 201 Introduction to Human Geography	GEOG 1302	JOUR 203 Media Writing I	COMM 2311
GEOG 202 Geography of the Global Village	GEOG 1303	KINE 199 Required Physical Activity	PHED 1-hour activity course
GEOG 203 Planet Earth	GEOG 1301	KINE 213 Foundations of Kinesiology	PHED 1301
GEOL 101 Principles of Geology	GEOL 1303	KINE 214/HLTH 214 Health and Physical Activity for Children	PHED 1331
GEOL 101 AND GEOL 102	GEOL 1403	KINE 215 Fundamentals of Coaching	PHED 1321
		KINE 216/HLTH 216 First Aid	PHED 1306
		MATH 102 Algebra	MATH 1314
		MATH 102 Algebra	MATH 1414

MATH 135 Mathematics for Teachers I	MATH 1350
MATH 136 Mathematics for Teachers II	MATH 1351
MATH 140 Mathematics for Business and Social Sciences	MATH 1324
MATH 142 Business Calculus	MATH 1325
MATH 150 Functions, Trigonometry and Linear Systems	MATH 2412
MATH 151 Engineering Mathematics I	MATH 2413
MATH 152 Engineering Mathematics II	MATH 2414
MATH 251 Engineering Mathematics III	MATH 2315
MATH 253 Engineering Mathematics III	MATH 2415
MGMT 209 Principles of Business Regulations and Law	BUSI 2301
MMET 105 Engineering Graphics	ENGR 1204
MMET 105 Engineering Graphics	ENGR 1304
MMET 275 Mechanics for Technologists	ENGR 2301
MMET 275 Mechanics for Technologists	ENGR 2401
MUSC 102 Fundamentals of Music	MUSI 1303
MUSC 201 Music and the Human Experience	MUSI 1306
MUSC 204 Music Theory I	MUSI 1311
MUSC 205 Music Theory II	MUSI 1312
MUSC 225 History of Jazz	MUSI 1310
NUTR 202 Fundamentals of Human Nutrition	BIOL 1322
NUTR 202 Fundamentals of Human Nutrition	HECO 1322
OCNG 251 The Blue Planet - Our Oceans	GEOL 1345
OCNG 251 AND OCNG 252	GEOL 1445
OCNG 252 The Blue Planet - Our Oceans Laboratory	GEOL 1145
PBSI 107 Introduction to Psychology	PSYC 2301
PBSI 225 Lifespan Development	PSYC 2314
PBSI 245 Introduction to Psychological Science Methods	PSYC 2317
PHIL 111 Contemporary Moral Issues	PHIL 2306
PHIL 240 Introduction to Logic	PHIL 2303
PHIL 251 Introduction to Philosophy	PHIL 1301
PHYS 201 College Physics	PHYS 1301 and PHYS 1101
PHYS 201 College Physics	PHYS 1401
PHYS 202 College Physics	PHYS 1302 and PHYS 1102
PHYS 202 College Physics	PHYS 1402
PHYS 206 Newtonian Mechanics for Engineering and Science	PHYS 2325

PHYS 206 AND PHYS 226	PHYS 2425
PHYS 207 Electricity and Magnetism for Engineering and Science	PHYS 2326
PHYS 207 AND PHYS 227	PHYS 2426
PHYS 226 Physics of Motion Laboratory for the Sciences	PHYS 2125
PHYS 227 Electricity and Magnetism Laboratory for the Sciences	PHYS 2126
POLS 206 American National Government	GOVT 2305
POLS 207 State and Local Government	GOVT 2306
PORT 101 Beginning Portuguese I	PORT 1411
PORT 102 Beginning Portuguese II	PORT 1412
PORT 201 Intermediate Portuguese I	PORT 2311
PORT 202 Intermediate Portuguese II	PORT 2312
RUSS 101 Beginning Russian I	RUSS 1411
RUSS 102 Beginning Russian II	RUSS 1412
RUSS 201 Intermediate Russian I	RUSS 2311
RUSS 202 Intermediate Russian II	RUSS 2312
SCSC 105 World Food and Fiber Crops	AGRI 1307
SCSC 105 World Food and Fiber Crops	AGRI 1407
SOCI 205 Introduction to Sociology	SOCI 1301
SPAN 101 Beginning Spanish I	SPAN 1411
SPAN 102 Beginning Spanish II	SPAN 1412
SPAN 201 Intermediate Spanish I	SPAN 2311
SPAN 202 Intermediate Spanish II	SPAN 2312
SPAN 203 Intermediate Spanish for Heritage Speakers	SPAN 2313
STAT 201 Elementary Statistical Inference	MATH 1342
STAT 201 Elementary Statistical Inference	MATH 1442
TEFB 273 Introduction to Culture, Community, Society and Schools	EDUC 1301
THEA 110 Acting I: Fundamentals	DRAM 1351
THEA 200 Introduction to World Theatre	DRAM 1310
THEA 281 History of the Theatre II	DRAM 2362

¹ Must include a lab.

INDEX

A

AALO - Arabic & Asian Language (AALO)	895	Animal Science - BS, Science Option	158
Accounting - 5-Year Bachelor of Business Administration and Master of Financial Management	511	ANSC - Animal Science (ANSC)	918
Accounting - BBA	510	ANTH - Anthropology (ANTH)	922
Accounting- 5-Year Bachelor of Business Administration and Master of Science	513	Anthropology - BA	276
ACCT - Accounting (ACCT)	895	Anthropology - BA, Archaeology Track	278
Adam C. Sinn '00 Department of Finance	516	Anthropology - BS	279
Admission	52	Anthropology - Minor	281
AERO - Aerospace Engineering (AERO)	897	Appendices	1411
Aerospace Engineering - BS	595	Applied Mathematics - 5-Year Bachelor of Science and Master of Science in Economics	432
AERS - Aerospace Studies (AERS)	900	Applied Mathematics - 5-Year Bachelor of Science and Master of Science in Mathematics	434
Africana Studies - Minor	402	Applied Mathematics - BS, Actuarial Science Emphasis	422
AFST - Africana Studies (AFST)	901	Applied Mathematics - BS, Biological Science Emphasis	424
AGCJ - Ag Comm & Journalism (AGCJ)	904	Applied Mathematics - BS, Computational Science Emphasis	425
AGEC - Agricultural Economics (AGEC)	906	Applied Mathematics - BS, Cryptography Emphasis	426
AGLS - Ag & Life Sciences (AGLS)	910	Applied Mathematics - BS, Economics Emphasis	428
Agribusiness - BS	134	Applied Mathematics - BS, Math Emphasis	429
Agribusiness Entrepreneurship - Minor	144	Applied Mathematics - BS, Statistics Emphasis	431
Agricultural Communications and Journalism - BS	149	ARAB - Arabic (ARAB)	927
Agricultural Communications and Journalism - Minor	152	Arabic Studies - Minor	402
Agricultural Economics - 5-Year Bachelor of Science and Master of Public Service Administration	141	ARCH - Architecture (ARCH)	928
Agricultural Economics - BS, Finance and Real Estate Option	135	Archaeology - Minor	281
Agricultural Economics - BS, Food Marketing Systems Option	137	Architectural Engineering - BS, Mechanical Systems for Buildings Track	690
Agricultural Economics - BS, Policy and Economic Analysis Option	138	Architectural Engineering - BS, Structural Systems for Buildings Track	692
Agricultural Economics - BS, Rural Entrepreneurship Option	139	Architectural Fabrication and Product Design - Minor	242
Agricultural Economics - Minor	145	Architectural Heritage Conservation - Minor	243
Agricultural Education - BS	150	Architecture - BS	241
Agricultural Leadership and Development - BS	151	AREN - Architectural Engr (AREN)	932
Agricultural Systems Management - BS	166	ARSC - Arts & Sciences (ARSC)	934
Agricultural Systems Management - Minor	173	Art - Minor	770
AgriFood Sales - Minor	145	Art and Architecture History - Minor	243
Agronomy - Minor	235	Artie McFerrin Department of Chemical Engineering	602
AGSC - Agricultural Science (AGSC)	911	Artificial Intelligence in Business - Minor	504
AGSM - Agricultrl Systems Mgmt (AGSM)	912	Artificial Intelligence in the Arts - Minor	771
ALEC - Ag Leadrshp, Ed & Comm (ALEC)	914	ARTS - Art (ARTS)	935
ALED - Ag Leadership & Dev (ALED)	916	ASCC - Academic Success Center (ASCC)	937
American Politics and Policy - Minor	740	ASIA - Asian Studies (ASIA)	938
Animal Science - BS, Production/Industry Option	157	ASTR - Astronomy (ASTR)	939
		Astrophysics - Minor	470
		ATMO - Atmospheric Sciences (ATMO)	940
		ATTR - Athletic Training (ATTR)	942

B

BAEN - Biological & Ag Engr (BAEN)	942	Caruth School of Dental Hygiene	543
BEFB - Bilingual Ed Field Based (BEFB)	945	Catalog Publication Statement	14
Behavioral and Cognitive Neuroscience - BS	473	CEHD - Coll of Ed & Human Dev (CEHD)	963
Behavioral Health - Certificate	479	CHEM - Chemistry (CHEM)	964
BESC - Bioenvironmental Sci (BESC)	946	Chemical Engineering - BS	605
BICH - Biochemistry (BICH)	947	Chemistry - 5-Year Bachelor of Science and Master of Science in Chemistry	321
BIMS - Biomedical Science (BIMS)	949	Chemistry - BA	311
Biochemistry - BS	162	Chemistry - BA, Biological Chemistry or Medical, Dental, Pharmacy School Track	312
Biochemistry - Minor	164	Chemistry - BA, Chemical Education Track	314
Bioenvironmental Sciences - BS	215	Chemistry - BA, Environmental Chemistry Track	315
Bioenvironmental Sciences - Minor	218	Chemistry - BS	316
Bioinformatics - BS	491	Chemistry - BS, Biological-Chemistry Track	318
Bioinformatics - Minor	306	Chemistry - BS, Environmental Chemistry Track	319
BIOL - Biology (BIOL)	951	Chemistry - BS, Materials Chemistry Track	320
Biological and Agricultural Engineering - BS	167	Chemistry - Minor	323
Biological and Agricultural Engineering - BS, Agricultural Engineering Track	169	CHEN - Chemical Engineering (CHEN)	967
Biological and Agricultural Engineering - BS, Biological Engineering Track	170	CHIN - Chinese (CHIN)	971
Biological and Agricultural Engineering - BS, Natural Resources Engineering Track	172	Chinese - Minor	403
Biology - BA	298	Choreography - Minor	771
Biology - BS	299	Civil Engineering - BS, Coastal Engineering Track	611
Biology - Minor	307	Civil Engineering - BS, Construction Engineering and Management Track	614
Biomedical Engineering - BS	599	Civil Engineering - BS, Environmental Engineering Track	616
Biomedical Engineering - Minor	601	Civil Engineering - BS, General Civil Engineering Track	618
Biomedical Research - Certificate	811	Civil Engineering - BS, Geotechnical Engineering Track	620
Biomedical Sciences - BS	801	Civil Engineering - BS, Structural Engineering Track	623
Biomedical Sciences - Minor	804	Civil Engineering - BS, Transportation and Infrastructure Materials Engineering Track	625
BMEN - Biomedical Engineering (BMEN)	955	Civil Engineering - BS, Water Resources Engineering Track	627
Board of Regents and Administrative Officers	23	CLAS - Classics (CLAS)	971
BOTN - Botany (BOTN)	959	Classical Studies - Minor	403
BUSH - Geo Bush School of Gov (BUSH)	959	Classics - BA, Classical Civilization Track	390
Bush School of Government and Public Service	713	Classics - BA, Language and Literature Track	392
Business - BS	501	CLEN - College of Engineering (CLEN)	974
Business - Minor	504	Climate Change - Minor	287
Business Honors - BBA	502	Clinical Laboratory Sciences - Minor	851
Business of Technology - Certificate	504	Coaching - Minor	571
BUSN - Mays Business School (BUSN)	960	Coastal Environmental Science and Society - 5-Year Bachelor of Science and Master of Marine Resources Management	854
		Coastal Environmental Science and Society - BS	852
		Coastal Environmental Science and Society - Minor	858
		Coffee Processing and Quality - Certificate	196

C

Campus Life	93
CARC - College of Architecture (CARC)	962

College of Agriculture and Life Sciences	126
College of Architecture	237
College of Arts and Sciences	261
College of Dentistry	543
College of Education and Human Development	546
College of Engineering	584
College of Marine Sciences and Maritime Studies	849
College of Nursing	749
College of Performance, Visualization and Fine Arts	759
College of Veterinary Medicine and Biomedical Sciences	800
COMM - Communication (COMM)	975
Commercial Banking - Certificate	519
Communication - 5-Year Bachelor of Arts and Master of Arts in Communication	327
Communication - 5-Year Bachelor of Science and Master of Arts in Communication	330
Communication - BA	326
Communication - BS	329
Communication - Minor	344
Communication Leadership and Conflict Management - Certificate	344
Comparative Cultural Studies International - Minor	404
Comparative Politics - Minor	741
Computer Engineering - BS	635
Computer Engineering - BS	644
Computer Science - BA	637
Computer Science - BS	638
Computer Science - Minor	640
Construction Science - BS	248
Corporate Finance - Certificate	519
Corrosion Science and Engineering - Certificate	681
COSC - Construction Science (COSC)	980
Course Descriptions	895
Creative Studies - Minor	558
Criminology - Minor	488
CSCE - Computer Sci & Engr (CSCE)	985
Culinary Health - Certificate	214
CULN - Culinology (CULN)	990
Cultural Discourse Requirements	48
CVEN - Civil Engineering (CVEN)	990
Cyber Operations - Certificate	641
Cybersecurity - Minor	640
CYBR - Cybersecurity (CYBR)	994

D

DAEN - Data Engineering (DAEN)	995
Dance Performance - Minor	771
Dance Science - BS	763
DASC - Dairy Science (DASC)	997
Data Analytics for Petroleum Industry - Certificate	711
Data Center Operations Engineering - Certificate	675
Data Engineering - BS	668
Data Engineering - Certificate	676
DCED - Dance Education (DCED)	997
DDHS - Dental Hygiene (DDHS)	1001
Degree and Program Information	32
Dental Hygiene - BS	544
Department of Aerospace Engineering	593
Department of Aerospace Studies	813
Department of Agricultural Economics	131
Department of Agricultural Leadership, Education, and Communications	147
Department of Animal Science	155
Department of Anthropology	275
Department of Architecture	239
Department of Atmospheric Sciences	283
Department of Biochemistry and Biophysics	160
Department of Biological and Agricultural Engineering	165
Department of Biology	288
Department of Biomedical Engineering	597
Department of Chemistry	308
Department of Communication and Journalism	324
Department of Computer Science and Engineering	632
Department of Construction Science	244
Department of Ecology and Conservation Biology	174
Department of Economics	346
Department of Educational Administration and Human Resource Development	548
Department of Educational Psychology	552
Department of Electrical and Computer Engineering	642
Department of Engineering Technology and Industrial Distribution	648
Department of English	358
Department of Entomology	183
Department of Food Science and Technology	192
Department of Foundational Sciences	850
Department of Geography	368
Department of Geology and Geophysics	377

Department of Global Languages and Cultures	389	Diving Technology and Methods - Minor	875
Department of History	410	Division of Arts and Sciences	893
Department of Horticultural Sciences	197	E	
Department of Hospitality, Hotel Management and Tourism	202	Early Childhood Development and Education - BS, Leadership Track ...	575
Department of Information and Operations Management	520	Early Childhood Development and Education - BS, Teaching (Non-Licensure) Track	576
Department of International Affairs	726	ECCB - Eco & Conservation Biol (ECCB)	1004
Department of Kinesiology and Sport Management	559	ECDE - Early Chldhd Devl & Educ (ECDE)	1009
Department of Landscape Architecture and Urban Planning	250	ECEN - Electrical & Comp Engr (ECEN)	1009
Department of Management	525	ECFB - Early Chldhd Ed Fld Based (ECFB)	1015
Department of Marine and Coastal Environmental Science	851	ECHE - Early Chldhd Ed Fld Based (ECHE)	1016
Department of Marine Biology	858	ECMT - Econometrics (ECMT)	1016
Department of Marine Engineering Technology	864	Ecology and Conservation Biology - BS, Ecoinformatics Track	175
Department of Maritime Business Administration	868	Ecology and Conservation Biology - BS, Ecology and Conservation Biology Track	177
Department of Maritime Studies	873	Ecology and Conservation Biology - BS, Forest Resources Track	178
Department of Maritime Transportation	876	Ecology and Conservation Biology - BS, Teaching Track	180
Department of Marketing	533	Ecology and Conservation Biology - BS, Vertebrate Zoology Track	181
Department of Materials Science and Engineering	677	Ecology and Conservation Biology - Minor	182
Department of Mathematics	417	ECON - Economics (ECON)	1016
Department of Military Science	813	Economics - 5-Year Bachelor of Arts and Master of International Affairs	349
Department of Multidisciplinary Engineering	688	Economics - 5-Year Bachelor of Arts and Master of Public Service Administration	350
Department of Naval Science	815	Economics - 5-Year Bachelor of Arts and Master of Science in Economics	352
Department of Nuclear Engineering	701	Economics - 5-Year Bachelor of Science and Master of International Affairs	354
Department of Nutrition	210	Economics - 5-Year Bachelor of Science and Master of Public Service Administration	355
Department of Ocean Engineering	704	Economics - 5-Year Bachelor of Science and Master of Science in Economics	356
Department of Oceanography	445	Economics - BA	348
Department of Philosophy	452	Economics - BS	353
Department of Physics and Astronomy	458	Economics - Minor	358
Department of Plant Pathology and Microbiology	215	EDCI - Educ Curriculum & Dev (EDCI)	1019
Department of Political Science	733	Education - BS, Bilingual Education EC-6	555
Department of Poultry Science	218	Education - BS, Early Childhood-3 Certification	577
Department of Psychological and Brain Sciences	471	Education - BS, English Language Arts/Social Studies, Middle Grades Certification	578
Department of Public Service and Administration	743	Education - BS, Math/Science, Middle Grades Certification	579
Department of Rangeland, Wildlife and Fisheries Management	221	Education - BS, Pre-K-6, Generalist Certification	580
Department of Sociology	481	Education - BS, Special Education EC-12	556
Department of Soil and Crop Sciences	230	Educational Supports for Individuals with Disabilities - Minor	559
Department of Statistics	490	EHRD - Ed Human Res Develop (EHRD)	1020
Department of Teaching, Learning and Culture	572		
Department of Veterinary Integrative Biosciences	806		
Department of Veterinary Pathobiology	808		
Department of Veterinary Physiology and Pharmacology	810		
Devised Theatre - Minor	772		
DIVE - Diving Tech and Methods (DIVE)	1003		

Electrical Engineering - BS	646	Film and Media Studies - Minor	772
Electrical Engineering - Minor	648	Finance - BBA	518
Electronic Systems Engineering Technology - BS	654	Financial Planning - BS	143
Embedded Systems Integration - Minor	665	Financial Planning - Minor	146
ENDG - Engr Design Graphics (ENDG)	1021	FINC - Finance (FINC)	1043
ENDS - Environmental Design (ENDS)	1021	FINP - Financial Planning (FINP)	1046
Energy Accounting - Certificate	515	FIVS - Forensic & Inv Science (FIVS)	1047
Engineering Concept, Creation, and Commercialization - Certificate	591	Floral Design - Certificate	201
Engineering Entrepreneurship - Minor	699	Food Diversity - Certificate	197
Engineering Project Management - Minor	700	Food Engineering - Minor	173
Engineering Systems Management - Certificate	676	Food Science and Technology - BS, Food Industry Option	192
Engineering Therapeutics Manufacturing - Certificate	606	Food Science and Technology - BS, Food Science Option	194
ENGL - English (ENGL)	1021	Forensic and Investigative Sciences - BS, Pre-Law Emphasis	187
English - 5-Year Bachelor of Arts and Master of Arts in English	364	Forensic and Investigative Sciences - BS, Science Emphasis	189
English - BA	360	FREN - French (FREN)	1049
English - BA, Middle School Teacher Certification	362	French - Minor	405
English - Minor	366	FSCI - Foundational Sciences (FSCI)	1050
ENGR - Engineering (ENGR)	1029	FSTC - Food Science & Tech (FSTC)	1051
ENST-Environmental Studies (ENST)	1031	FYEX - First Year Experience (FYEX)	1053
ENTC - Engineering Technology (ENTC)	1031	G	
ENTO - Entomology (ENTO)	1031	GALV - TAMU-Galveston	1053
Entomology - BS	184	Game Design and Development - Minor	641
Entomology - Minor	190	Game Design and Development - Minor	773
Entrepreneurship - Minor	122	Gender and Health - Minor	274
Environmental Engineering - BS	630	GENE - Genetics (GENE)	1053
Environmental Soil Science - Minor	236	General Information	25
Environmental Studies - BS	217	General Information	823
Environmental Studies - BS	266	General Information	883
Environmental Systems Science - BS	269	Genetics - BS	163
Environmental Systems Science - Minor	274	Genetics - Minor	165
EPFB - Educ Psyc Field Based (EPFB)	1034	GEOG - Geography (GEOG)	1055
EPSY - Educational Psychology (EPSY)	1034	Geographic Information Science and Technology - 5-Year Bachelor of Science and Master of Science in Geography	371
Equine Science - Certificate	160	Geographic Information Science and Technology - BS	369
ESET - Electronic Sys Eng Tech (ESET)	1036	Geographic Information Science and Technology - Minor	376
EURO - European Studies (EURO)	1038	Geography - 5-Year Bachelor of Science and Master of Geoscience in Geoscience	373
EVEN - Environmental Engr (EVEN)	1039	Geography - 5-Year Bachelor of Science and Master of Science in Geography	375
Extension Education - Minor	153	Geography - BS	372
F		Geography - Minor	377
Facility Management - Minor	249	GEOL - Geology (GEOL)	1059
Faculty	1273	Geology - 5-Year Bachelor of Science and Master of Ocean Science and Technology	383
Family Educational Rights and Privacy Act	1411		
FILM - Film Studies (FILM)	1041		

Geology - 5-Year Bachelor of Science and Master of Science in Geology	385	Hospitality, Hotel Management and Tourism - BS, Event, Tourism and Recreation Management Track	204
Geology - BA	379	Hospitality, Hotel Management and Tourism - BS, Hotel and Resort Management Track	205
Geology - BS	382	Hospitality Management - Certificate	207
Geology - Minor	388	Housing	83
GEOP - Geophysics (GEOP)	1062	HUMA - Humanities (HUMA)	1089
Geophysics - 5-Year Bachelor of Science and Master of Science in Geophysics	387	Human Development and Family Sciences - BS	557
Geophysics - BS	386	Human Resource Development - BS	549
GERM - German (GERM)	1063	Human Resource Development - Minor	552
German - Minor	406		
GLST - Global Studies (GLST)	1065		
Grading System	81	IBUS - International Business (IBUS)	1089
Graphic Design - Minor	773	IDIS - Industrial Distribution (IDIS)	1091
H		Industrial Distribution - BS	655
Harold Vance Department of Petroleum Engineering	707	Industrial Engineering - 5-Year Bachelor of Science and Master of Public Health in Occupational Safety and Health	671
Hazing Law (Education Code)	1412	Industrial Engineering - 5-year Bachelor of Science and Master of Science in Finance	673
HBRW - Hebrew (HBRW)	1067	Industrial Engineering - BS	670
Health Behavior - Minor	798	Industrial Engineering - Minor	675
Health Communication - Certificate	345	Information Technology Service Management - Minor	665
Health Humanities - Minor	366	INST - Interdisciplinary Studies (INST)	1092
Healthy Development - Certificate	479	INTA - International Affairs (INTA)	1093
HEFB - Health Ed Field Based (HEFB)	1067	Interdisciplinary Engineering - 5-Year Bachelor of Science and Master of Public Health in Occupational Safety and Health	695
HHUM - Health Humanities (HHUM)	1067	Interdisciplinary Engineering - 6-Year Bachelor of Science and Juris Doctor	697
HISP - Hispanic Studies (HISP)	1068	Interdisciplinary Engineering - BS	693
Hispanic Studies for Community Engagement - Minor	406	Interdisciplinary Programs	122
HIST - History (HIST)	1069	Interdisciplinary Studies - Certificate	559
History - 5-Year Bachelor of Arts and Master of Arts in History	414	Internal Audit - Certificate	515
History - BA	412	International Affairs - 5-Year Bachelor of Arts and Master of International Affairs	730
History - BS	415	International Affairs - BA	729
History - Minor	416	International Agreements	1413
History and Development	25	International Agricultural Development - Minor	153
HLTH - Health (HLTH)	1079	International and Cultural Diversity Requirements	49
HMGH - Hosp, Hotel Mgmt, Tour (HMGH)	1081	International Business Studies - Certificate	505
Holistic Leadership in Engineering - Certificate	592	International Engineering - Certificate	592
Homeland Security and Emergency Management - Minor	747	International Opportunities for Students	114
Honors - Minor	124	International Relations - Minor	741
Honors, Undergraduate Research and National Fellowships	116	International Trade and Agriculture - Certificate	146
HORT - Horticultural Sciences (HORT)	1085	ISEN - Indust & Systems Engr (ISEN)	1095
Horticulture - BA	198	ISTM - Mgmt Info Systems (ISTM)	1098
Horticulture - BS	200	ITAL - Italian (ITAL)	1102
Horticulture - Minor	201		
Hospitality, Hotel Management and Tourism - BS, Business Hospitality Track	203		

Italian - Minor	407
ITDE - Interdisciplinary Engr (ITDE)	1103
ITSV - Info Tech Service Mgmt (ITSV)	1104

J

J. Mike Walker '66 Department of Mechanical Engineering	682
James Benjamin Department of Accounting	507
Japanese - Minor	407
JAPN - Japanese (JAPN)	1105
Jeanne Clery Campus Safety Act (Clery Act)	1416
Jewish Studies - Minor	408
JOUR - Journalism (JOUR)	1106
Journalism - 5-Year Bachelor of Arts and Master of Arts in Communication	333
Journalism - 5-year Bachelor of Science and Master of Arts in Communication	336
Journalism - BA	332
Journalism - BS	335
Journalism - Minor	344
JWST - Jewish Studies (JWST)	1109

K

KINE - Kinesiology (KINE)	1109
Kinesiology - 5-Year Bachelor of Science and Master of Science in Athletic Training	568
Kinesiology - BS, Dance Science Track	764
Kinesiology - BS, Exercise and Sport Science Track	563
Kinesiology - BS, Exercise Science Track, Applied Exercise Physiology Concentration	564
Kinesiology - BS, Exercise Science Track, Basic Exercise Physiology Concentration	566
Kinesiology - BS, Exercise Science Track, Motor Behavior Concentration	567
KNFB - Kinesiology Field Based (KNFB)	1112

L

LAND - Landscape Architecture (LAND)	1113
Landscape Architecture - BLA	252
Latino/a and Mexican-American Studies - Minor	488
Leadership - Minor	124
Leadership - Minor	154
Leadership in the Design and Construction Professions - Minor	249
Learning Technology and Performance Systems - BS	550
Learning Technology and Performance Systems - Minor	552
Legal Foundations - Minor	742
Legal History - Certificate	417
LING - Linguistics (LING)	1115

LMAS - Latino/Mex Amer Studies (LMAS)	1115
LTPS - Learn Tech & Perf Sys (LTPS)	1116

M

Management - BBA, Consulting/General Management Track	527
Management - BBA, Entrepreneurial Leadership Track	529
Management - BBA, Human Resource Management Track	530
Management - BBA, Pre-Law Track	531
Management Consulting - Certificate	507
Management Information Systems - BBA	522
Manufacturing and Mechanical Engineering Technology - BS	657
MARA - Maritime Administration (MARA)	1117
MARB - Marine Biology (MARB)	1119
MARE - Marine Engr Technology (MARE)	1122
Marine Biology - BS	859
Marine Biology - BS, License Option	861
Marine Biology - Minor	863
Marine Electro-Technology - Minor	868
Marine Engineering Technology - BS	865
Marine Engineering Technology - BS, License Option	866
Marine Engineering Technology - Minor	868
Marine Fisheries - BS	862
Marine Fisheries - Minor	864
Marine Sciences - BS	855
Marine Sciences - BS, License Option	856
Marine Transportation - BS	877
Maritime Business Administration - 5-Year Bachelor of Science and Master of Maritime Business Administration and Logistics	871
Maritime Business Administration - BS	869
Maritime Business Administration - Minor	872
Maritime Cybersecurity - Minor	872
Maritime Environmental Law and Policy - Minor	876
Maritime Studies - BA	874
Marketing - BBA, Advertising Strategy Track	534
Marketing - BBA, Analytics and Consulting Track	536
Marketing - BBA, Healthcare Marketing Track	537
Marketing - BBA, Professional Selling and Sales Management Track ...	538
Marketing - BBA, Strategic Retailing Track	540
MARR - Marine Engr Technology (MARR)	1126
MARS - Marine Science (MARS)	1126
MART - Marine Transportation (MART)	1129
MASC - Integrated Math & Sci (MASC)	1132
MASE - Maritime Systems Engr (MASE)	1133

MAST - Maritime Studies (MAST)	1133	Music - Minor	773
Materials Science and Engineering - BS	679	Music Performance - BFA	765
Materials Science and Engineering - Minor	680	Music Technology - Minor	774
MATH - Mathematics (MATH)	1135	MUST - Museum Studies (MUST)	1166
Mathematics - 5-Year Bachelor of Arts and Master of Science in Mathematics	439	MXET - Multidiscip Engr Tech (MXET)	1166
Mathematics - 5-Year Bachelor of Science and Master of Science in Mathematics	442	N	
Mathematics - BA	436	NAUT - Nautical Science (NAUT)	1167
Mathematics - BA, Teaching Emphasis	437	Nautical Archaeology - Minor	283
Mathematics - BS	440	Neuroscience - BS, Behavioral and Cognitive Neuroscience	474
Mathematics - Minor	444	Neuroscience - BS, Molecular and Cellular Neuroscience	304
Mays Business School	497	Neuroscience - Minor	307
Meat Science - Certificate	160	Nonprofit Studies - Minor	747
Mechanical Engineering - BS	686	Notification for Students Pursuing a License	1416
Medical Anthropology - Minor	282	NRSC - Neuroscience (NRSC)	1167
MEEN - Mechanical Engineering (MEEN)	1140	Nuclear Engineering - BS	702
MEFB - Mid Grds Ed Field Based (MEFB)	1145	Nuclear Engineering - Minor	703
MEPS - Molecular & Env Plant Sci (MEPS)	1145	NUEN - Nuclear Engineering (NUEN)	1168
Meteorology - 5-Year Bachelor of Science and Master of Ocean Science and Technology	285	NURS - Nursing (NURS)	1170
Meteorology - BS	284	Nursing - BSN, Honors	752
Meteorology - Minor	287	Nursing - BSN, RN to BSN Track	753
MGMT - Management (MGMT)	1146	Nursing - BSN, Second Degree BSN Track	755
MICR - Microbiology (MICR)	1149	Nursing - BSN, Traditional BSN	756
Microbiology - BS	301	NUTR - Nutrition (NUTR)	1175
Military Studies - Minor	816	Nutrition - BS, Didactic Program in Dietetics Track	211
MKTG - Marketing (MKTG)	1149	Nutrition - BS, Human Health Track	212
MLSC - Military Science (MLSC)	1151	Nutrition - Minor	214
MMET - Mfg & Mech Engr Tech (MMET)	1152	NVSC - Naval Science (NVSC)	1178
Modern Languages - BA, French Option	393	O	
Modern Languages - BA, German Option	394	Oak Ridge Associated Universities (ORAU)	1416
Modern Languages - BA, Russian Option	396	Occupational Safety and Health - Minor	799
MODL - Modern Languages (MODL)	1155	Ocean Engineering - BS	705
Molecular and Cell Biology - BS	302	Ocean Studies - BA	451
MSEN - Materials Science & Engr (MSEN)	1155	Oceanography - 5-Year Bachelor of Science and Master of Ocean and Science Technology	448
MSTC - Music Technology (MSTC)	1158	Oceanography - BS	446
MTDE - Multidisciplinary Engr (MTDE)	1159	Oceanography - Minor	452
Multidisciplinary Engineering Technology - BS, Electro Marine Engineering Technology Track	659	OCEN - Ocean Engineering (OCEN)	1179
Multidisciplinary Engineering Technology - BS, Mechatronics Track ...	661	OCNG - Oceanography (OCNG)	1182
Multidisciplinary Engineering Technology - BS, STEM Education Track	663	Office for Student Success	86
MUSC - Music (MUSC)	1161	Orientation	84
Museum Studies - Minor	282	P	
		Park and Natural Resource Management - Minor	229

PBSI - Psyc & Brain Sciences (PBSI)	1184	Professional Event Management - Certificate	208
PERF - Performance Studies (PERF)	1192	Professional Writing - Minor	367
Performance and Visual Studies - BA	767	Proficiency in Modern Languages - Certificate	410
Performance Studies - Minor	774	Psychology - BA	475
PETE - Petroleum Engineering (PETE)	1195	Psychology - BS	477
Petroleum Engineering - BS	709	Psychology - Minor	479
Petroleum Ventures - Certificate	711	Psychology of Diversity - Certificate	480
PHIL - Philosophy (PHIL)	1198	Public Health - 5-year Bachelor of Science and Master of Public Health in Epidemiology	786
Philosophy - 5-Year Bachelor of Arts and Master of Arts in Philosophy ..	455	Public Health - 5-Year Bachelor of Science and Master of Public Health in Health Behavior	792
Philosophy - BA	453	Public Health - 5-Year Bachelor of Science and Master of Public Health in Health Policy and Management	789
Philosophy - Minor	457	Public Health - 5-year Bachelor of Science and Master of Public Health in Occupational Safety and Health	795
Philosophy Pre-Law - Certificate	458	Public Health - BS, Internship Track	781
PHLT - Public Health (PHLT)	1201	Public Health - BS, Non-Internship Track	783
PHYS - Physics (PHYS)	1205	Public Health Entomology - Certificate	191
Physics - BA	461	Public Health Studies - Minor	799
Physics - BS	462	Public Management - Minor	748
Physics - BS, Astrophysics Track	463	Public Policy Analysis - Minor	748
Physics - BS, Business Track	464	Public Service and Administration - BA	745
Physics - BS, Computational Science Track	465	Public Service and Administration - BS	746
Physics - BS, Physical Science Teaching Track	466	Purpose/Accreditation	12
Physics - BS, Physics and Mathematics Teaching Track	468	PVFA - Perf Vis Fine Arts (PVFA)	1215
Physics - BS, Semiconductors and Modern Materials Track	469		
Physics - Minor	471	R	
Plant and Environmental Soil Science - BS, Crops Emphasis	232	Race, Ethnicity, and Gender Politics - Minor	743
Plant and Environmental Soil Science - BS, Soil and Water Emphasis ..	233	Radiological Health Engineering - Minor	704
Plant Breeding - Minor	236	Rangeland Management - Minor	230
PLPA - Plant Pathology (PLPA)	1208	Rangeland, Wildlife and Fisheries Management - BS, Aquaculture and Fisheries Management Track	222
Political Data and Research - Minor	742	Rangeland, Wildlife and Fisheries Management - BS, Natural Resources Management and Policy Track	223
Political Science - 5-Year Bachelor of Arts and Master of Public Service Administration	737	Rangeland, Wildlife and Fisheries Management - BS, Outdoor Enterprise Management Track	225
Political Science - 5-Year Bachelor of Science and Master of Public Service Administration	739	Rangeland, Wildlife and Fisheries Management - BS, Rangeland Management Track	226
Political Science - BA	735	Rangeland, Wildlife and Fisheries Management - BS, Wildlife Management Track	227
Political Science - BS	738	Rangeland, Wildlife and Fisheries Management- 5-year Bachelor of Science and Master of Public Service Administration	228
Political Theory - Minor	742	RDNG - Reading (RDNG)	1216
POLS - Political Science (POLS)	1209	Recreation and Park Management - Certificate	208
Polymer Specialty - Certificate	682	Recreation Management - Minor	207
PORT - Portuguese (PORT)	1213	Registration and Academic Status	79
POSC - Poultry Science (POSC)	1214	Religious Studies - Minor	408
Poultry Science - BS, Industry Emphasis	219		
Poultry Science - BS, Technical Emphasis	220		
Poultry Science - Minor	221		
Pre-Medicine - Minor	308		

RELS - Religious Studies (RELS)	1217	Statistics - 5-Year Bachelor of Science and Master of Science in Statistical Data Science	494
RPTS - Rec, Park & Tourism Sci (RPTS)	1220	Statistics - BS	493
Rules and Regulations for Determining Residence Status	1417	Statistics - Minor	496
RUSS - Russian (RUSS)	1221	Strategic Communication - Certificate	346
Russian - Minor	409	Student Learning Outcomes	31
RWFM - Rang Wild & Fish Mgmt (RWFM)	1222	Studio Art - Minor	775
S		Supply Chain Management - BBA	524
Safety Engineering - Certificate	607	Sustainable Architecture and Planning - Minor	244
Scholarships & Financial Aid	106	T	
Scholastic Honor Societies	1417	TCMG - Technology Management (TCMG)	1250
School of Military Sciences	813	Technical Sales - Minor	666
School of Public Health	776	TEED - Teacher Education (TEED)	1250
Science Fiction and Fantasy Studies- Minor	368	TEFB - Teacher Ed Field Based (TEFB)	1250
SCMT - Supply Chain Mgmt (SCMT)	1227	Telecommunication Media Studies - 5-Year Bachelor of Arts and Master of Arts in Communication	339
SCSC - Soil and Crop Sciences (SCSC)	1229	Telecommunication Media Studies - 5-Year Bachelor of Science and Master of Arts in Communication	342
Secondary Education - Clinical Teaching Minor	581	Telecommunication Media Studies - BA	338
Secondary Education - Minor	582	Telecommunication Media Studies - BS	341
Secondary Graduate Certification Program	582	Texas A&M University at Galveston	818
SEFB - Special Ed Field Based (SEFB)	1232	Texas A&M University at Qatar	882
SENG - Safety Engineering (SENG)	1232	Texas Common Course Numbering System	1417
Services for Students	86	THEA - Theatre (THEA)	1251
SOCI - Sociology (SOCI)	1233	Theatre – BFA	768
Social Media - Certificate	345	Tourism Management - Certificate	209
Society, Ethics, and Law - BA	456	Tourism Management - Minor	207
Sociology - 5-Year Bachelor of Arts and Master of Public Service Administration	483	Trading, Risk and Investments - Certificate	520
Sociology - 5-Year Bachelor of Science and Master of Public Service Administration	486	Transition Academic Programs	121
Sociology - BA	482	Tuition, Fees and Other Financial Information	98
Sociology - BS	485	Turfgrass Science - BS	234
Sociology - Minor	489	U	
SOMS - Schl of Military Sciences (SOMS)	1237	UGST - Undergraduate Studies (UGST)	1253
SPAN - Spanish (SPAN)	1238	University Academic Calendars	15
Spanish - BA	397	University Core Curriculum	26
Spanish - Minor	409	University Policies	110
Spanish for the Health Professions - Minor	410	University Studies	260
SPED - Special Education (SPED)	1242	University Studies	541
SPEN - Space Engineering (SPEN)	1244	University Studies	805
SPMT - Sport Management (SPMT)	1245	University Studies - BA, Race, Gender, Ethnicity Concentration	399
Sport Management - BS	570	University Studies - BS, Biomedical Sciences Concentration	805
Sport Management - Minor	571	University Studies - BS, Business Concentration	541
Sport Nutrition - Certificate	214		
STAT - Statistics (STAT)	1248		

University Studies - BS, Global Arts, Planning, Design and Construction Concentration	260	Zoology - BS	305
University Studies - BS, Mathematics for Teaching Concentration	444		
University Studies - BS, Oceans and One Health Concentration	879		
University Studies - BS, Race, Gender, Ethnicity Concentration	400		
University Studies - BS, Tourism and Coastal Community Development Concentration	880		
University Studies Programs	879		
Urban and Regional Planning - 5-Year Bachelor of Science and Master of Land and Property Development	256		
Urban and Regional Planning - 5-Year Bachelor of Science and Master of Urban Planning	258		
Urban and Regional Planning - 6-Year Bachelor of Science and Master of Landscape Architecture	255		
Urban and Regional Planning - BS, Urban Design Track	253		
Urban and Regional Planning - BS, Urban Policy Track	254		
Urban and Regional Planning - Minor	259		
URPN - Urban & Reg Planning (URPN)	1254		
V			
VIBS - Vet Integrative Biosci (VIBS)	1257		
Virtual Production - Minor	775		
VIST - Visual Studies (VIST)	1259		
Visualization - BS	769		
Viticulture and Enology - Certificate	202		
VLCS - Vet Large Animal Clin Sc (VLCS)	1264		
VSCS - Vet Small Animal Clin Sc (VSCS)	1264		
VTPB - Veterinary Pathobiology (VTPB)	1264		
VTPP - Vet Physiology & Pharm (VTPP)	1266		
W			
WFSC - Wildlife & Fisheries Sci (WFSC)	1268		
WGST - Women's & Gender Studies (WGST)	1268		
Wildlife and Fisheries Management - Minor	230		
Wm Michael Barnes '64 Department of Industrial and Systems Engineering	666		
Women's and Gender Studies - BA	271		
Women's and Gender Studies - BS	272		
Women's and Gender Studies - Minor	275		
Work and Organizations - Certificate	480		
Y			
Youth Development - Certificate	209		
Youth Development - Minor	154		
Z			
Zachry Department of Civil and Environmental Engineering	607		
ZOOL - Zoology (ZOOL)	1271		